CC 2. Pedagogy of a School Subject - Part 1 Hindi (A)

Objectives: Upon completion of the course, the student-teachers will be able to:

- Appreciate the importance of teaching Hindi as a second / third Language.
- Help the Students to understand the aims and objectives of teaching Hindi.
- Help pupils to acquire basic skills of language teaching, Aims/Objectives.
- 4. Know the different methods of teaching .

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- Prepare a lesson notes and teach accordingly.
- Appreciate and use of modern educational media.

Unit 1: Perspectives of Hindi Language, Aims and Objectives of Teaching Hindi

- Meaning and concept of language.
- Nature and importance of language
- Three language formula and Hindi
- Place of Hindi in the Secondary School Curriculum of M.P.
- Present position of Hindi in India
 - a. In the constitution
 - b. In the life of Indian people
- Aims of teaching Hindi as a second / third language.
- Functional aims of Hindi Teaching.
- Cultural Aims of Hindi Teaching, National and International Aims of Hindi Teaching.
- Instructional objectives with practical -- Theoretical background Writing of instructional objectives of Hindi Teaching
- Modification of Objectives in terms of behavioural changes.

Unit 2 : Planning Lessons, Resource Units, Unit Plan, Drill Lessons

- Planning of prose, poetry and Grammar lessons.
- Processing of lesson notes and micro lesson plans.
- Meaning and importance of a Unit plan and administration.
- Resource Units Use and implications.
- Plan and process of lessons in Practice teaching.

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Unit 3: Language Skills

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- Development of language skills- listening objectives and importance activities for its development
- Speaking Objectives activities for its development role of learning by heart, role-play, extempore and prepared speeches, debates, languages games, substitution table need for correct pronunciation – Remedial Measures
- Reading Objectives Types of reading silent and loud, intensive methods of teaching reading
- Writing Objectives Characteristics of handwriting dictation
- Composition Objectives Types Oral, written and picture composition –
 Free and guided composition, Translation Objectives- Importance's –
 Characteristics of good translation

Unit 4: Curriculum Design

- Principles of Curriculum construction of Hindi
- Curriculum Design in Hindi Subject centered Learner Centered Problem centered.
- Transaction of curriculum / Co-curricular , Extra curricular activities pertaining to teaching and learning.
- Curriculum of prose poetry and composition. Prose Ancient / Medieval /
 Modern prose versions. Poetry Bhakti period Ritti period Modern period.
 Composition Exercises, Assignments and remedial teaching activities and
 - Grammar Translations
- Curriculum development and evaluation.

Seminar Topics (any one)

- a) Preparing scheme of assessment
- b) A study of an author / poet.
- c) Developing Linguistics Skills.
- d) System our examination.
- e) Importance of teaching materials for effective teaching.

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Practicum

- a) Review of Books 8, 9 standard school text books.
- b) Resource Unit Uses.
- c) Unit plan processing.
- d) A study of an Author / Poet.
- e) Developing Linguistics Skills.

Assignments (any one)

- Solving grammar exercise of 8th and 9th Standard Text books of second language Hindi/Third Language. Hindi
- Preparing crossword puzzles on technical terms, difficult terms of prescribed Hindi Text Books.
- 3. Construction of substitution tables on the concerned texts
- 4. Report on constitutional provisions provided to Hindi and the implication.

(Note: Records should be maintained).

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Sanskrit(B)

Objectives - Upon completion of the course the student-teacher will be able to:

- Understand the importance of Sanskrit language and its contribution to Indian culture and emotional integration.
- Understand the aims and objectives of teaching Sanskrit and state them in the form of specific behavioural changes.
- 3. Prepare objective based lesson plans and implement them.
- Understand the basic skills of language learning.

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- 5. Understand the principles of curriculum construction in Sanskrit.
- Understand the different methods of teaching Sanskrit and use them in his practice teaching lessons.
- Understand the importance of appropriate instructional material and use them in his practice teaching lessons.
- 8. Understand the importance of Language Laboratory.
- Understand the importance of Evaluation, prepare and use different tools of Evaluation in language learning.
- 10. Understand the importance of co-curricular activities in language learning.
- 11. Imbibe the special qualities of Sanskrit teacher.

