MAHATMA GANDHI UNIVERSITY, KERALA

Abstract

Bachelor of Science (Honours) Chemistry - Third Semester - Recommendations for modifications to the Course Outcomes, Course Content and Duration for End Semester Evaluation - Practical - Academic Council Resolution - Orders issued

ACA 16

No. 7506/ACA 16/2025/MGU Priyadarsini Hills,Dated: 12.08.2025

Read:-1. U.O. No. 5797/AC A16/2024/MGU, dated. 27.06.2024

2. Item No: 61/43048/AC A16 -1/2025, of the minutes of the meeting of the Academic Council held on 04.07.2025.

ORDER

The syllabi of various Under Graduate Programmes coming under the MGU-UGP (Honours) Regulations, 2024, have been approved vide paper read as (1) above and published on the website of the University.

The Expert Committee on Chemistry (UG), at its meeting discussed the need to modify the **Course Outcomes**, **Course Content** and **duration for End Semester Evaluation - Practical** of DSC, DSE, MDC and VAC type courses in the **Third Semester** syllabus of **Bachelor of Science (Honours) Chemistry** programme and has submitted recommendations. (Recommendations are attached as Annexure)

These recommendations were placed before the Academic Council for consideration as per the orders of the Vice Chancellor on 15.05.2025.

The Academic Council meeting, vide paper read as (2) above, has resolved to approve the recommendations of the Expert Committee on Chemistry (UG).

Hence, the **Course Outcomes, Course Content** and **duration for End Semester Evaluation - Practical** of the said course in the **Third Semester** syllabus of **Bachelor of Science (Honours) Chemistry** programme stands modified to this extent.

Orders are issued accordingly.

SUDHA MENON J

ASSISTANT REGISTRAR III

(ACADEMIC)
For REGISTRAR

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1. PS to VC
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5. Convenor, Expert Committee, Chemistry (UG)
6. Tabulation, Academic Sections Concerned
7. AC C1/ AC C2 Sections
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File No: 43048/AC A16-1/2025/ACA 16

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Section Officer

ANNEXURE

SEMESTER III

Course Name : Inorganic Chemistry-1
Course Code : MG3DSCCHE200

Mode of Assessment

B. End Semester Evaluation	Page No.
Practicals Marks: 35 Marks Duration **(Modified)**: 3 hrs.	37

Course Name : Organic Chemistry-1
Course Code : MG3DSCCHE201

COURSE OUTCOMES (CO)

CO No.	Expected Course Outcome (Modified)	Learning Domains (Modified)	PO No. (Modified)	Page No.
1	Critically analyse the physical properties, industrial applications, and preparation methods of alkanes, alkenes, and alkynes; evaluate their reaction mechanisms and predict reaction outcomes.	E	1,2,10	39
2	Analyse aromaticity using Hückel's rule, differentiate between aromatic, antiaromatic, and non-aromatic compounds, and examine aromatic substitution reactions.	An	1,2	
3	Interpret the stereochemical features of organic molecules by identifying types of isomerism, assigning R, S, E, and Z configurations, and comparing the stabilities of different conformations.	An	1,2,10	
4	Analyze the structure and properties of organic compounds by identifying aromaticity, unsaturation, and physical constants, and apply green chemistry principles in their synthesis.	S	1,2,4,6, 10	
5	Removed			
6				

COURSE CONTENT

Content for Classroom Transaction (Units)

Module	Units	Course Description (Modified)	Hours (Modified)	CO No. (Modified)	Page No.
1	1.1	No Change	No Change	1	40
	1.2			1	
	1.3			1	
2	2.1			2	
	2.2			2	
	2.3			2	41
	2.4			2	
3	3.1			3	
	3.2			3	
	3.3			3	
	3.4			3	
	3.5			3	
4	4.1		7	4	
	4.2		8	4	
	4.3	**Preparation Involving Synthetic Sequences by the Green Alternatives Chemical Methods:** • 1,1′-bis-2-naphthol (BINOL) from 2-naphthol • Photochemical preparation of benzopinacol from benzophenone, • Acid-catalyzed conversion of benzopinacol benzopinacolone, • Acetylation of aniline to acetanilide using greener methods.	8	4	
	4.4	**Microwave assisted Organic Synthesis:** • Oxidation reactions • Ester hydrolysis • Esterification • Chalcone synthesis.	7	4	

Mode of Assessment

B. End Semester Evaluation	Page No.
Practicals Marks: 35 Duration**(Modified)**: 3 hrs.	42

Course Name : Basic Analytical Chemistry
Course Code : MG3DSECHE200

COURSE OUTCOMES (CO)

CO No.	Expected Course Outcome (Modified)	Learning Domains (Modified)	PO No. (Modified)	Page No.
1	Explain the fundamental concepts of statistical analysis and graphical representation of dataset and qualitative analysis of chemical samples in order to foster essential skills for success in analytical chemistry.	U	1,2,3,10	44
2	Demonstrate proper use and maintenance of chemicals laboratory apparatus and safe laboratory practices.	A	1,2,3	
3	Discuss the principles of quantitative analytical methods, with an emphasis on volumetric titrations and gravimetric analysis;	A	1,2,3	
4	Analyse various separation and purification techniques including chromatography.	An	1,2,3	
5	Removed			
6				
7				

COURSE CONTENT

Content for Classroom Transaction (Units)

