



VIDYABHARTI SANSTHA, WARDHA.
DR. R. G. BHOYAR ARTS, COMMERCE & SCIENCE COLLEGE

MOHANAPUR, TH-SELOO DIST-WARDHA 442104

(FORMERLY VIDYABHARTI COLLEGE)

Affiliated To Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur.

NAAC Accredited with B+ Grade

College Index : (Sr.-699) (Jr.07.08.006)

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Department of Chemistry

Bridge Course Session 2023-24

(B.Sc.Chemistry Semester I)

Duration 2 Weeks: Bridge Course

The students after completion of HSC education, admitted to the graduate courses in senior College. To revise the basic knowledge of freshly admitted students, to familiar them to the atmosphere of senior College and interaction with teaching staff. Department of Chemistry conducts the bridge course to fill the gap. Bridge course is of two week duration.

Objective of Bridge Course

The bridge course aims to act as a buffer for the new admitted students with an objective to provide adequate time for the transition to hard-core of degree courses. This gives them a breather, to prepare themselves before the onset of courses for first year UG programme. During this course the students will be well equipped with the knowledge and the confidence needed to take on bigger challenges in future.

The syllabus for bridge course is as below

Course Outline

Module-1: Introduction of Students, Teachers, and Syllabus

1. Units and measurements of Chemistry quantities,
2. Atomic Structure
3. Surface tension, Viscosity,
4. Methods of Expressing concentration
5. Periodic Table
6. Periodic Properties
7. Properties of matter, Properties of materials.
8. Chemical Bond and its type

Module- II

1. Organic Compounds and Functional Group
2. Reactions and their type
3. Markownikoffs and Anti Markownikoffs Rule
4. Acid And Base Concepts/ Theory
5. Coordination Chemistry and its Terminology
6. Valence Bond Theory
7. Hybridization
8. Molecular orbital theory
9. Aromaticity, Aromatic Compounds and their nomenclature



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Department of Zoology

Bridge Course Session 2023-24

(B.Sc. Zoology Semester I)

Duration 2 weeks

With a view to enhance the comprehension in subjects we frame a bridge course to first semester B.Sc. students. The essential and fundamentals of graduation level subjects are necessary to understand the subject at an ease and this will lead to a better appreciation of the subject.

Objective of Bridge Course:

The bridge course aims to act as a buffer for the new entrants with an objective to provide adequate time for the transition to hardcore of degree courses. This gives them a breather, to prepare themselves before the onset of courses for first year PG programme. During this course the students will be equipped with the knowledge and the confidence needed to take on bigger challenges in future.

Course Outline

Module 1 – Introduction of Students, teachers, syllabus

Lecture 1- Students and teachers introduction in class

Lecture 2- Animal cell structure, difference between animal and plant cells

Lecture 3- Unicellular and Multicellular animals, animals' classification

Module 2- Invertebrates

Lecture 1- General characters of invertebrates with examples

Lecture 2- Protozoans, general characters, examples with diagrams

Lecture 3- Discussion on economically important invertebrates

Module 3- Environmental Biology

Lecture 1- Atmosphere, Importance of good environment, Pollution

Lecture 2- Renewable and non- renewable energy sources

Lecture 3- Ecosystem and Importance of Food Chain

Module 4-

Lecture 1- Discussion on biodiversity and its importance

Lecture 2- Basics of genetics

Lecture 3- Introduction to Human Physiology



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Department of Botany
Bridge Course
B.Sc. Sem - I
Subject: Botany

Duration: 10 days

With a view to enhance the comprehension in subject we frame bridge course to B.Sc. Sem-I programme students. The essentials and fundamental of graduation level subjects are necessary to understand the subject at an ease and this will lead to better appreciation of subject.

Objective:

The bridge course aims to act as a buffer for new entrants with an objective to provide adequate time for the transition to hardcore of degree courses. This gives them breather to prepare themselves before the onset of semester first courses. During this course the students will be equipped with the knowledge and confidence needed to take on bigger challenges in future.