Unit 1 : Sanskrit Language - Nature and Importance

- Importance of Sanskrit language
- Contributions of Sanskrit to other Indian Languages to Indian culture and tradition and to emotional integration

Unit 2: Place of Sanskrit in the Secondary School Curriculum

- Aims & Objectives of teaching Sanskrit with reference to three language formula.
- Instructional Objectives Specifications of each objective in the form of specific behavioural changes.

Unit 3: Lesson Plan in Sanskrit Language

- Planning lesson plans in prose, poetry, grammar and composition.
- Unit plan: importance, characteristics, format
- · Resource unit: importance, characteristics, format
- Micro lesson plan: importance, format, practice

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Unit 4: Development of Language Skills, Curriculum Design

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- · Listening: importance, activities for its development.
- Speaking: importance, characteristics of good speaking, activities for its development.
- Reading: mechanics of reading, objectives, different kinds of reading silent reading and loud reading.
- Writing: importance of good handwriting specialties of the Devanagari script, causes of spelling mistakes, remedial measures.
- Principles of curriculum construction of Sanskrit.
- Curriculum design in Sanskrit: subject centered, learner centered, problem centered.

- Transaction of curricular/ co-curricular activities.
- Curriculum development and evaluation.

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English(C)

Objectives: upon completion of the course the student teacher will be able to:

- To master the different techniques, devices of the Second language structure, sounds and vocabulary.
- To understand the status of English language.

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- To distinguish between different approaches and methods of teaching English and their use in the classroom.
- Acquire the basic skills of language learning.
- Plan and execute of different types of lessons in prose, poetry according to classroom situations.
- To appreciate the importance and use of suitable audio -visual aids in class room situations.
- To know the principles of curriculum construction.
- To prepare and use appropriate tools of evaluation to measure the linguistic abilities of the pupils.
- To realize his/her responsibilities as language teacher and pursue towards the aims of professional growth.
- To guide the students to use the language correctly.

Unit 1: Nature of English Language

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- 1.1 Language its nature and structure Meaning of language, Functions of language Informative, expressive and Directive Linguistic Principles.
- 1.2 Structure of English Language phonological, morphological, Syntactic, Semantic and graphic (a brief explanation of the concepts)

Unit 2: Aims and Objectives of Teaching English

- 2.1 Aims and objectives of teaching English at the Secondary School level as first and second language.
- 2.2 English as a library language, link language and international language.
- 2.3 Position of English in India before and after Independence The three language formula its meaning and scope.

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Unit 3: Instructional design of Teaching English Language

- 3.1 Teaching of Prose detailed and non-detailed Objectives Methods and Approaches steps in lesson planning.
- 3.2 Teaching of poetry Objectives Methods and Approaches Steps in lesson planning.
- 3.3 Teaching of Grammar Objectives Formal and Functional -Methods of teaching grammar.
- 3.4 Use of mother tongue in teaching of English, different occasions for its effective use
- 3.5 Preparation of Unit plan, Resource Unit.

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Units 4: Methods, Approaches to Develop English Language Skills

Psychological principles of learning English as a foreign language. Methods and approaches of Teaching English

- a. Grammar Translation Method.
- b. Direct Method
- c. Bilingual method.
- d. Structural approach- Dr. WEST method
- e. Communicative approach.
- 4.1 Development of language skills listening objectives and importance activities for its development.
- 4.2 Speaking Objectives Activities for its development, role of learning by heart, role-play, extempore and prepared speeches, debates, language games, substitution table need for correct pronunciation, defects in pronunciation Remedial Measures.
- 4.3 Reading Objectives Types of reading silent and a loud, intensive methods of teaching reading.
- 4.4 Writing Objectives Characteristics of handwriting dictation.

Composition - Objectives - Types (oral, written and picture composition) Free and guided composition Translation - Objectives—Importance - Characteristics of good translation.

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Physical Science (Physics and Chemistry)

Objectives: Upon completion of the course, the student teacher will be able to:

