

University of Mumbai



No. AAMS(UG)/104 of 2021-22

CIRCULAR:-

Attention of the Principals of the Affiliated Colleges and Directors of the Recognized Institutions in Faculty of Science & Technology.

They are hereby informed that the recommendations made by the Board of Studies in Chemistry at its online meeting held on 8th June, 2021 vide Item No. 1 and subsequently passed by the Board of Deans at its online meeting held on 11th June, 2021 vide item No. 6.34 (R) have been accepted by the Academic Council at its meeting held on 29th June, 2021 vide item No. 6.34 (R) and that in accordance therewith, Approval for revised syllabi of T.Y.B.Sc. (Sem – V & VI) in order to include Case study component at T.Y.B.Sc. in Sem – VI in place of applied component practicals of 2 credits in Chemistry, has been brought into force with effect from the academic year 2021-22 accordingly. (The same is available on the University's website www.mu.ac.in).

MUMBAI – 400 032

8th October, 2021

(Dr. B.N.Gaikwad)
I/c REGISTRAR

To

The Principals of the Affiliated Colleges and Directors of the Recognized Institutions in Faculty of Science & Technology.

A.C/6.34 (R) 29/06/2021

No. AAMS(UG)/104 -A of 2021-22

MUMBAI-400 032

8th October, 2021

Copy forwarded with Compliments for information to:-

- 1) The Dean, Faculty of Science & Technology,
- 2) The Chairman, Board of Studies in Chemistry,
- 3) The Director, Board of Examinations and Evaluation,
- 4) The Director, Board of Students Development,
- 5) The Co-ordinator, University Computerization Centre,

(Dr. B.N.Gaikwad)
I/c REGISTRAR

Copy to :-

- 1. The Deputy Registrar, Academic Authorities Meetings and Services (AAMS),**
- 2. The Deputy Registrar, College Affiliations & Development Department (CAD),**
- 3. The Deputy Registrar, (Admissions, Enrolment, Eligibility and Migration Department (AEM),**
- 4. The Deputy Registrar, Research Administration & Promotion Cell (RAPC),**
- 5. The Deputy Registrar, Executive Authorities Section (EA),**
- 6. The Deputy Registrar, PRO, Fort, (Publication Section),**
- 7. The Deputy Registrar, (Special Cell),**
- 8. The Deputy Registrar, Fort/ Vidyanagari Administration Department (FAD) (VAD), Record Section,**
- 9. The Director, Institute of Distance and Open Learning (IDOL Admin), Vidyanagari,**

They are requested to treat this as action taken report on the concerned resolution adopted by the Academic Council referred to in the above circular and that on separate Action Taken Report will be sent in this connection.

- 1. P.A to Hon'ble Vice-Chancellor,**
- 2. P.A Pro-Vice-Chancellor,**
- 3. P.A to Registrar,**
- 4. All Deans of all Faculties,**
- 5. P.A to Finance & Account Officers, (F.& A.O),**
- 6. P.A to Director, Board of Examinations and Evaluation,**
- 7. P.A to Director, Innovation, Incubation and Linkages,**
- 8. P.A to Director, Board of Lifelong Learning and Extension (BLLE),**
- 9. The Director, Dept. of Information and Communication Technology (DICT) (CCF & UCC), Vidyanagari,**
- 10. The Director of Board of Student Development,**
- 11. The Director, Department of Students Welfare (DSD),**
- 12. All Deputy Registrar, Examination House,**
- 13. The Deputy Registrars, Finance & Accounts Section,**
- 14. The Assistant Registrar, Administrative sub-Campus Thane,**
- 15. The Assistant Registrar, School of Engg. & Applied Sciences, Kalyan,**
- 16. The Assistant Registrar, Ratnagiri sub-centre, Ratnagiri,**
- 17. The Assistant Registrar, Constituent Colleges Unit,**
- 18. BUCTU,**
- 19. The Receptionist,**
- 20. The Telephone Operator,**
- 21. The Secretary MUASA**

for information.

University of Mumbai
T. Y. B. Sc. Chemistry
Applied Component
Drugs and Dyes Practicals
SEMESTER V

COURSE CODE: USACDD5P1

CREDITS: 02

Estimations:

1. Estimation of Ibuprofen from the commercial tablet (back titration method)
2. Estimation of Acid neutralizing capacity of a drug
3. Estimation of Tincture iodine from commercial sample

Preparations:

4. Preparation of Aspirin from salicylic acid.
5. Preparation of Fluorescein
6. O-Methylation of β -naphthol
7. Separation of components of natural pigments by paper chromatography (eg: chlorophylls)
8. TLC of a mixture of dyes (safranin-T, Indigo carmine, methylene blue)

University of Mumbai
T. Y. B. Sc. Chemistry
Applied Component
PETROCHEMICALS
SEMESTER V

COURSE CODE: USACPET5P1 CREDITS: 02

Applied Experiments:

1. Determination of Specific gravity and viscosity of Oil
2. To check the quality of Petrol
3. To check the quality of Diesel

Experiments:

4. Determination of acid number of an oil.
5. Determination of acidity and alkalinity of given hydrocarbon
6. Estimation of Formaldehyde from given formalin sample

Preparations:

7. Benzoylation of β -naphthol
8. Phthalic anhydride to phthalimide
9. Cinnamic acid to dibromocinnamic acid

University of Mumbai
T. Y. B. Sc. Chemistry
Applied Component
Heavy and Fine Chemicals
SEMESTER V

COURSE CODE: USACHFC5P1

CREDITS: 02

Preparation: (Micro scale)

1. Double salt (Ferric alum)
2. Copper sulphate pentahydrate.
3. Green synthesis of benzillic acid from benzil

Estimations:

4. Determination of the amount of phosphoric acid from a given sample using 1-naphtholphthalein and phenolphthalein indicator. (Students to prepare succinic acid solution for standardization of NaOH).
5. Determination of the amount of magnesium hydroxide in a commercial sample of milk of magnesia.
6. Estimation of tincture iodine from commercial sample.
7. Estimation of methyl salicylate. (Back titration method)

**University of Mumbai
T. Y. B. Sc. Chemistry**

**The Regional Case-Study Project
COURSE CODE: USACDD6P2/ USACPET6P2/ USACHFC6P2
CREDITS: 02
SEMESTER VI**

Introduction:

As per the guidelines from UGC, HEIs are expected to introduce a compulsory course to provide community engagement to all undergraduate students so that their appreciation of social realities is holistic, respectful and inspiring. Such course will enable students to learn about rural/urban challenges and develop understanding of social wisdom and life-style in a respectful manner.

Objectives:

- To develop an appreciation of rural/urban culture, life style and wisdom amongst students.
- To understand a real life situation about a problem.
- To apply classroom knowledge of Chemistry courses to field realities and thereby improve quality of learning.
- To interact with key stakeholders such as government officials, people representatives, common people etc.
- To communicate key findings of the study to stakeholders.

Learning Outcomes:

- After completing course, students will be able to
- Gain an understanding of rural/urban life, culture and social realities
 - Gain an understanding real-life problems
 - Develop a sense of empathy and bonds of mutuality with local community
 - Learn to value the local knowledge and wisdom of the community
 - Identify opportunities for contributing to community's socio-economic improvement

Credits: 2 credits, 30 hours

Course Contents:

Part-I Theory of case study:

- Introduction to case study
- What is a case study?
- Types of case studies
- Planning a Case Study
- Researching a Case Study
- Strengths and Weaknesses of Case Studies
- Writing a Case Study
- References

Part II Case study Project (Field work)

Typical Key Areas for field-based project activities:

- **Environmental Problems:** For example estimation of PAH from soil/sewage samples, estimation of water pollution in nearby locality, estimation of the micro plastics in Soil in the nearby locality, study of solid and liquid waste generation in a ward/city/village etc.
- **Analysis of food Material:** For example identification and estimation of food adulterants, estimation of selenium content in bread available in the local market etc.
- **Soil, Water, material analysis:** For example, examination and analysis water quality in nearby locality, study of materials and dyes used in a local industry, conduct soil health test (for analysis of Pb, N, P, K, S, C, moisture content, pH and micronutrient contents such as Cu, Zn, Mn, Fe) etc.
- **Study of government development programs:** For example effects of Swachh Bharat Abhiyan on the quality of soil and water, to prepare a village sanitation plan, Energy use and fuel efficiency surveys etc.
- **Agriculture:** For example, Organise orientation programmes for farmers regarding organic cultivation, rational use of irrigation and fertilizers and promotion of traditional species of crops and plants etc.

(Above activities represent some of the possible activities that can be undertaken by students. However, depending upon local needs students can select and undertake relevant case-study projects. It is recommended that a practical batch of 20 students can undertake minimum 5-6 case-study projects i.e. one case-study project can be undertaken by group of maximum four students)

Case-Study Project Evaluation:

Project Report:

After successful completion of a case-study project, the student group will prepare a consolidated report covering title, Rational and gap analysis, objectives, hypothesis, project design and methodology, preliminary work/survey, expected out-come, benefits to society (Project outcome), SWOC analysis and important references etc.

Project presentation (by students Group):

The students group will present the case study project at the time of practical examination.

Evaluation scheme:

Evaluation of student based on Part I	20 Marks
Identification of problem, Rational, Problem statement and expected benefits	10 Marks
Case-study design and methodology, Data management and interpretation, , clarity, coherence and appropriateness of case study design, Organisation and logical flow of ideas and materials	30 Marks
Presentation skills, role, responsibilities involvement of group members, learning mechanism in group, clear, concise and thoughtful responses to questions, team work	30 Marks
Major findings and outcome reported, Stakeholders feedback	10 Marks

Suggested Readings:

1. Abramson, P.R. (1992). A Case for Case Studies: An Immigrant's Journal. Newbury Park: Sage.
2. Basse, M. (1999). Case Study Research in Educational Settings. Buckingham: Open University.
3. Campbell, D.T. & Stanley, J.C. (1966) Experimental and Quasi-experimental Designs for Research. Chicago: Rand McNally.
4. Kazdin, A. E. (1982). Single-case Research Designs: Methods for Clinical and Applied Settings. New York: Oxford Press.
5. Zaidah Zainal, Case study as a research method, *JurnalKemanusiaan bil.9, (2007)*
6. WALTER ISARD, Methods of Regional Analysis: An Introduction to Regional Science, THE M. I. T. PRESS, Cambridge, Massachusetts, (1960).