Course outline:

1st Lecture: Viruses, Mycoplasma

2nd Lecture: Bacteria

3rd Lecture: Cyanobacteria

4th Lecture: Algae

5th Lecture: Biofertilizers

6th Lecture: Fungi

7th Lecture: Plant Pathology

8th Lecture: Lichens

9th Lecture: Bryophyta

10th Lecture: Mushroom cultivation

All lectures are delivered according to timetable.



Department of Microbiology

B. Sc. Semester-1

BRIDGE COURSE SESSION 2023-2024

Duration: 2 weeks

Recapitulation lectures (Bridge Course) were arranged for students of B.Sc. Semester I from 08 / 09 /2020 to 24 /09 /2020 by online mode. Tenure of bridge course was 15 days.

➤ Objectives of the Bridge course:

- To revise the topics of 12th standard to recollect the knowledge of students and this is applicable to study the subject of Microbiology.
- To create the interest in the subject of Microbiology with the History of it.
- To explain the scope of Microbiology from career point of view.
- To explain the career opportunities in Microbiology & various fields.

➤ Outcome of Bridge Course:

All the attendee students of B.Sc. semester I was benefited with the recapitulation lectures. These lectures filled the gap of knowledge required to study the Microbiology subject. Students were developed the interest in this subject. They understand the career opportunities in the subject of Microbiology.

➤ Course outline for Bridge Course:

Module	Lecture	Topics
1. Origin & evolution of life	1	Evolution theory, theory of organic evolution
	2	History & scope of Biology
	3	Origin of life
2. Gene- Its nature	1	DNA & RNA as genetic material, modern concept of gene.
	2	Semi-conservative replication of DNA.

	3	Gene expression & regulations, protein synthesis.
3. Biotechnology: process & application	1	Recombinant technology.
	2	Human health and disease, Biosafety issues
	3	Applications of Biotechnology
4. Microbes in human welfare	1	Microbes in household production, industrial production, sewage treatment, food production etc.
	2	Microbes as biocontrol agent
	3	Application of Microbiology & Biotechnology



Department of Biochemistry

B. Sc. Semester-1

BRIDGE COURSE SESSION 2023-2024

Duration: 2 weeks

Recapitulation lectures (Bridge Course) were arranged for students of B.Sc. Semester I by online mode. Tenure of bridge course was 15days.

➤ Objectives of the Bridge course:

- To revise the topics of 12th standard to recollect the knowledge of students and this is applicable to study the subject of Biochemistry.
- To create the interest in the subject of Biochemistry.
- To explain the scope of Biochemistry. From career point of view.
- To explain the career opportunities in Biochemistry & various fields.

➤ Outcome of Bridge Course:

All the attendee students of B.Sc. semester I was benefited with the recapitulation lectures. These lectures filled the gap of knowledge required to study the Biochemistry subject. Students were developed the interest in this subject. They understand the career opportunities in the subject of Biochemistry..

➤ Course outline for Bridge Course:

Module	Lecture	Topics
1.Bio-molecules	1	Cell Structure & Function.
	2	What are Bio-molecules?
	3	Bio-molecules location in a cell.
2.Gene- Its nature	1	DNA & RNA as genetic material, modern concept of gene.
	2	Semi-conservative replication of DNA.
	3	Gene expression & regulations, protein synthesis.
3. General microbes	1	Types of micro-organism.

& History of Microbiology.	2	History of Microbiology.
	3	Import ants of Microbiology.
4.Human Physiology	1	Structure & Functional Unit of Kidney.
	2	Human Reproductive System
	3	Types of Hormones.



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Department of Physics Bridge Course Session 2023-24

(B.Sc. Physics Semester I)

Duration 2 Weeks

Bridge Course

The students after completion of HSC education, admitted to the graduate courses in senior College. To revise the basic knowledge of newly admitted students, to familiar them to the atmosphere of senior College and interaction with teaching staff. Every year department of Physics conducts the bridge course of 2 week duration.

