



MAHATMA GANDHI UNIVERSITY, KERALA

Abstract

Bachelor of Science (Honours) Biological Techniques and Specimen Preparation - Fifth Semester - Modifications to the Course Outcomes, Course Content and pattern for End Semester Evaluation - Approved - Orders Issued.

ACA 16

No. 5274/ACA 16/2026/MGU

Priyadarsini Hills, Dated: 26.05.2026

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

2. Minutes of the meeting of the Expert Committee on Zoology (UG)

4. Orders of the Vice Chancellor under Section 10 (17), Chapter III of the Mahatma Gandhi University Act 1985, dated 23.05.2026.

ORDER

The syllabi of various Honours 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 Zoology (UG), deliberated on modifying the **Course Outcomes, Course Content and pattern for End Semester Evaluation of the DSC, DSE and SEC** type courses in the **Fifth Semester** syllabus of **Bachelor of Science (Honours) Biological Techniques and Specimen Preparation** programme and has submitted recommendations, vide paper read as (2) above. **(Recommendations are attached as Annexure).**

Considering the urgency of the matter, sanction has been accorded by the Vice Chancellor, in exercise of the powers of the Academic Council vested upon him under Section 10(17), Chapter III of the Mahatma Gandhi University Act 1985, vide paper read as (3) above, to approve the aforementioned recommendations.

Hence, the **Course Outcomes, Course Content and pattern for End Semester Evaluation** of the said courses in the **Fifth Semester** syllabus of **Bachelor of Science (Honours) Biological**

Techniques and Specimen Preparation programme stands modified to this extent.

Orders are issued accordingly.

SUDHA MENON J

ASSISTANT REGISTRAR III

(ACADEMIC)

For REGISTRAR

Copy To

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3. Convenor, Expert Committee, Zoology(UG)
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Section Officer

The document is digitally approved. Hence signature is not needed.

ANNEXURE
SEMESTER V

ALL COURSES

Course Level	300-399 (Modified)
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Course Name : Developmental Biology

Course Code : MG5DSCBTS300

Course Outcomes (CO)

CO.No	Expected Course Outcome	Learning Domains (Modified)	PO.No	Page No.
1	No Change	U	No Change	87
2		No Change		
3				
4				
5				

Course Content

Content for Classroom transaction (Units)

Module	Units	Course Description	Hours (Modified)	CO.No (Modified)	Page No.
1	1.1	No Change	No Change	No Change	88-89
	1.2		10		
2	2.1		3	2	
	2.2		No Change		
3	3.1		3	No Change	
	3.2		5	3,4	
	3.3		6	No Change	
	3.4		5		
4			No Change	1,3	
5			Teacher Specific Content		

Mode of Assessment

Assessment Type	B. End Semester Evaluation (Modified)			Page No.
	Theory			90
	Total Marks = 50		Duration- 1.5 hrs	
	Type of Questions	No. of Questions to be Answered	Total Marks	
	Multiple Choice Questions	10 out of 10	10 x 1 = 10	
Short Questions	10 out of 12	10 x 2 = 20		
Short Essays	5 out of 8	5 x 4 = 20		

Course Name : Molecular Biology

Course Code : MG5DSCBTS301

Course Outcomes (CO)

CO.No	Expected Course Outcome (Modified)	Learning Domains (Modified)	PO.No. (Modified)	Page No.
1	No Change	K,U	No Change	91
2		K,U		
3	To develop the ability to follow laboratory safety rules, apply aseptic techniques correctly, handle laboratory materials properly, prepare solutions for molecular biology experiments, and carry out basic extraction and separation techniques effectively.	U,A		
4	No Change	No Change		
5		K,U		

Course Content

Content for Classroom transaction (Units)

Module	Units	Course Description	Hours	CO.No (Modified)	Page No.
1	No Change				92-93
2					

3	3.1	No Change	No Change	No Change	
	3.2			2	
	3.3			2	
	3.4			4	
	3.5			4	
	3.6			5	
	3.7			5	
4	4.1	No Change	No Change	3	
	4.2			3,4	
	4.3				
5		Teacher Specific Content			

Mode of Assessment

Assessment Type	B. End Semester Evaluation (Modified)			Page No.
	Theory			94
	Total Marks = 50		Duration- 1.5 hrs	
	Type of Questions	No. of Questions to be Answered	Total Marks	
	Multiple Choice Questions	10 out of 10	10 x 1 = 10	
Short Questions	10 out of 12	10 x 2 = 20		
Short Essays	5 out of 7	5 x 4 = 20		

Course Name : Genetics
Course Code : MG5DSCBTS302

Course Outcomes (CO)

CO.No	Expected Course Outcome	Learning Domains	PO.No. (Modified)	Page No.
1	No Change	No Change	2	96
2			3	
3			10	
4			2	

Course Content

Content for Classroom transaction (Units)

Module	Units	Course Description	Hours	CO.No (Modified)	Page No.
1	1.1	No Change	No Change	No Change	97-98
	1.2			2	
	1.3			No Change	
2	2				
3	3.1			No Change	
	3.2			No Change	
4	4.1			No Change	
	4.2			No Change	
	4.3			4	
5				Teacher Specific Content	

Mode of Assessment

Assessment Type	B. End Semester Evaluation (Modified)			Page No.
	Theory			98
	Total Marks = 70		Duration- 2 hrs	
	Type of Questions	No. of Questions to be Answered	Total Marks	
	Multiple Choice Questions	10 out of 10	10 x 1 = 10	
Short Questions	10 out of 12	10 x 3 = 30		
Short Essays	6 out of 8	6 x 5 = 30		

Course Name : Immunology
Course Code : MG5DSEBTS300

Course Outcomes (CO)