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- Understand the nature, scope and importance of Physical science with special reference to secondary school content.
- Understand the aims and objectives of teaching Physical science.
- State the specific behavioral changes under each objective.
- Understand and make use of different approaches & methods of teaching Physical science.
- Prepare objective based lesson plans and use them in their internship.
- Understand and employ several teaching techniques helpful to develop scientific attitude and scientific method.
- Plan, use and maintain the physical science laboratory systematically.
- Understand the principles of text-book construction.
- Understand the importance of appropriate instructional materials (hardwares and softwares) in teaching Physical science and use them by preparing/selecting them in their practice teaching.
- Understand the importance of principles of curriculum construction in the organisation of Physical science contact.
- Get mastery in Physical science content and imbibe the special qualities of Physical Science teacher.
- Prepare and use different tools of evaluation to assess the achievements of students in Physical Science.
- 13) Develop professionally by attending lectures of professional interest, reading journals, and magazines and enroll as members of professional organisation.
- Organise co-curricular activities in science i.e. seminars, field trips, exhibitions discussions etc through the science club.
- Apply the knowledge of physical science to develop scientific thinking and scientific out look.
- 16) Develop skills in analyzing the content in terms of concepts and in learning experiences.
- Construct and administer unit test, conduct experiments improves teaching aids.

CONTENT



Unit 1: Meaning, Nature and Impact of Physical Science

- · Concept of science Science as process and science as a product;
- Nature and Scope of Physical Science

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- Impact of Science and Technology on modern living.
- Scientific Attitude Meaning definition and importance.
- · Qualities of a person who possesses scientific attitude.
- Scientific Method-Meaning, importance and steps involved (with an illustration).

8 hours

Unit 2: Aims and Objectives of Teaching Physical Science

- Aims of teaching Physical science in Secondary school:
 - .. I Personal development aim,
 - .. 2 Learner's academic and process skills development aim,
 - ..3 Disciplinary aim and
 - ..4 Cultural aim.
- Objectives of teaching physical science:
 - ... I Bases for formulation of objectives
 - 2 Objectives of teaching Physical science at Secondary level; (To be Discussed keeping in view of the objectives of teaching Physical science enunciated in the physical science syllabi of secondary school of M.P.); Instructional objectives of teaching physical science and stating them in observable behavioral changes; i) Knowledge ii) Understanding, iii) Application, iv) Skill, v) Attitude, vi) Interest, vii) Appreciation.

10 hours

Unit 3: Approaches and Methods of Teaching Physical Science

- Enquiry Approach -Meaning, Uses with Illustrations, Advantages and disadvantages.
- Inductive Approach-Meaning, Uses with Illustrations, Advantages and disadvantages.
- Deductive Approach-Meaning, Uses with Illustrations, Advantages and disadvantages.
- Problem Solving Approach- Meaning, Uses with Illustrations, Steps, Advantages and disadvantages.
- Demonstration Method- Meaning, uses, Advantages and disadvantages.



- Lectures-Cum-Demonstration Method- Meaning, uses with Illustration, Advantages and disadvantages.
- Laboratory Method- Meaning, uses with Illustration, Advantages and disadvantages.
- Guided Discovery Method Meaning, uses with Illustration, Advantages and disadvantages.
- Biographical Method-Meaning, uses with Illustration, Advantages and disadvantages.
- Individual Instruction Techniques and Active Learning Strategies.
- Concept Mapping: Its use for summarizing a unit and evaluating students understanding

Unit 4: Instructional Design, Resources and Teaching Aid for teaching Physical Science:

- Lesson Planning-Meaning, Steps, Importance and Format of Lesson Plan according to active learning strategies.
- Unit Plan-Meaning, Steps, Importance and Format of Lesson Plan
- Resource Unit-Meaning, Steps, Importance and Format of Lesson Plan
- Audio-Visual Aids (Preparation and Use)

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- I Charts;
- ii Models;
- iii OHP transparencies;
- iv Filmstrips;
- v slides;
- vi Video tapes;
- vii Films;
- viii Educational C.D.'s
- Mass Media
 - i Television (T.V.);
 - ii Radio Meaning and importance.
- Community Resources and Self learning materials
 - iii Meaning and importance.
- Physical Science Library;
- Importance & organizing of physical science library;
- Sections of science library;
- Choice of book for science library.

