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Pedagogy of Biological Science: Part - II

Course Code: BED605

Credit: 02 (L 2, T -0)

Contact Hours: 30

MM: 50

After going through the course the teacher trainee will be able to:

- Explore different ways of creating learning situations for different concepts of biological science;
- Formulate meaningful inquiry episodes, problem-solving situations, investigatory and discovery learning projects based on upper primary, secondary and higher secondary stages
- Develop ability to use biological science concepts for life skills
- Estimate the facilities required for the organization and maintenance of Science laboratory □ Organize Biology related activities through eco or science club during school attachment.
- study the science laboratories in schools – lay out, facilities, equipments, and materials, specimens, models, and other learning aids available that facilitate learning of Biology. **Course Outline:**

Unit I: Planning for Teaching-Learning Biological Science:

- Task analysis or pedagogical analysis, identification and organization of concepts for teaching-learning of Science.
- Instructional material required for teaching, identification and writing teaching objectives in behavioral terms, teaching operations,
- Organizing laboratory experiences and other activities for teaching-learning of Biological Science,
- Planning ICT applications in learning Science

Unit II: Lesson Planning and Approaches in Teaching:

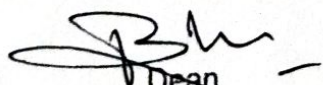
- Meaning and need of lesson planning, characteristics of good lesson plan, types of lesson plan,
- Approaches in lesson planning. Design of lesson plan in the content area of biological Science, simulation teaching.
- Formal Approaches: Observation, experimentation, demonstration, heuristic, project, lecture, laboratory, problem-solving, investigatory approach, concept mapping, programmed instruction, PLA technique, computer assisted instruction.
- Non-Formal Approaches: Assignment, tutorials, independent self-study, seminar/conferences, workshop, Eco-clubs, exhibitions, fair, museum, herbarium, vivarium etc.

Unit III: Learning Resources in Biological Science:


- Identification and use of learning resources in biological science from immediate environment, exploring alternative sources; Developing Science Kit;
- Designing Science laboratory- Use of science labs – facilities, equipments, materials and manuals, science records; Planning and organizing field observations (visit to botanical garden, science park, science centre, zoo, national laboratories etc);
- Using community resources for biology learning; Pooling of learning resources in school complex/block/ district level; Handling hurdles in utilization of resources.
- Facilitating learning progress of learners with various needs in biology; Ensuring equal partnership of learners with special needs; Stimulating creativity and inventiveness in biology;
- Organizing various curricular activities, such as debate, discussion, drama, poster making on issues related to science/biology; Organizing events on specific day, such as Earth Day, Environment Day, etc.;

Suggested Reading:

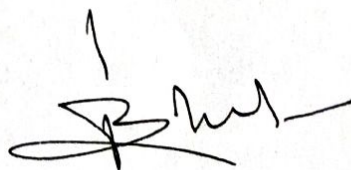
- Carin. A & B.R. Sund (1964): Teaching Science through Discovery, Charles E. Merrill Books, Inc., Columbus, Ohio.


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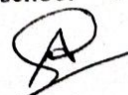

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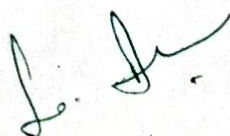
- Esler, K. William & Mark. K. Esler (2001): *Teaching Elementary Science (8th edition)* Wadsworth group, Thomas learning, Printed in the USA.
- Gupta S.K. (1983): *Technology of Science Education*, Vikas Publishing House Pvt Ltd, Delhi
- Hein, E. George & S. Price (1994): *Active assessment for Active science- a guide for Elementary school teachers*, Published by Heinemann, Printed in the USA.
- Heiss, E. D. Obourn E.S and Hoffmann C W (1961): *Modern Science teaching* by Macmillan publication, New York.
- Jakab, Cheryl (1990): *Exploring together (Revised Edition) – A science course for Primary schools*, Phoenix Education Private Limited.
- Jennings T (1986): *the young scientist investigates- Teacher's Book of Practical work*, Oxford University Press, Oxford.
- Keith Skamp (ed) (2004): *Teaching primary science constructively -2nd edition*, Thomson, by Nelson Australia Private Ltd.
- Maheshwari, V. K. and Maheshwari, Sudha (2010): *Teaching of Science*, R. Lall Book depot, Meerut.
- Mason M & Ruth T. Peters: *Teacher guide for Life sciences*, Published by D. Van Nostrand Company, Inc, New york.
- NCERT (1982): *Teaching of Science in Secondary Schools*. New Delhi: NCERT,
- Novak. D.J & D. Bob Gowin (1984): *Learning how to Learn*, published by the press syndicate of the University of Cambridge, Printed in the USA.
- Rawat D. S. (1996): *Biology Teaching*, Agra: Sahitya Prakashan,
- Saunders, N.H. (1962) *The teaching of General science in Tropical secondary schools*; London; Oxford University press.
- Sundarajan, S. (1995): *Teaching Science in Middle School: A Resource Book*. Orient Longman: Hyderabad
- Turner, T & W. Dimarco (1988); *learning to teach science in the secondary school – a companion to school experience*. Published by Routledge, USA.



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