Objective of Bridge Course

The bridge course aims to act as a buffer for the new admitted students with an objective to provide adequate time for the transition to hardcore of degree courses. This gives them a breather, to prepare themselves before the onset of courses for first year UG programme. During this course the students will be equipped with the knowledge and the confidence needed to take on bigger challenges in future.

The syllabus for bridge course is as below

Course Outline

Paper-1: Introduction of Students, Teachers, and Syllabus

1. Units and measurements of Physical quantities,
2. Properties of Materials- Elasticity, Surface tension and Viscosity
3. Mechanics and Newton's Laws of motion
4. Classification of Matter- Structure of Atom
5. Kinetic Theory of Gases and Thermodynamics

Paper- II Introduction of Students, Teachers, and Syllabus

1. Ohms Law and Classification of Charge
2. Classification of Material on the basic of conductivity
3. Electric Potential and field and Electric Dipole
4. Dielectric and Capacitor
5. Time Varying Field, Transformer
6. A.C. and D.C.



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Department of Mathematics
Bridge Course
(B.Sc. Mathematics Semester-I)

Duration: 2 Weeks

Bridge Course

With a view to enhance the comprehension in subjects we frame a bridge course to first semester B.Sc. programme students. The essentials and fundamentals of graduation level subjects are necessary to understand the subjects at an ease and this will lead to a better appreciation of the subject.

Objectives

The bridge course aims to act as a buffer for the new entrance with an objective to provide adequate time for the transition to hardcore of degree courses. This gives them a breather, to prepare themselves before the onset of courses for the first year UG programme. During this course the students will be equipped with knowledge and the confidence needed to take on bigger challenges in future.

Course Outline

Topic-1:- Complex number & Matrices

1st Lecture: Sum of complex number, product and division of complex number, Modulus of complex number.

2nd Lecture: Argument of complex number, roots of complex number, conversion of complex number in real and imaginary parts.

3rd Lecture: Sum, difference and product of two matrices, determinant of square matrix, Types of matrix.

4th Lecture: Types of matrix, row transformation, column transformation, to find the minor of matrix.

5th Lecture: To calculate the roots of different polynomial (Quadratic, Cubic & Biquadratic), relation between roots and its coefficients.

6th Lecture: Surds roots and complex roots, Descartes rule of signs.

Topic-2:- Partial derivative and Integration.

1st Lecture: General algebraic formulae, trigonometric formulae, limits and continuity of functions.

2nd Lecture: Differentiability of function, basic example in differentiation, Partial differentiation

3rd Lecture: nth differentiation, total differentiation, change rule.

4th Lecture: Differentiation of composite function, jacobian.

5th Lecture: General formulae on integration, rules of integration, some example based on integration.

6th Lecture: Integration of sum, difference, product and division of two function, some example based on integration.



Department of Computer Science Bridge Course Session 2023-24

(B.Sc. (Computer Science) Semester I)

➤ **Duration: 2 weeks**

Recapitulation lectures (Bridge Course) were arranged for students of B.Sc. Semester I from 15/09 /2020 to 30/09/2020 by online mode.

➤ **Objectives of the Bridge course:**

- To revise the topics of 12th standard to recollect the knowledge of students and this is applicable to study the subject of Computer Science
- To create the interest in the subject of Computer Science with the History of it.
- To explain the scope of Computer Science from career point of view.
- To explain the career opportunities in Computer Science & various fields.

➤ **Outcome of Bridge Course:**

All the attendee students of B.Sc. semester I was benefited with the recapitulation lectures. These lectures filled the gap of knowledge required to study the Computer Science subject. Students were developed the interest in this subject. They understand the career opportunities in the subject of Computer Science

Course outline for Bridge Course

Paper-1: Introduction of Students, Teachers, and Syllabus

6. Programming Structure: Sequence, Selection, Iteration and Modular.
7. Problem Solving techniques
8. Basic idea Arrays: Need, Types: Single and Two Dimensional Array.
9. Strings: Strings Manipulation, Arrays of Strings, Evaluation order
10. Basic Ideas about Function
11. Basic Idea about Algorithm and Drawing flowcharts
12. File handling Process
13. Introduction of Programming ' C'