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History / Civics

Objectives: Upon completion of the course the student-teacher will be able to:

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- Understand meaning, scope and importance of History and civics in the school curriculum.
- 2. Acquire content knowledge of methods of history and civics.
- Acquire knowledge of aims and instructional objectives of teaching history and civics
- 4. Acquire skills in planning lessons in History and civics
- Understand and apply the principles of organizing content in the teaching history and civics.
- 6. Acquire knowledge about Local, Regional National, and World History.
- Acquire the knowledge of Instructional Material and resources in teaching History and Civics
- 8. Preparing suitable teaching devices & using them & organizing field trips.
- Proficiency in correlating History and civics with other school subjects.
- Cultivate the qualities of a good History and civics teacher
- Acquire the knowledge of content of History and civics for viii to xth standard in Karnataka
- 12. Evaluate History and civics text books and prescribed courses
- Develop necessary skills in the application of methods and techniques in the classroom

CONTENT

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Unit 1: Nature and Scope of History and Civics

Meaning, Nature, and scope of history

1.1.1. History - an art or Science

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- 1.1.2 Modern Concept of History, exploration, criticism synthesis and exposition.
- 1.1.3 Different levels of History World History, National, Regional and Local History
- 1.2. Meaning and scope of civics
 - 2.1.1 Man as a social animal and as a citizen

Unit 2: Aims and Objectives of Teaching History and Civics

- 2.1 Meaning and Importance of teaching History and civics in Secondary Schools
- 2.2 Aims of teaching History and Civics

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- 2.2.1 Political conciseness, understanding of current events, democratic citizenship, understanding of Union and the State Govt.
- 2.2.2 Functional awareness of Rights and Duties of citizens.
- 2.3 Instructional objectives and values of Teaching History and civics
 - 2.3.1 Knowledge, understanding, critical thinking, skills, Attitude, Interests, Application - Analysis of these objectives in terms of specific behaviours of learners.
 - 2.3.2 Spelling out Instructional objectives and learning outcomes
 - 2.3.3 History and civics based hobby clubs, societies
- 2.4 Correlation of History and Civics with other School Subject
- 2.4.1 Meaning and Importance of correlation
- 2.4.2 Types of correlation.
- 2.4.3 Correlation of History with Geography, Economics, Literature
- 2.4.3 Co curricular / Activities in History and Civics
- 2.4.5 Importance of organization of field trips, visits.

Unit 3: Instructional design in Teaching History and Civics

- 3.1 Format of lesson plan: Its stages, Selection of relevant content, selection of appropriate teaching devices and assignments, and plan according to active learning strategies.
- 3.2 Resource Unit
- 3.3 Unit Plan

Unit 4: Methods, Techniques, and Instructional Materials of teaching History and civics

4.1 Meaning and need of methods



- 4.2 Methods and techniques of teaching History –discussion, project, problem solving, source, dramatization and biographical, Active Learning Strategies.
- 4.3 Methods of teaching Civics Survey observation, comparative and demonstration, Active Learning Strategies.
- 4.4 Instructional Materials in History and civics :

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- 4.4.1 Collateral Reading Importance, Reading materials, Historical Novels
- 4.4.2 Auto biographic, Magazines, News papers Drams, Journals Audio-Aids-Radio, Tape recorder, Visual-Aids-Maps- Importance,
- 4.4.3 Types, procedure of using maps, pictures, charts, models, film strips, diagrams,
- 4.4.4 Audio-Visual Aids-Films, TV
 - a. History Room-Meaning and Importance, planning equipping
 - Computers, multimedia packages and Internet as an Instructional aid.

Practical

- Critical evaluate History civics content of 8th 9th 10th Standard.
- 2. Conducting quiz Competition in History/civics.
- Survey of the locality and collection of information about places or institutions of historical interests.
- 4. Organizing short field trip to a place of historical / political interests
- 5. Preparing resource unit on a topic of your choice in History and Civics.
- 6. Preparation of materials for a History room or museum
- Student is also allowed to do his own interested practical work pertaining to the syllabus.

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Geography / Economics

Objectives: Upon completion of the course the student-teacher will be able to:

- Acquire knowledge about basic facts, concepts, laws principles and trends in Geography and Economics
- 2. Acquire knowledge and understanding of the aims and objectives of Geography
- 3. Realize the values of learning geography

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- 4. Make use of Audio-visual aids about Geography and Economics
- 5. Develop skills in equipping the Geography (i) Museum (ii) Room (iii) Library
- Develop skills in organizing planning- learning experiments and in writing and organizing the lesson plan.
- 7. Acquire the knowledge of Geography Curriculum

CONTENT

Unit 1: Meaning, Nature and Scope of Geography and Economics

- 1.1 Meaning, Nature, Scope and importance of Geography
- 1.2 Branches of Geography and their importance- physical, economic, human and political.
- 1.3 Meaning, Nature, Scope and importance of Economics.
- 1.4 International relations and study of Geography and Economics

