



**CALICUT UNIVERSITY – FOUR-YEAR UNDER
GRADUATE PROGRAMME (CU-FYUGP)**

BSc CHEMISTRY

Programme	B. Sc. Chemistry				
Course Title	CHEMISTRY IN DAILY LIFE				
Type of Course	MDC				
Semester	II				
Academic Level	100-199				
Course Details	Credit	Lecture per week	Tutorial per week	Practical per week	Total Hours
	3	3	-	-	45
Pre-requisites	Role of chemicals in or life. Basic idea of environmental pollution.				
Course Summary	This course ensures that the students acquire a profound knowledge and understanding on chemicals that are used in daily life.				

Course Outcomes (CO):

CO	CO Statement	Cognitive Level*	Knowledge Category#	Evaluation Tools used
CO1	<i>Know the different chemicals that sustain our life</i>	U	C	Instructor-created exams / Quiz
CO2	<i>Understand the role of chemistry in forensic analysis.</i>	U	C	Instructor-created exams / Seminar
CO3	<i>Understand the application of chemistry in agriculture and need of green methods</i>	U	C	Instructor-created exams / Assignment
CO4	<i>Understand the chemistry of soaps, synthetic detergents and their environmental effects.</i>	U	C	Instructor-created exams / Seminar
CO5	<i>Understand the chemistry of cosmetics and the effect on health.</i>	U	C	Instructor-created exams / Quiz

CO6	<i>Understand the chemistry of drugs, food additives their action and possible side effects</i>	U	C	Seminar/Viva
* - Remember (R), Understand (U), Apply (Ap), Analyse (An), Evaluate (E), Create (C) # - Factual Knowledge(F) Conceptual Knowledge (C) Procedural Knowledge (P) Metacognitive Knowledge (M)				

Detailed Syllabus:

Module	Unit	Content	Hrs	Marks
I	Chemistry in Biological Systems & Forensic Chemistry		12	22
	1	Vitamins and Minerals: Name, source, function and deficiency diseases.	2	
	2	Enzymes - Classifications, characteristics, examples.	1	
	3	Hormones - Sex hormones - example, function. Pheromones.	2	
	4	Brain chemicals and human mood variations	1	
	5	General discussion of poisons with special reference to mode of action of cyanide, organophosphates and snake venom.	2	
	6	Detection of finger print, blood stain, semen, Breath analyzer	2	
	7	Sport doping-Steroids-Anabolic agents, Stimulants, Diuretics	2	
II	Chemistry and Agriculture		6	12
	8	Essential nutrients for plants – NPK value Chemical composition of soil, Soil enrichment	1	
	9	Fertilizers- natural, synthetic, mixed, NPK fertilizers. Excessive use of fertilizers and its impact on the environment. Bio fertilizers.	2	
	10	Pesticides: Classification – Insecticides, herbicides, rodenticides and fungicides (definition and examples only) – Non-degradable pesticides	2	
	11	Pesticide pollution and its impact on environment – Endosulfan disaster in Kerala (brief study).	1	
III	Cleansing agents and cosmetics		9	18
	12	Soaps – Hard and soft soaps – Alkali content – TFM – Detergents (classification) – Cleaning action – Advantages and disadvantages of soaps and detergents –	3	
	13	Shampoos: Ingredients and functions – Different kinds of shampoos (Antidandruff, anti-lice, herbal and baby shampoos).	1	
	14	Tooth paste: Composition and health effects. Hair dye: Chemicals used and its harmful effects.	1	
	15	Face and skin powders: Types, ingredients and functions. Cleansing creams: Cold creams, vanishing creams and bleach creams.	2	

