MAHATMA GANDHI UNIVERSITY, KERALA

Abstract

Bachelor of Science (Honours) Botany and Biotechnology (Double Major) - Fifth Semester - Rectification of typographical errors and Modifications to the Course Outcomes, Course Content and Mode of Assessment - Approved - Orders Issued.

ACA 16

No. 4797/ACA 16/2026/MGU Priyadarsini Hills,Dated: 14.05.2026

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

2. Minutes of the meeting of the Expert Committees on Botany(UG) and Biotechnology (UG).

3. Orders of the Vice Chancellor under Section 10(17), Chapter III of the Mahatma Gandhi University Act 1985, dated.14.05.2026

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 Committees on Botany (UG) and Biotechnology (UG), discussed the need to rectify the typographical errors in the Course Level of DSC/DSE/SEC type courses, to rectify the typographical error in the Course Name of the course MG5DSEBBT302: Analytical Techniques in Plant Science, in the Index Page, and to modify the Course Outcomes, Course Content, Mode of Assessment of the courses MG5DSEBBT304: Recombinant DNA Technology, and MG5SECBBT301: Scientific Communication in Research, in the Fifth Semester syllabus of the Bachelor of Science (Honours) Botany and Biotechnology (Double Major) programme, and has submitted recommendations vide paper read as (2) above.

(Recommendations are attached as Annexure)

Considering the urgency, 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 said recommendations.

Hence, the Course Outcomes, Course Content and Mode of Assessment of the said courses in the Fifth Semester syllabus of the Bachelor of Science (Honours) Botany and Biotechnology (Double Major) programme, stands modified to this extent.

Orders are issued accordingly.

SUDHA MENON J

ASSISTANT REGISTRAR III
(ACADEMIC)
For REGISTRAR

Copy To

1. PS to VC
2. PA to Registrar/CE
3. Convenors, Expert Committees, Botany (UG) and Biotechnology (UG)
4. JR 2 (Admin)/DR 2, AR 3 (Academic)
5. JR/DR/AR (Exam)
6. Tabulation/Academic Sections concerned
7. AC C1/AC C2 Sections
8. IT Cell 3/OQPM1 Sections
9. PRO/IQAC/Records Sections
10. Stock File/File Copy

File No. 17677/AC A16-3/2026/ACA 16

Forwarded / By Order

Section Officer

Annexure

Semester V

Index Page

Course Code	Title of the Course (Modified)	Type of the Course	Credit	Hours / week	Hour Distribution/ week				Page No.
					L	T	P	O	
No Change	No Change	No Change							6
MG5DSEBBT302	Analytical Techniques in Plant Science **(Typograghical Error Corrected)**	No Change							
No Change	No Change	No Change							

Course Name: Angiosperm Systematics and Economic Botany
Course Code: MG5DSCBBT300

Course Level	**300 - 399 (Modified)**	Page No: 156

Course Name: Plant Biotechnology
Course Code: MG5DSEBBT300

Course Level	**300 - 399 (Modified)**	Page No: 162

Course Name: Green Technology and Sustainable Development
Course Code: MG5DSEBBT301

Course Level	**300 - 399 (Modified)**	Page No: 167

Course Name: Analytical Techniques in Plant Science
Course Code: MG5DSEBBT302

Course Level	**300 - 399 (Modified)**	Page No: 172

Course Name: Climate Change and Disaster Management-Botanical Perspective
Course Code: MG5DSEBBT303

Course Level	300 - 399 (Modified)	Page No: 177

COURSE CONTENT
Content for Classroom Transaction (Units)

Module	Units	Course Description	Hrs.	CO No (Modified)	Page No.
4	4.4	No Change	No Change	5	179
5	Teacher Specific Content				

Course Name: Recombinant DNA Technology
Course Code: MG5DSEBBT304

COURSE OUTCOMES (CO)

CO No.	Expected Course Outcome (Modified)	Learning Domains (Modified)	PO No. (Modified)	Page No
1	No Change			181
2	Understand cloning vectors' role in introducing recombinant DNA and the pros and cons of different expression systems.	U	No Change	
3	Analyse the components of a gene cloning experiment, evaluating variables and controls, and examine innovative applications of genetic engineering in emerging fields.	An, E		
4	Able to perform isolation of DNA and plasmid, restriction digestion, transformation and PCR.	S	1,2,3	
5	Removed			
6				

Typographical Error Rectified	Evaluate (E)	Page No: 182

COURSE CONTENT
Content for Classroom Transaction (Units)