Unit 2: Aims and Objectives of teaching Geography and Economics

- 2.1 Aims/Values of teaching Geography and Economics
 - 2.1.1 Intellectual aims
 - 2.1.2 Cultural aims
 - 2.1.3 Environmental aims
 - 2.1.4 Utilitarian aims
 - 2.1.5 Aesthetic aims
- 2.2 Taxonomy and objectives of teaching Geography and Economics
 - 2.2.1 Knowledge
 - 2.2.2 Understanding
 - 2.2.3 Application
 - 2.2.4 Attitude and interest
 - 2.2.5 National Integration. International Understanding.
 - 2.3 Co-relation of Geography and Economics with History, Science, Mathematics and languages
 - 2.4 Trends in Geography Education
 - 2.5 Importance and Organization of Field trips, Visits



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2.6 Geography based hobby clubs / societies (National geography specials)

Unit 3: Instructional Design in Geography and Economics :

- 3.1 Meaning, importance and format of lesson plan
- 3.2 Principles of lesson planning
- 3.3 Characteristics of a lesson plan

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- 3.4 Prepare Lesson Plan according to Active Learning Strategies
- 3.4 Unit plan
- 3.5 Resource Unit

Unit 4: Methods of Teaching Geography and Economics

- 4.1 Meaning and importance of methods of teaching Geography and Economics
- 4.2 Different Methods of teaching Geography and Economics
 - 4.1.1 Lecture Method
 - 4.1.2 Laboratory Method
 - 4.1.3 Observation Method
 - 4.1.4 Excursion Method
 - 4.1.5 Project Method
 - 4.1.6 Discussion Method
 - 4.1.7 Active Learning Strategies

Practicum

- 1. Preparation of charts, globe and models of Geography.
- 2. Preparation of transparencies about- section of volcanoes, seabed, plains etc.
- 3. Interpretation of weather maps
- 4. Drawing of geographical maps
- 5. Preparation of resource unit in Geography

Assignments

- 1. Visit to an observatory, planetarium or Geography museum
- 2. Collection of specimens
- 3. Preparation of a project report based on local geographical survey.

Note

1. Submission of report after doing any one of the above practical work

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	Prof S M

COMMERCE

Objectives:

- To introduce student teachers with the methodology of teaching used in teaching of Commerce in schools.
- To make student teachers aware of the values of Commerce and the relationship of Commerce with other subjects.
- To encourage student teachers to use a wider range of teaching techniques in order to enable them to plan their lessons in teaching of commerce.
- To acquaint student teachers with the role of teaching aids, textbook, homework, libraries in commerce.
- To equip student teachers with the curriculum.

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COURSE CONTENT:

UNIT-1

- Meaning, nature, scope and concept of Commerce.
- 2. Place of commerce in secondary school curriculum and its critical appraisal.
- 3. Commerce and its relationship with other Social Sciences.

UNIT - II

- 1. Different methods of teaching commerce, uses and critical analysis.
 - a. Lecture Method
 - b. Discussion Method
 - c. Problem-Solving Method
 - d. Project Method
 - e. Survey Method
 - f. Demonstration Method
- Commerce Text-books and Supplementary Materials.
 Techniques of teaching commerce subject: Questioning Answering, Assignment, Observation, Explanation and Illustration.

UNIT - III

- Analysis and Discussion on skills of teaching Commerce (practice for developing atleast 5 micro skills).
 - a. Skill of introducing the lesson
 - b. Skill of questioning
 - c. Skill of explanation
 - d. Skill of stimulus variation
 - e. Skill of black board writing
 - Lesson planning in commerce, Meaning, need and importance, construction of composite lesson plan. Lesson Plan according to Active Learning Strategies.
 - Development and utilization of teaching aids(projects, Non-projected and performing arts) required for commerce programme.

UNIT - IV

- Qualification, Qualities and Professional growth of Commerce Teacher.
- 2. Role of Co-curricular activities in commerce.
- 3. Types and Techniques of evaluation.



PRACTICALS:

Evaluation of a commerce text-book at Secondary level.

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 Writing objectives and specifications on any one topic from commerce and discussions amongst the group regarding decision making while selecting objectives and difficulties faced.

