

**KONGUNADU ARTS AND SCIENCE COLLEGE**

**(AUTONOMOUS)**

**COIMBATORE – 641 029**



**DEPARTMENT OF BIOTECHNOLOGY (PG)**

**CURRICULUM AND SCHEME OF EXAMINATIONS (CBCS)**

***(2021 - 2022 and onwards)***

# KONGUNADU ARTS AND SCIENCE COLLEGE (AUTONOMOUS)

COIMBATORE – 641 029

**Programme Name: M.Sc. BIOTECHNOLOGY**  
Curriculum and Scheme of Examination under CBCS

(Applicable to the students admitted during the Academic Year 2021-2022)

Semester	Subject Code	Title of the Paper	Instruction hours/cycle	Exam. Marks			Duration of Exam (hours)	Credits
				CIA	ESE	TOTAL		
<b>I</b>	21PBT101	Core Paper 1- Biochemistry	5	25	75	100	3	4
	21PBT102	Core Paper 2 - Biology of Cell	5	25	75	100	3	4
	21PBT103	Core Paper 3 -Applied Microbiology	5	25	75	100	3	4
	21PBT104	Core Paper 4- Bioinformatics	4	100	-	100	3	4
	21PBT1CL	Core Practical 1- Lab in Microbiology and Cellular Biology	6	40	60	100	6	3
	21PBT1E1	Major Elective 1	5	25	75	100	3	5
	<b>Total</b>			<b>30</b>	<b>-</b>	<b>-</b>	<b>600</b>	<b>-</b>
<b>II</b>	21PBT205	Core Paper 5- Molecular Biology and Genetics	5	25	75	100	3	4
	21PBT206	Core Paper 6- Genetic Engineering	4	25	75	100	3	4
	21PBT207	Core Paper 7- Immunology and Immunotechnology	4	25	75	100	3	4
	21PBT2CM	Core Practical 2- Lab in Molecular Biology and Genetics	6	40	60	100	6	3
	21PBT2CN	Core Practical 3- Lab in Genetic Engineering and Immunotechnology	6	40	60	100	6	3
	21PBT2E2	Major Elective 2	<b>5</b>	<b>25</b>	<b>75</b>	<b>100</b>	<b>3</b>	<b>5</b>
	<b>Total</b>			<b>30</b>	<b>-</b>	<b>-</b>	<b>600</b>	<b>-</b>

<b>III</b>	21PBT308	Core Paper 08 - Plant and Animal Transgenics	5	25	75	100	3	4
	21PBT309	Core Paper 09 - Industrial Applications of Biotechnology	5	25	75	100	3	4
	21PBT310	Core Paper 10 – Genomics, Proteomics and Metabolomics	4	25	75	100	3	4
	21PBT3CO	Core Practical 4 - Lab in Plant and Animal Biotechnology	6	40	60	100	6	4
	21PBT3CP	Core Practical 5 -Lab in Applied Biotechnology	6	40	60	100	6	3
	21PBT3N1	Non Major Elective I (on-line)	2	<b>25</b>	<b>75</b>	<b>100</b>	<b>3</b>	<b>4</b>
		Extra Departmental Course	2	<b>25</b>	<b>75</b>	<b>100</b>	<b>3</b>	<b>2</b>
	<b>Total</b>			<b>30</b>	<b>-</b>	<b>-</b>	<b>700</b>	<b>-</b>
<b>IV</b>	21PBT411	Core Paper 11- Pharmaceutical Biotechnology	5	25	75	100	3	4
	21PBT4N2	Non Major Elective II (on-line)	<b>2</b>	<b>25</b>	<b>75</b>	<b>100</b>	<b>3</b>	<b>4</b>
	21PBT4Z1	Project and Viva voce	<b>23*</b>	<b>20</b>	<b>80</b>	<b>100</b>	<b>-</b>	<b>8</b>
	-	SWAYAM – MOOC	-	-	-	-	-	<b>2</b>
	<b>Total</b>			<b>30</b>	<b>-</b>	<b>-</b>	<b>300</b>	<b>-</b>
<b>Grand Total</b>				<b>-</b>	<b>-</b>	<b>2200</b>	<b>-</b>	<b>90</b>