CO.No	Expected Course Outcome	Learning Domains	PO.No. (Modified)	Page No.
1	No Change	No Change	2,3,10	100
2				
3				

4	No Change	No Change	2,3,10	
5				
6				

Course Content

Content for Classroom transaction (Units)

Module	Units (Modified)	Course Description	Hours (Modified)	CO.No (Modified)	Page No.
1	1.1	No Change	No Change	No Change	101-102
	1.2			2	
	1.3				
	1.4				
	1.5				
2	2.1	No Change	No Change	No Change	
	2.2	No Change	2		
	2.3				
	2.4		No Change		
	2.5				
	2.6				
	2.7				
3	3.1	No Change	No Change	No Change	
	3.2				
	3.3				
	3.4				
	3.5				
	Existing				Modified
	3.5				3.6
	3.6				3.7
4	No Change				
5	Teacher Specific Content				

Mode of Assessment

Assessment Type	B. End Semester Evaluation (Modified)			Page No.
	Theory			102
	Total Marks = 70		Duration- 2 hrs	
	Type of Questions	No. of Questions to be Answered	Total Marks	
	Multiple Choice Questions	10 out of 10	10 x 1 = 10	
Short Questions	10 out of 12	10 x 3 = 30		
Short Essay	6 out of 8	6 x 5 = 30		

Course Name : Introduction to Forensic Biology
Course Code : MG5DSEBTS301

Course Name	Introduction to Forensic Biology (Modified)	Page No. 104
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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	No change	105-106
	1.2			2	
	1.3			3	
2	2.1	No Change	6	3	
	2.2		9	5	
3		Forensic Toxicology and Anthropology			
	3.1	No Change	5	2	
	3.2		5	5	
	3.3		No Change	3	
	3.4		5	1	
	3.5		5	5	
4	4.1		No Change	No Change	4
	4.2	6			
5		Teacher Specific Content			

Mode of Assessment

Assessment Type	B. End Semester Evaluation (Modified)			Page No.
	Theory			106
	Total Marks = 70		Duration- 2 hrs	
	Type of Questions	No. of Questions to be Answered	Total Marks	
	Multiple Choice Questions	10 out of 10	10 x 1 = 10	
Short Questions	10 out of 12	10 x 3 = 30		
Short Essay	6 out of 8	6 x 5 = 30		

Course Name : Evolution and Ethology

Course Code : MG5DSEBTS302

Course Content

Content for Classroom transaction (Units)

Module	Units	Course Description (Modified)	Hours	CO.No (Modified)	Page No.
1	1.1	No Change	No Change	No Change	110-111
	1.2			1,2	
	1.3				
2	2.1	Population genetics: Gene pool, gene frequency, Hardy-Weinberg Law, rate of change in gene frequency through natural selection, migration and random genetic drift, Founder effect and Bottleneck phenomenon	No Change	1,2	
	2.2	No Change			
3	3.1	No Change	No Change	1,3	
	3.2			No Change	
	3.3			4	
	3.4				
4		Teacher Specific Content			

Mode of Assessment

Assessment Type	A. Continuous Comprehensive Assessment			Page No.
	Theory			
	Total Marks= 30 (Modified)			112
	B. End Semester Evaluation (Modified)			
	Theory			
Total Marks = 70		Duration- 2 hrs		
Type of Questions	No. of Questions to be Answered	Total Marks		
Multiple Choice Questions	10 out of 10	10 x 1 = 10		
Short Questions	10 out of 12	10 x 3 = 30		
Short Essay	6 out of 8	6 x 5 = 30		

Course Name : Neurobiochemistry

Course Code : MG5DSEBTS303

Semester	V (Modified)	Page No. 114
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Course Content

Content for Classroom transaction (Units)

Module	Units	Course Description	Hours	CO.No (Modified)	Page No.
1	1.1	No Change	No Change	No Change	115-116
	1.2			2	
	1.3				
2	2.1	No Change	No Change	4	
	2.2				
	2.3				
3	3.1	No Change	No Change	3,5	
	3.2			No Change	
	3.3				
4	No Change				
5	Teacher Specific Content				

Mode of Assessment

Assessment Type	B. End Semester Evaluation (Modified)			Page No.
	Theory			116
	Total Marks = 70			
	Duration- 2 hrs			
	Type of Questions	No. of Questions to be Answered	Total Marks	
Multiple Choice Questions	10 out of 10	10 x 1 = 10		
Short Questions	10 out of 12	10 x 3 = 30		
Short Essay	6 out of 8	6 x 5 = 30		

Course Name : Entrepreneurship in Biochemistry

Course Code : MG5SECBTS300

Semester	V (Modified)	Page No. 119
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Course Outcomes (CO)

CO.No	Expected Course Outcome (Modified)	Learning Domains	PO.No.	Page No.
1	To acquire a comprehensive understanding of nutrition and herbal food supplements, emphasizing their benefits for daily nutrition and preventive care in the context of global dietary habits.	No Change	No Change	120
2	To gain a profound understanding of the nutraceutical business landscape, including dietary supplements, functional foods, phytochemicals, product classifications, ingredients, and unique selling points.			

3	To understand the foundational concepts of biochemical entrepreneurship and exploring the transformative power of technological innovations.	No Change	No Change	
4	To navigate biochemical ventures from lab discoveries to market success, mastering commercialization essentials, key process stages, and strategic product development through market analysis of audiences, needs, and trends.	No Change	No Change	

Course Content

Content for Classroom transaction (Units)

Module (Modified)	Units	Course Description	Hours	CO.No (Modified)	Page No.
1 Foundations of holistic wellness: exploring nutrition, nutraceutical, and herbal health	No Change				121-122
2	No Change				
3	3.1	No Change	No Change	No Change	
	3.2			3	
	3.3			4	
4	Teacher Specific Content				