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Mathematics

Objectives: Upon completion of this course student teachers will be able to-

1. Recall the meaning, nature and scope of mathematics.

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- 2. Acquaint aims and objectives of teaching mathematics in Secondary school level.
- 3. Plan teaching in mathematics at micro and macro level.
- Prepare unit plans, resource unit and organize lesson to meet at different class room situations.
- 5. Analyse and evaluate the curriculum of mathematics at Secondary school level.
- Apply different approaches and methods of teaching mathematics in classroom situations.
- 7. Prepare and use instructional materials in teaching mathematics.
- 8. Prepare different kinds of test and understand the comprehensive evaluation.
- 9. Participate and organize the different co-curricular activities in mathematics.
- Understand the professional competencies, commitments and expectations of mathematics teacher.

CONTENT

Unit 1: Meaning, Nature and Scope of Mathematics

- 1.1 Meaning of Mathematics
 - 1.1.1. As a Science of Number
 - 1.1.2. As a Science of Quantity
 - 1.1.3. As a Science of Measurement
 - 1.1.4. As a Science of Logical reasoning
- 1.2 Nature of Mathematics
- 1.3 Scope of Mathematics
 - 1.2.1 Place of Mathematics in day today life activities
 - 1.2.2 Mathematics use in day to day life activities
 - 1.2.3 Relation with School subjects
 - 1.2.4 Relation with other Disciplines Engineering, Agriculture, Medicine

Unit 2 Aims and Objectives of Teaching Mathematics

ims/Values of Teaching Mathematics

Prof. S.K. Tiwari

Swa. Gulab Bai Yadav Smriti Shiksha Mahavidhyalaya BORAWAN (M.P.) 2.1.1 Meaning of Aim/Values

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- 2.1.2 Utilitarian Aim/Values
- 2.1.3 Disciplinary Aim/Values
- 2.1.4 Cultural Aim/Values
- 2.1.5 Intellectual Aim/Values
- 2.1.6 Aesthetic and Recreational Aim/Values
- 2.2 Instructional objectives of Teaching Mathematics
 - 2.2.1 Meaning of Instructional Objectives
 - 2.2.2 Instructional Objectives and there specifications of teaching mathematics
 - 2.2.3 Knowledge
 - 2.2.4 Understanding
 - 2.2.5 Application
 - 2.2.6 Skill
 - 2.2.7 Attitude
 - 2.2.8 Appreciation
 - 2.2.9 Interest
 - 2.2.10 Formulation and Statement of objectives in behavioural terms

Unit 3: Instructional Design in Mathematics and C0-curricular Activities in Mathematics :

- 3.1 Lesson Planning: Meaning ,Steps , Importance and Format of Lesson Plan
- 3.2 Unit Plan-Meaning ,Steps , Importance and Format of Lesson Plan
- 3.3 Resource Unit-Meaning, Steps, Importance and Format of Lesson Plan
- 3.4 Yearly Planning-Meaning, Principles and Format
- 3.5 Mathematics Club: Objectives of Maths club, organisation and activities
- 3.6 Mathematics Olympiads : objectives and importance
- 3.7 Mathematics Quiz: Organisation and importance
- 3.8 Mathematics Museum: Organisation and importance
- 3.9 Mathematics Fair: Organisation and importance
- 3.10Mathematics Laboratory : Objective, importance and uses
- 3.11Recreational activities in mathematics: Games, Puzzles, Riddles,
- etc., 3.12Ethno Mathematics

Unit 4: Approaches, Methods and Techniques of Teaching Mathematics

4.1 Learner Centered Approach

4.1.1 Inductive method and Deductive method



4.1.2 Analytical method and Synthetic method

4.2 Activity Centered Approach

- 4.2.1 Guided discovery method and Problem Solving Method
- 4.2.2 Project Method and Discovery Learning Method
- 4.2.3 Active Learning Strategies
- 4.2.4 CAI in Teaching Mathematics
- 4.1 Concept Mapping-Meaning, Advantages and Disadvantages
- 4.4 Techniques of teaching Mathematics
 - 4.4.1 Supervised study
 - 4.4.2 Oral work and written work
 - 4.4.3 Drill and Review
 - 4.4.4 Assignment in Maths
 - 4.4.5 Home work

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Q	Company.
	Henderson, K. et at (1975) Dynamics of Teaching Secondary Mathematics, London
ш	Houghton Miffin. Howard Eves, An Introduction to the History of Mathematics.
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Ω	Krulik and Weise (1975). Teaching Secondary School Mathematics. London W.B. Saunders.
ω	Kuppuswanny Ayyangar, N. (1988) The Teaching of Mathematics in New Education.
	Bangalore.
П	Mangal, S. K. (1989) Teaching of mathematics. Ludhiana: Prakash Brothers Publishers.
C.	Sidhu, K. S. Teaching of Mathematics, B'lore Sterling Publishers.
	Wren (1973). Basic Mathematical concepts, New York, McGraw Hill.
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Biological Science