Module	Units	Course Description	Hours	CO No. (Modified)	Page No.
1	1.1	No Change	No Change	1	45
	1.2			1	
	1.3			1	
2	2.1			2	
	2.2			2	
	2.3			2	

	2.4			2	
	2.5			2	
3	3.1			3	
	3.2			3	
	3.3			3	
	3.4			3	46
4	4.1			4	
	4.2			4	
	4.3			4	

Course Name : Introduction to Nanoscience
Course Code : MG3DSECHE201

COURSE OUTCOMES (CO)

CO No.	Expected Course Outcome (Modified)	Learning Domains (Modified)	PO No. (Modified)	Page No.
1	Explain the fundamental concepts of nanomaterials and compare bottom-up and top-down approaches in the synthesis of nanomaterials.	An	1,2, 3	48
2	Describe various characterisation techniques of nanomaterials.	U	1,2, 3	
3	Explain the properties of different types of nanomaterials.	U	1,2, 3	
4	Analyse the applications of nanomaterials in various fields.	An	1,2 3,10	
5	Removed			

COURSE CONTENT

Content for Classroom Transaction (Units)

Module	Units	Course Description	Hours	CO No. (Modified)	Page No.
1	**Classification and synthesis of Nanomaterials**				49
	1.1	No Change	No Change	1	
	1.2			1	

	1.3	No Change	No Change	1	49
	1.4			1	
	1.5			1	
2	**Characterisation of Nanomaterials**				
	2.1	No Change	No Change	2	
	2.2			2	
	2.3			2	
3	**Properties of Nanomaterials**				
	3.1	No Change	No Change	3	
	3.2			3	
	3.3			3	
	3.4			3	
	3.5			3	
4	**Applications of Nanoparticles**				50
	4.1	No Change	No Change	4	
	4.2			4	
	4.3			4	
	4.4			4	
	4.5			4	

Course Name : Safe Laboratory Practices in Chemistry
Course Code : MG3DSECHE202

COURSE OUTCOMES (CO)

CO No.	Expected Course Outcome (Modified)	Learning Domains (Modified)	PO No. (Modified)	Page No.
1	Apply safe laboratory practices by recognizing hazards, minimizing risks, adopting green methods, and effectively using protective equipment.	A	1,2,10	52
2	Apply proper handling, storage, transport, and disposal practices for hazardous chemicals and wastes by interpreting safety data, labels, and hazard codes.	A	1,2,10	

3	Analyze laboratory hazards, equipment risks, emergency responses, and case studies like the Bhopal tragedy to identify causes and recommend effective safety strategies.	An	1,2,10	52
4	Apply laboratory safety practices by demonstrating the correct use of equipment, interpreting chemical safety data, and evaluating hazards through reports and analysis.	A	1,2,10	
5	Removed			

COURSE CONTENT

Content for Classroom Transaction (Units)

Module	Units	Course Description	Hours	CO No. (Modified)	Page No.
1	1.1	No Change	No Change	1	53
	1.2			1	
	1.3			1	
	1.4			1	
	1.5			1	
2	2.1			2	
	2.2			2	
	2.3			2	
	2.4			2	
3	3.1			3	54
	3.2			3	
	3.3			3	
	3.4			3	
4	**Demonstration experiments and Theory***				
		No Change	No Change	4	

*Theory of the demonstration experiments need to be studied, can be asked for examination.

Course Name : Chemistry in Everyday Life
Course Code : MG3MDCCHE200

COURSE CONTENT
Content for Classroom Transaction (Units)

Module	Units	Course Description	Hours	CO No.	Page No.
3	**Demonstration Experiments and Theory ***				57-58
	No Change	No Change	No Change	No Change	

*Theory of the demonstration experiments need to be studied, can be asked for examination.

Course Code : MG3VACCHE200
Course Name : Forensic Chemistry

COURSE OUTCOMES (CO)

CO No.	Expected Course Outcome (Modified)	Learning Domains (Modified)	PO No. (Modified)	Page No.
1	Understand and apply principles of toxicology to identify, analyze, and manage poisoning cases.	A	1,2,6,10	60
2	Investigate and analyze explosive incidents and security threats using forensic science principles.	A	1,2,6,8,10	
3	Detect and analyze forgery, counterfeiting, and authenticity in documents, currency, and precious items.	An	1,2,6,10	
4	Analyze physical and biological evidence using forensic techniques to aid criminal investigations.	An	1,2,6,8,10	
5	Removed			

COURSE CONTENT
Content for Classroom Transaction (Units)

Module	Units	Course Description	Hours	CO No. (Modified)	Page No.
1	**Poisons**				61
	1.1	No Change	No Change	1	

	1.2			1	
	1.3			1	
	1.4			1	
2	**Crime Detection**				
	2.1	No Change	No Change	2	61
	2.2			2	
	2.3			2	
	2.4			2	
	2.5			2	
3 (a)	**Forgery and Counterfeiting**				
	3.1	No Change	No Change	3	
	3.2			3	
	3.3			3	
3 (b)	**Tracks and Traces**				
	3.4	No Change	No Change	4	62
	3.5			4	
	3.6			4	
	3.7			4	

Course Code : MG3DSCCHE202
Course Name : Inorganic and Organic Chemistry

Mode of Assessment

B. End Semester Evaluation	**Page No.**
Practicals Marks: 35 Duration **(Modified)**: 3 hrs.	67