

SEMESTER - III**CPS 2c – Part III - PEDAGOGY OF PHYSICAL SCIENCE****Credits: 2****Internal: 20 marks****Hours/Week: Theory-2hrs & Practical- 4hrs****External: 30 marks****Total: 50 marks****Course Learning Outcomes:****At the end of the course, the Student-teachers will be able to**

- classify the various learning resources to support effective teaching;
- execute Action Research and disseminate the results;
- gain clarity on the various tasks to be executed during field immersion;
- prepare reflective journals on observation of peer teaching;
- prepare reflective journals on co-teaching with mentors;
- design lesson plans in Physical Science;
- prepare teaching learning materials to facilitate teaching in Physical Science;
- acquire skills in teaching competency; and
- prepare reflective journal on School Internship.

Unit I: Learning Resources

Physics and Chemistry Laboratory- Structure and Design- Organization and maintenance of the Physical Science Laboratory- Maintenance of various Registers: Accession –Consumable - Non-consumable - Issue and Breakage Registers-Storage of Apparatus and Chemicals. Science Textbooks- Qualities of a good Science textbook- Science Library: Encyclopedias- Dictionaries, Magazines, Journals, Activity books, Science fiction, Science learning books. Web-based Learning- Multimedia - use of Internet - E-learning - Tele and Video Conferencing.

Unit II: Action research

Action Research- Meaning, need for classroom research- difference between Action Research and Fundamental Research- steps in Action Research- journaling the results of classroom Research.

Unit III: Field Immersion

Tasks of student-teachers during Internship:

- Observation of the teaching of mentor teachers and peer student-teachers,
- Institutional and Individual case study,
- Lesson plan, Unit plan and teaching- learning materials,
- Question paper and other tools of assessment,
- Reflective diary of school internship,
- Co-Scholastic activities,
- Teacher as a substitute teacher.

Suggested References:

Anderson, R.D et. al.(1992). *Issues of Curriculum Reform in Science, Mathematics and Higher Order Thinking- Across the Disciplines- The Curriculum Reform Project*. U.S.A.: University of Colorado.

Carin, R. & Sund, R. (1989). *Teaching Modern Science*. U.S.A : Merrill Publishing Co.

Chauhan, S.S. (1985). *Innovation in Teaching and Learning Process*. New Delhi: Vikas Publishing House.

Falvery, P., Holbrook, J. & Conian, D. (1994). *Assessing Students*. Hongkong: Longman Publications.

Gupta, S.K. (1985). *Training of Physical Science in Secondary Schools*. New Delhi: Sterling Publication (Pvt) Limited.

Harms, N. & Yager, R. (1981). *What Research Says to the Science Teacher? Vol. 3*, U.S.A: National Science Teachers Association.

- Heiss, O. & Hoffman.(1961).*Modern Science Teaching*. New York: Macmillan & Co, Limited.
- Husen, T. & Keeves, J.P., (Ed.). (1991). *Issues in Science Education*. London: Pergamon Press.
- Jenkins, E.W. (2000). *Innovations in Science and Technology Education. Vol. VII*, Paris: UNESCO.
- Khana, S.D., Sexena, V.R. Lamba, T.P., & Murthy, V. (1976). *Technology of Teaching*. Doaba Publishing House.
- Mangal S.K., & Uma Mangal. (1999). *Essentials of Educational Technology*. New Delhi: PHI Learning (P) Ltd.
- Natrajan, C. (Ed.). (1997). *Activity Based Foundation Course on Science Technology and Society*. Mumbai: Homi Bhaba Centre for Science Education.
- Nayak. (2003). *Teaching of Physics*. New Delhi: APH Publications.
- Owen, C.B. (1966). *Method of Science Mastery*. English Language Society and Macmillan Company Limited.
- Pandey. (2003). *Major Issues in Science Teaching*. New Delhi: Sumit Publications.
- Paneerselvam, A. & Rajendiran,K. (2005). *Teaching of Physical Science*. Chennai: Shantha Publication.
- PanneerSelvam, A. (1976). *Teaching of Physical Science (Tamil)*. Chennai: Government of Tamil Nadu.
- Popham, W.J. (2010). *Classroom Assessment: What teachers need to know (6th ed.)*. New York: Prentice Hall.
- Radha Mohan. (2007). *Innovative Science Teaching for Physical Science Teachers*. New Delhi: Prentice Hall of India Private Limited.
- Rao, C.S.(1968). *Science Teachers Handbook*. American Peace Crops.
- Sampath, K. (1981). *Introduction to Education Technology*. Sterling Publishers.

Sharma, P.C. (2006). *Modern Science Teaching*. New Delhi: Dhanpat Rai Publications,

Sharma, R.C. (2009). *Modern Science Teaching*. Meerut: Dhanpat Rai and Sons.

Siddiqui & Siddiqui. (1985). *Teaching of Science Today and Tomorrow*. New Delhi: Doals House.

Sonika Rajan. (2012). *Methodology of Teaching Science*. New Delhi: Dorling Kindersley (India) Pvt.Ltd.

Thurber, W.A. & Collette,A.T.(1964). *Teaching Science in Today's Secondary School*. New Delhi: Prentice Hall of India Private Limited.

Williams, B. (1999). *Internet for Teachers*. London: John Wiley & Sons.

Yadav, M.S. (2003). *Teaching of Science*. New Delhi: Anmol Publications.

பன்னீர் செல்வம், அ. (2009), இயற்பியல் வேதியியல் கற்பிக்கும் முறைகள். சென்னை: சாந்தா பப்ளிஷர்ஸ்

உமா பாஸ்கரன், T. (2009). பொருளறிவியல் கற்பித்தல் முறைகள் -I. சென்னை: சாரதா பதிப்பகம்.

ராதா மோகன். (2010) பொருளறிவியல் கற்பித்தல் முறைகள். புது டெல்லி: நீல்கமல் .செந்தில் குமார், சு. (2010). பொருளறிவியல் தாள்- I: நாமக்கல் : சமயுக்தா பதிப்பகம்.