Paper- II Introduction of Students, Teachers, and Syllabus

7. Number Systems and Codes
8. Basic Components of Digital Computers: Block Diagram.
9. CPU: Functions of Each Unit
10. Primary Memory, ALU and CU
11. What is Memory
12. Storage Devices
13. Networks: LAN, WAN



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Department of Electronics

Bridge Course Session 2023-24

(B.Sc. Electronics Semester I)

Duration 2 Weeks

Bridge Course

The students after completion of HSC education, admitted to the graduate courses in Electronics subject. To revise the basic knowledge of newly admitted students, to familiar them to the atmosphere of senior College and interaction with teaching staff. Every year department of Electronics conducts the bridge course of 2 week duration.

Objective of Bridge Course

The bridge course aims to act as a buffer for the new admitted students with an objective to provide adequate time for the transition to hardcore of degree courses. This gives them a breather, to prepare themselves before the onset of courses for first year UG programme. During this course the students will be equipped with the knowledge and the confidence needed to take on bigger challenges in future.

The syllabus for bridge course is as below

Course Outline

Paper-1: Introduction of Students, Teachers, and Syllabus

14. Structure of Atom, Brief discussion Electron and Proton
15. Ohms Laws, Basis Idea Current and Voltage
16. Identification and uses of electronic components: Resistors, Capacitors, Inductors
17. Kirchoff's current and voltage laws
18. Introduction to semiconductors: Concept of energy band diagram
19. Basic difference of Conductor, Semiconductor and Insulator

Paper- II Introduction of Students, Teachers, and Syllabus

14. Number Systems and Codes: Decimal, Binary, Octal, Hexadecimal
15. Representation of integer, fraction, mixed numbers
16. Complement of numbers-1's, 2's, complements
17. Addition and subtraction using 1's and 2's
18. Basic of Logic gates- OR, AND, NOT, NAND
19. De Morgans and Duality theorems



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Department of Commerce and Management

Bridge Course Session 2023-24

Course Stream: Bridge Course for Commerce and Management

Contact Hours: - Sixteen Hours

Semester: - B.Com first Semester

A bridge course for newly admitted students is conducted every year before the commencement of the first semester classes. The main objective of the course is to bridge the gap between subjects studied at Pre-university level and subjects they would be studying in Graduation. The syllabus for the course is framed in such a way that they get basic knowledge on the subjects whom they would be learning through graduation.

With a view to enhance the comprehension in subjects we frame a bridge course to first semester B.Com programme students. The essentials and fundamentals of Higher Secondary level subjects are necessary to understand the subject at an ease and this will lead to a better appreciation of the subject. Bridge Course is offered for the First year B.Com students to initiate them into the world of commerce. The course duration is 4 weeks. At the end of the course the students will have formed a general understanding of the various milestones and literary figures of Commerce.

Objective of Bridge Course

The bridge course aims to act as a buffer for the new entrants with an objective to provide adequate time for the transition to hardcore of degree courses. This gives them a breather, to prepare themselves before the onset of courses for first year degree programme. During this interaction of five hours with the faculty and their classmates the students will be equipped with the knowledge and the confidence needed to take on bigger challenges in future.

Learning Outcomes:

This course will help students to learn about the basic concept relating Commerce including Business Management, Business Economics and Business

Accounting and Business Statistics etc. It will further help to apply the commercial tools and techniques for decision making and for research studies.

Methodology

A Curriculum is framed separately in each of the subjects, for Bridge Course. During the first week after the commencement of the classes, the bridge course curriculum is delivered to the students in various disciplines. A post bridge course test is conducted after the completion of bridge course syllabus to assess the ability of student's suggestions are given to students for improvisation.

Highlights of the Bridge Course:

Day 1: Module One

Lecture 1:-The first day session was delivered by Dr.Bhaskar P. Ghaisas (**Head of the Commerce Department**) .He explained in detail about the basic Accounting concepts

Lecture 2:-The session was handled by Dr. Siddhartha D. Nagdive. Assistant Professor, Department of Commerce. He explained Nature and Scope of Business.

