



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

**BSc CHEMISTRY**

Programme	B. Sc. Chemistry				
Course Title	<b>CHEMISTRY IN DAILY LIFE</b>				
Type of Course	<b>MDC</b>				
Semester	<b>II</b>				
Academic Level	<b>100-199</b>				
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
<b>I</b>	<b>Chemistry in Biological Systems &amp; Forensic Chemistry</b>		<b>12</b>	<b>22</b>
	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	
<b>II</b>	<b>Chemistry and Agriculture</b>		<b>6</b>	<b>12</b>
	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	
<b>III</b>	<b>Cleansing agents and cosmetics</b>		<b>9</b>	<b>18</b>
	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	
<b>IV</b>	<b>Pharmaceuticals and Dyes</b>		<b>9</b>	<b>18</b>
	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	
<b>V</b>		<b>Food Chemistry (OPEN ENDED)</b>	<b>9</b>	
	23	Common adulterants Food Additives: Artificial sweeteners – Taste enhancers Artificial ripening of fruits and its side effects. Modern Food Habits:		

### References

1. M. V. Kulkarni, *Biochemistry*, Pragati Books Pvt. Ltd., 2008.
2. S. C. Rastogi, *Biochemistry*, 2nd Edn., Tata McGraw Hill Publishing Co., New Delhi, 2007.
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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.
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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.
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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. Mahindru, *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		✓	✓	