	16	Perfumes, antiperspirants, sun screen preparations, nail polishes, lipsticks, rouges, eyebrow pencils and eye liners (ingredients and functions) – Harmful effects of cosmetics.	2	
IV	Pharmaceuticals and Dyes		9	18
	17	Drug: Chemical name, generic name and trade names with examples.	1	
	18	Terminology: Prodrug, pharmacy, pharmacology, pharmacophore, pharmacognosy, pharmacodynamics and pharmacokinetics (elementary idea only).	2	
	19	Antipyretics, analgesics, antacids, antihistamines, antibiotics, antiseptics, disinfectants, anaesthetics, tranquilizers, narcotics, antidepressants and psychedelic drugs (definition and examples).	2	
	20	Dyes: classification based on constitution, application, examples, uses.	2	
	21	Dyes: Requirements of a dye – Classification based on mode of application to the fabric –	1	
	22	Applications of dyes (general study). Ancient and modern colours – Mention of indigo and alizarin.	1	
V	Food Chemistry (OPEN ENDED)		9	
	23	Common adulterants Food Additives: Artificial sweeteners – Taste enhancers Artificial ripening of fruits and its side effects. Modern Food Habits:		

References

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3. U. Satyanarayana, U. Chakrapani, *Biochemistry*, Elsevier Health Sciences, 2014.
4. N. V. Bhagavan, *Medical Biochemistry*, Academic Press, 2002.
5. Pharmaceutical Analysis, T. Higuchi and E.B. Hanseen, John Wiley and Sons, New York.
6. Quantitative Analysis of drugs, P.D. Sethi, 3rd edition, CBS Publishers, New Delhi, 1997.
7. Practical Clinical biochemistry methods and interpretations, R. Chawala, J.P. Brothers Medical Publishers (P) Ltd., 1995.
8. Laboratory manual in biochemistry, J. Jayaraman. New Age International Publishers, New Delhi, 1981.
9. H. S. Rathore, L. M. L. Nollet, *Pesticides: Evaluation of Environmental Pollution*, CRC Press, USA, 2012.
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11. B. K. Sharma, *Industrial Chemistry*, Krishna Prakashan Media, 1991.
12. M. S. R. Winter, *A Consumer's Dictionary of Cosmetic Ingredients*, 7th Edn., Three Rivers Press, New York, 2009.
13. Gurdeep R. Chatwal, *Synthetic Drugs*, Himalaya Publishing House, Bombay, 1995.
14. Jayashree Ghosh, *A Textbook of Pharmaceutical Chemistry*, 3rd Edn., S. Chand and Company Ltd., New Delhi, 1999.
15. Lillian Hoagland Meyer, *Food Chemistry*, 1st Edn., CBS Publishers & Distributors, New Delhi, 2004.
16. B. A. Fox, A. G. Cameron, E. Arnold, *Food Science, Nutrition and Health*, 6th Edn., Edward Arnold, London, 1995.

17. A. Siddiqui, N. Anusha, *Deleterious Effects of Food Habits in Present Era*, J. Aller. Ther. 3:114, 2012.
18. H. S. Ramaswamy, M. Marcotte, *Food Processing: Principles and Applications*, CRC Press, 2005.
19. A. F. Smith, *Encyclopedia of Junk Food and Fast Food*, Greenwood Publishing Group, 2006.
20. T. A. M. Sagati, *The Chemistry of Food Additives and Preservatives*, John Wiley & Sons, 2012.
21. S. N. Mahindra, *Food Additives*, APH Publishing, 2009.
22. Biju Mathew, *Anchor India*, Info Kerala Communications Pvt. Ltd., 2015.

Mapping of COs with PSOs and POs :

	PSO 1	PSO 2	PSO 3	PSO4	PS O5	PSO 6	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO 1	1	-	-	-	1	1	1			2	1		
CO 2	1		-	-	1	1	1			1	1		1
CO 3	-	-		1	2	2	1			2	2		1
CO 4	-	-			1	2	1			1	1	1	1
CO 5	-		-	1	2	2	1			2	2	1	1
CO 6	-	-	-	1	2	2	1			2	2	1	1

Correlation Levels:

Level	Correlation
-	Nil
1	Slightly / Low
2	Moderate Medium
3	Substantial / High

Assessment Rubrics:

- Quiz / Assignment/ Quiz/ Discussion / Seminar
- Midterm Exam
- Programming Assignments (20%)
- Final Exam (70%)

Mapping of COs to Assessment Rubrics :

	Internal Exam	Assignment/viva	Quiz/seminar/ Group discussion	End Semester Examinations
CO 1	✓		✓	✓
CO 2	✓		✓	✓
CO 3	✓	✓		✓
CO 4	✓		✓	✓
CO 5	✓		✓	✓
CO 6		✓	✓	