

Government Degree College Baramulla

SEMESTER 1st

Multidisciplinary Course

Subject: Chemistry

Title: Chemistry in Everyday Life
CREDIT: 03 (Three)

Code: BCH22M103
CONTACT HOURS: 48

Course Objectives: This course shall impart the knowledge chemistry in day to day life. The students shall be introduced with the

- *food standards and adulterations;*
- *Pesticides and insecticides; and*
- *Environmental issues.*

Course Outcome: After completing the course, the student shall understand the;

- Food adulterations, detection and measurements and safety stands*
- Different classes of pesticides and fungicides, their uses and impacts; and*
- Air pollutants and pollution laws.*

Part 1: Theory (3 Credits)

UNIT-I Food Adulteration Practices

(16 contact hours)

Adulteration-Definition; types-intentional, incidental, metallic and packaging hazard. Causes and methods of food adulteration. General Impact on Human Health. Detection and Prevention of Food Adulteration. Mitigation measures for addressing food adulteration.

Food additives- Definition, classification, role of additives in processed foods. Safe levels of additive uses and the institutions involved in the process. Safety standards and quality control

Unit-II Pesticides & Fungicides

(16 Contact Hours)

Chemistry of Pesticides: Classification of pesticides based on use and chemical nature. Development of Pesticides. Chemical and Botanical pesticides,. Study of pesticides with respect to physical and chemical properties, formulation, degradation and metabolism of organophosphates, emamectic benzoate, chlorpyrifos, dimethoate, quinalphos.

Study of fungicides: Systematic and non-systematic fungicides. Difenaconazole, trifloxystrobin, tebuconazole, mancozeb (manganese ethylenebis(dithiocarbamate) (polymeric).

Effect of pesticides and fungicides on microorganisms, aquatic system & fertility of soil.

UNIT –II: Indoor Pollution

(16 Contact Hours)

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Introduction, indoor air pollution sources, indoor pollutant levels, particle-phase, gas-phase, and biological pollutants found in indoor environments and their impact on human health, Air Pollution Acts, Model indoor pollutant emission, transport and control of pollutants, indoor pollutant control technologies and determination of their effectiveness

Books Recommended:

1. A first course in Food Analysis, A.Y. Sathe, New Age International (P) Ltd., 1999.
2. Food Safety, case studies – R. V. Bhat, NIN, 1992.
3. Domestic Tests for Food Adulterations, H. G. Christian, Forgotten books.
4. A Laboratory Manual of Food Analysis, S. Sehgal, Wiley Publishers.
5. Food Safety and Standards Act, 2006. Bare ACT, November 2020, Commercial law publishers
6. Environmental Chemistry; S.E.Manahan (6th /7th /8th/9thEdns); LewisPublishers.
7. Environmental Chemistry; 2nd edn; Colin Baird; Freeman & Co; 1991.
8. Principles of Modern Chemistry; 2nd edn; Oxtoby and Nachtrieb; Saunders College Publications; 1987.
9. Chemistry Fundamentals: An Environmental Prospective; 2nd edn; Buell and Girad; Jones and Barlett; 2013.
10. www.chemistryincontext; (American Chemical Society)
11. Cosmetic formulation, Principles and practice; Heather A. E Binson, Michael S. Roberts, Vania Rodrigues Leite-Silva, Kenneth A. Watters, CRC press (Taylor and Francis group).
12. Text book of Polymer science; Billmeyer F. W.; John Wiley and Sons; Inc.
13. Salthammer, T. and Uhde, E., Organic Indoor Air Pollutants: occurrence, measurement, evaluation, Wiley-VCH (2009)
14. Seinfeld, J. H. and Pandis, S. N., Atmospheric chemistry and physics: from air pollution to climate change, Wiley (2006)
15. Spengler, J., McCarthy, J., and Samet, J. Indoor air quality handbook, McGraw-Hill Professional (2001)
16. N. N. Melnikov: Chemistry of Pesticides (English) Springer
17. M. B. Green, G. S. Hartley, T. F. West, Chemical for Crop Improvement and Pest Management (Pergamon).
18. R. Clemlyn: Pesticides. 4) K. H. Buchel: Chemistry of Pesticides.