Lecture 3:-The session was handled by Dr. Parag kawle. Assistant Professor, Department of Commerce. He explained concept of Company Law

Lecture 4:-The session was handled by Miss Namrata M. Umate. Assistant Professor, Department of Commerce. She explained Nature and scope of business economics

Day 2: Module Two

Lecture 1:- The session was delivered by Dr.Bhaskar P. Ghaisas (**Head of the Commerce Department**) .He explained in detail about the, types of accounts,

Lecture 2:- The session was handled by Dr. Siddhartha D. Nagdive. Assistant Professor, Department of Commerce. He explained Characteristics and Objective of Business.

Lecture 3:- The session was handled by Dr.Paragkawle. Assistant Professor, Department of Commerce. He explained Kinds of Company.

Lecture 4:- The session was handled by Miss Namrata M. Umate. Assistant Professor, Department of Commerce. She explained objectives of business economics.

Day 3: Module Three

Lecture 1:- The session was delivered by Dr.Bhaskar P. Ghaisas (**Head of the Commerce Department**) .He explained in detail about the important terms in accounting and Accounting rules.

Lecture 2:- The session was handled by Dr. Siddhartha D. Nagdive. Assistant Professor, Department of Commerce. He explained classification of Business.

Lecture 3:- The session was handled by Dr.Paragkawle. Assistant Professor, Department of Commerce. He explained regulation of company

Lecture 4:- The session was handled by Miss Namrata M. Umate. Assistant Professor, Department of Commerce. She explained types of business economics.

Day 4 :Module Four

Lecture 1:- The session was delivered by Dr.Bhaskar P. Ghaisas (**Head of the Commerce Department**) .He explained in detail about the He elaborated the procedures for preparation of Final Accounts.


Lecture 2:- The session was handled by Dr. Siddhartha D. Nagdive. Assistant Professor, Department of Commerce. He explained Social Responsibility of business

Lecture 3:- The session was handled by Dr.Paragkawle. Assistant Professor, Department of Commerce. He explained stages in formation of company

Lecture 4:- The session was handled by Miss Namrata M. Umate. Assistant Professor, Department of Commerce. She explained role and social responsibility of business economics


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Department of English

Bridge Course Session 2023-24

Duration 2 Weeks

Bridge Course

The students after completion of HSC education, admitted to the graduate courses in English subject. To revise the basic knowledge of newly admitted students, to familiar them to the atmosphere of senior College and interaction with teaching staff. Every year department of English conducts the bridge course of 2 week duration.

Objective of Bridge Course

The bridge course aims to act as a buffer for the new admitted students with an objective to provide adequate time for the transition to hardcore of degree courses. This gives them a breather, to prepare themselves before the onset of courses for first year UG programme. During this course the students will be equipped with the knowledge and the confidence needed to take on bigger challenges in future.

The syllabus for bridge course is as below

Course Outline

(For B. Com., B. Sc. & B. A. First Semester Students)

All Lectures conducted as per their regular Time-Table

Broadly focus on Language Proficiency, Vocabulary Building, Writing Skills and Basic Grammar.

Course outline:

1st Lecture: Basic Grammar (Tenses, Parts of Speech)

2nd Lecture: Basic Grammar (Voice & Types of Sentences)

3rd Lecture: Vocabulary Building (One word Substitutes, Antonym & Synonyms)

4th Lecture: Vocabulary Building (Familiar Words Reciting)

5th Lecture: Writing Skills (Comprehension, Precise Writing, Paragraph Writing)

6th Lecture: Writing Skills (Idea Expansions, Basic Letter Writing)

7th Lecture: Language Proficiency (Dialogue Writing & Asking Question)

8th Lecture: Language Proficiency (Group Discussion)

9th Lecture: Language Proficiency (Speech on random topic)

10th Lecture: Overlook of Bridge Course & Conclusion


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