<table>
<tr><th>Module (Modified)</th><th>Units</th><th>Course Description (Modified)</th><th>Hrs.</th><th>CO No. (Modified)</th><th>Page No</th></tr>
<tr><td rowspan="9">1
Introduction and Tools in rDNA technology</td><td>1.1</td><td rowspan="2">No Change</td><td rowspan="15">No Change</td><td rowspan="2">No Change</td><td rowspan="15">182,183</td></tr>
<tr><td>1.2</td></tr>
<tr><td>1.3</td><td>Cloning Vectors – Plasmids and their desirable properties, E coli based vectors – pBR, pSC, pUC, pGEM3Z. M13 based vectors. Bacteriophages λ EMBL Cosmids, Phasmid. Phagemids with special reference to pBluescript, pLITMUS.</td><td>1</td></tr>
<tr><td>1.4</td><td>In vitro packaging, phage display. Gateway Cloning, TA cloning. Shuttle Vectors -pCAMBIA, Vectors for Yeast (YEP, YIP, YRP, YCP, YAC) Artificial Chromosomes-BAC, MAC, PAC</td><td>1</td></tr>
<tr><td>1.5</td><td rowspan="14">No Change</td><td>1</td></tr>
<tr><td rowspan="5">2
Gene Transfer Techniques, Screening and Advanced technology in rDNA</td><td>2.1</td><td>No Change</td></tr>
<tr><td>2.2</td><td>2</td></tr>
<tr><td>2.3</td><td>2</td></tr>
<tr><td>2.4</td><td>2</td></tr>
<tr><td>2.5</td><td>2</td></tr>
<tr><td rowspan="4">3
Bioinstrumentation and application in rDNA</td><td>3.1</td><td>3</td></tr>
<tr><td>3.2</td><td>3</td></tr>
<tr><td>3.3</td><td>3</td></tr>
<tr><td>3.4</td><td>3</td></tr>
<tr><td rowspan="6">4
Practicals</td><td>4.1</td><td>4</td></tr>
<tr><td>4.2</td><td>4</td></tr>
<tr><td>4.3</td><td>4</td></tr>
<tr><td>4.4</td><td>4</td></tr>
<tr><td>4.5</td><td>4</td></tr>
<tr><td>4.6</td><td>4</td></tr>
<tr><td>5</td><td colspan="4">Teacher Specific Content</td></tr>
</table>

MODE OF ASSESSMENT (Modified)

A. Continuous Comprehensive Assessment (CCA)

Theory	Page No
20+5 (for Teacher Specific Content) = 25 Marks	184

B. End Semester Evaluation (ESE)

1.Theory			
Max.Marks: 50			**Duration: 1.5Hrs**
Type of Questions	**Number of Questions to be answered**	**Marks**	**Page No**
One Word Answer	10 out of 12	10 x 2 = 20	184
Short Essay	4 out of 6	4 x 5 = 20	
Essay	1 out of 2	1 x 10 = 10	

2. Practical		Page No
Max.Marks: 35	**Duration : 3 Hrs.**	184

Course Name: Mushroom Production and Value Addition
Course Code: MG5SECBBT300

Course Level	300 - 399 (Modified)	Page No: 185

Course Name: Scientific Communication in Research
Course Code: MG5SECBBT301

Pre-requisites (Modified)	Need to complete 200-299 level courses	**Page No :** 190

COURSE OUTCOMES (CO)

CO No.	Expected Course Outcome (Modified)	Learning Domains (Modified)	PO No. (Modified)	Page No
1	Students will be able to recall the principles of scientific communication, develop creative research concepts, apply inductive and deductive reasoning, and formulate testable hypotheses with structured reasoning and appropriate validation strategies.	No Change	No Change	190,191
2	Students will be able to produce structured scientific documents, use visual aids effectively, navigate peer review, practice in scientific writing and presentations, and uphold research ethics.	S		
3	Students will understand the significance of scientific publication indexing, navigate major indexing databases, evaluate and select reputable journals, interpret citation metrics, and explore the benefits and challenges of open-access publishing.	U,E	1,2,3	
4	Students will be able to address ethical issues in scientific publishing, including plagiarism and authorship, and effectively navigate indexing databases through practical exercises and case study analysis.	A	No Change	
5	Removed			

COURSE CONTENT
Content for Classroom Transaction (Units)

Module	Units	Course Description (Modified)	Hrs.	CO No (Modified)	Page No
1	1.1	No Change	No Change	No Change	191,192
	1.2				
	1.3				
	1.4				
	1.5				
	1.6				
	1.7			2	
	1.8	Presentations-thumb rules and good practice. Ethics in research reporting.		2	

2	2.1	No Change	No Change	No Change	
	2.2				
	2.3				
	2.4			3	
	2.5			3	
	2.6			3	
3	3.1			4	
	3.2			4	
4	Teacher Specific Content				

MODE OF ASSESSMENT (Modified)

A. Continuous Comprehensive Assessment (CCA)

Theory	Page No
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Theory			
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