Note: CBCS – Choice Based Credit System; CIA – Continuous Internal Assessment; ESE – End of Semester Examinations; C.P. - Core Paper; C. Pr. – Core Practical

**Major Elective Papers – Semester 1** (2 papers are to be chosen from the following 4 papers)

1. Environmental Biotechnology
2. Nano Biotechnology
3. Post Production System of Foods
4. Plant therapeutics and phytoproducts

**Major Elective Papers – Semester 2** (2 papers are to be chosen from the following 4 papers)

1. Research Methodology
2. IPR, Biosafety and Bioethics
3. Marine and Algal Biotechnology
4. Total Quality Control and Management

**Non-Major Elective papers (on-line)** (2 papers are to be chosen from the following 4 papers)

1. Aptitude and Reasoning Skills
2. Core Domain Competitive Science
3. Cancer Biology
4. Nutraceuticals

**Extra Departmental Course – 21PBT3X1 – Business ventures in Biosciences**

**Tally Table:**

<b>Subject</b>	<b>No. of Subjects</b>	<b>Total Marks</b>	<b>Credits</b>
Core – Theory / Practical / Project	17	1700	68
SWAYAM – MOOC	-	-	2
Major Elective Papers	2	200	10
EDC Paper	1	100	2
Non Major Elective Paper	2	200	8
<b>Grand Total</b>	<b>22</b>	<b>2200</b>	<b>90</b>

**Job Oriented Courses (JOC):**

1. JOC 1 – Plant Tissue Culture and Organic Farming (21PB0TJ1)
2. JOC 2 – Herbal Biotechnology (21PBT0J2)
3. ALC 1 – Frontier Technologies in Biosciences (21PBT0D1)
4. ALC 2 – Stem Cell Technology (21PBT0D2)

*Note: JOC and ALC which are offered at present will be applicable for the students admitted during the academic year 2021-2022 and will be considered as extra credit courses.*

- 25 % CIA is applicable to all subjects except JOC, COP and SWAYAM courses which are considered as extra credit courses.
- The students should complete a **SWAYAM-MOOC** before the completion of the 3<sup>rd</sup> semester and the course completed certificate should be submitted through the HOD to the Controller of Examinations. Two credits will be given to the candidates who have successfully completed. In case the students have completed more than one online course, the appropriate 2 extra credits shall be awarded to such candidates upon the submission of certificate through the HOD to the Controller of Examinations
- A Field/Onsite Training (One day) preferably relevant to the course may be undertaken every year as per the norms prescribed by Institution and with the discretionary power of the HoD

#### **Components of Continuous Internal Assessment**

Components			Marks	Total
<b>Theory</b>	CIA 1	75	(75+75 = 150/10) 15	25
	CIA 2	75		
Assignment/ Demonstration/Seminar			5	
Attendance			5	
<b>Practical</b>	CIA Practical		25	40
	Observation Notebook		10	
	Attendance		5	
<b>Project</b>	Review		15+15	40
	Regularity		5+5	

## BLOOM'S TAXONOMY BASED ASSESSMENT PATTERN

**K1-Remember; K2-Understanding; K3-Apply; K4-Analyze; K5-Evaluate**

**1. Theory Examination - Part I, II & III**

**2. Theory Examination**

**CIA I & II and ESE: 75 Marks**

Knowledge Level	Section	Marks	Description	Total
K1 – K2 Q1 to 10	A (Answer all)	10 x 1 = 10	MCQ	75
K2 – K5 Q11 to 15	B (Either or pattern)	5 x 5 = 25	Short Answers	
K2 – K5 Q16 to 20	C (Either or pattern)	5 x 8 = 40	Descriptive / Detailed	

**3. Practical Examination:**

Knowledge Level	Section	Marks	Total
K3	Experiments	50	60
K4			
K5	Record Work	10	