Objectives: - On completion of the course the student teacher will be able to :

- Understand the nature, scope & importance of Biological Sciences and get acquainted with ancient as well as modern developments in the field of Bio-Sciences.
- Understand the Aims, Objectives of teaching Bio-Science and will be able to state the objectives in behavioral terms
- Acquaint with the Resources for teaching Biology & their effective Utilization.
- 4. Get exposed to Micro teaching and preparing Resource Unit, Unit Plan & Lesson Plans.
- Understand the concept of curriculum, principles of curriculum construction and trends curriculum revision
- Be introduced to various methods, approaches & models of teaching Biological Science and implement them in their teaching practice.
- Understand and prepare the different types of test items for the Evaluation of students performance in Biology.
- Appreciate and inculcate the Competencies and commitments needed for a biological Science Teacher.
- Plan & execute various curricular & co-curricular activities related to teaching of Bio-Science

CONTENT

Unit 1:1.1 Introduction to Teaching Biological Science

- 1.1.1 Biological Science: Meaning, Nature and Scope
- 1.1.2 Relationship between Biology & human welfare
- 1.1.3 Latest developments in the field of Biology

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- 1.2 Co-curricular Activities and Resources in Teaching Biological Science
- 1.2.1 Bio Science laboratory Need and importance, equipping, Bio-lab, Organizing the practical Work
- 1.2.2 Project Activities: Aquarium, Viverium, Terrariums, Museum, School garden,
- 1.2.3 Preservation of specimen through plastination-Meaning, Importance and Steps.
- 1.2.4 Meaning, importance and Organization of Co-Curricular Activities
- 1.2.5 Bio-Science Club organisation & its activities
- 1.2.6 Bio Science Exhibition
- 1.2.7 Field trips
- 1.2.8 Bio-Science Quiz
- 1.2.9 Nature Study
- 1.2.10 Bird watching
- 1.2.11 Collection & Preservation of Specimens-Plants and Animals

Unit 2: Aims and Objectives

1 Utilitarian, Cultural and Disciplinary Aims

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Shiksha Mahavidhyalaya
BORAWAN (M.P.)

Scientific Attitude and Training in Scientific Method

- 2.2 Instructional Objectives:
 - Bio Science in Secondary schools:

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- 2.2.1 As per NCERT Curriculum Framework-2000
- 2.2.2 As per NCTE Curriculum Framework
- 2.2.3 As per National Curriculum Framework-2009
- 2.3 Behavior Specifications of Instructional Objectives:
 - 2.3.1 Knowledge
 - 2.3.2 Understanding
 - 2.3.3 Application
 - 2.3.4 Skill

Unit 3: Approaches, Methods and Models of Teaching Biology

- 3.1 Approaches:
 - 3.1.1 Structure and function Approach
 - 3.1.2 Types specimen Approach
 - 3.1.3 Inductive and Deductive Approach
- 3.2 Methods of Teaching
 - 3.2.1 Guided Discovery Method
- 3.3 Models of Teaching:
 - 3.3.1 Biological Science Enquiry Model (Joseph Schwab)
 - 3.3.2 Memory Model (J. Lucas)

Unit 4: Instruction Design in Teaching Biological Science.

- 4.1 Pedagogical Analysis: Analysis of 8th, 9th and 10th Standard Biology Text book of Karnataka State
- 4.2 Lesson Planning- Meaning, Importance and format according to active learning strategies.
- 4.3 Unit Plan Meaning, importance and steps
- 4.4 Resource Unit Meaning, importance and components.

Assignments (any one)

- Preparing power point slides for any selected unit in VIII or IX class Biology.
- 2. Preparing a set of (OHP) transparencies
- 3. Slides for a selected Unit in 10th Std. Biology.

Practicum:

- 1. Writing of Instructional objectives & behavioral specifications on a selected Unit.
- 2. Preparing improvised apparatus in Biology

Preparing a lesson Plan on any topic in Biology using any innovative Method / Model of Teaching

Developing an Achievement test / Diagnostic test

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