

KONGUNADU ARTS AND SCIENCE COLLEGE

(AUTONOMOUS)

COIMBATORE – 641 029



DEPARTMENT OF BIOTECHNOLOGY (UG)

CURRICULUM AND SCHEME OF EXAMINATIONS (CBCS)

(2020 - 2021 and onwards)

UBT01

**KONGUNADU ARTS AND SCIENCE COLLEGE (Autonomous)
COIMBATORE-641 029.**

B.Sc. BIOTECHNOLOGY

Curriculum & Scheme of Examination under CBCS

(Applicable to Students Admitted from the Academic Year 2020-2021 and onwards)

Semester	Part	Subject Code	Title of the Paper	Instruction Hours / cycle	Exam. Marks			Duration of Exam. Hrs	Credits
					CI A	ES E	Total		
I	I	20TML101@	Language I	6	25	75	100	3	3
	II	20ENG101	English I	6	25	75	100	3	3
	III	20UBT101	C.P.1 – Cellular Biology	4	25	75	100	3	4
		20UBT102	C.P.2. Bioinstrumentation and Environmental Biotechnology	4	25	75	100	3	4
		20UCH1A1	Allied - Paper 1: Chemistry – I	4	20	55	75	3	4
		20UBT1CL	C.Pr.1 – Lab in Cellular Biology and Bioinstrumentation	2	20	30	50	3	2
		20UCH1AL	Allied Pr.1 - Chemistry Practical	2	-	-	-	-	-
	IV	20EVS101	Environmental Studies*	2	95	50	50	3	2
	Total				30			575	-
II	I	20TML202@	Language II	6	25	75	100	3	3
	II	20ENG202	English II	6	25	75	100	3	3
	III	20UBT203	C.P.3. – Microbiology	6	25	75	100	3	4
		20UCH2A2	Allied - Paper 2: Chemistry – II	5	20	55	75	3	4
		20UBT2CM	C.Pr.2- Lab in Microbiology	3	20	30	50	3	2
		20UCH2AL	Allied Pr.1 - Chemistry Practical	2	20	30	50	3	2
	IV	20VED201	Value Education - Moral and Ethics*	2	-	50	50	3	2
	Total				30			525	-
III	I	20TML303@	Language III	6	25	75	100	3	3
	II	20ENG303	English III	6	25	75	100	3	3
	III	20UBT304	C.P.4 – Molecular Biology	4	25	75	100	3	4
		20UBT305	C.P.5 – Genetics	4	25	75	100	3	4
		20UBT3A3	Allied - Paper 3 : Basic	4	20	55	75	3	4

			Mathematics and Statistics						
		20UBT3CN	C.Pr.3- Lab in Molecular Biology and Genetics	2	20	30	50	3	2
		UBT02							
		20UGA3S1	Skill Based Subject: 1 General Awareness	2	25	75	100	3	3
	IV	20TBT301/ 20TAT301/ 20UCA3N1	Basic Tamil* / Advanced Tamil** / Non Major Elective-I***	2	-	75	75	3	2
		Total		30			700	-	25
IV	I	20TML404 [@]	Language	6	25	75	100	3	3
	II	20ENG404	English IV	6	25	75	100	3	3
	III	20UBT406	C.P.6 – Fundamentals of Biochemistry	5	25	75	100	3	4
		20UBT4CO	C.Pr.4- Lab in Biochemistry	3	20	30	50	3	2
		20UBT4A4	Allied - Paper 4 : C - Programming and Numerical Methods	4	20	55	75	3	4
		20UBT4AL	Allied Pr. 1 – Lab in C-Programming	2	20	30	50	3	2
	IV	20UBT4S2	Skill Based Subject: 2 – Clinical Lab Technology – I – Pathology	2	25	75	100	3	3
		20TBT402/ 20TAT402/ 20UCA4N1	Basic Tamil* / Advanced Tamil** / Non Major Elective - II***	2	-	75	75	3	2
		Total		30	-	-	650	-	23
V	III	20UBT507	C.P.7- Immunology	5	25	75	100	3	4
		20UBT508	C.P.8- Recombinant DNA Technology	5	25	75	100	3	4
		20UBT509	C.P.9 - Animal Biotechnology	5	25	75	100	3	4
		20UBT5CP	C.Pr.5 – Lab in Immunology, Recombinant DNA Technology and Animal Biotechnology	6	40	60	100	4	3
		20UBT5E1	Major Elective - I	5	25	75	100	3	5
	IV	20UBO5X1/ 20UBC5X1/ 20UZO5X1	Extra Departmental Course (EDC) – 1	2	25	75	100	3	3
		20UBT5S3	Skill Based Subject: 3 – Clinical Lab Technology – II – Hematology	2	25	75	100	3	3
		20UBT5ST	Summer Internship ****	-	-	-	-	-	-

			Total	30	-	-	700	-	26	
VI	III	20UBT610	C.P.10 - Bioprocess technology	5	25	75	100	3	4	
		20UBT611	C.P.11 - Plant Biotechnology	5	25	75	100	3	4	
		UBT03								
		20UBT612	C. P. 12–Genomics, Proteomics and Bioinformatics	5	25	75	100	3	4	
		20UBT6CQ	C.Pr.6- Lab in Bioprocess technology, Plant and Biotechnology and Bioinformatics	6	40	60	100	4	3	
		20UBT6E2	Major Elective – II	5	25	75	100	3	5	
		20UBT6Z1	Practicum and Viva - Voce****	4	20	80	100	3	3	
	IV	20UBT6SL	Skill Based Subject: 4 – Practical Clinical Lab Technology¥	-	-	-	-	-	-	
	VI	20NSS101/ 20NCC101/ 20PYE101/ 20YRC101#	Extension Activities**	-	50	-	50	-	1	
	Total			30	-	-	650	-	24	
Grand Total			180			3800	-	140		

@ French/Hindi/Malayalam/Sanskrit

* No End of Semester Examinations (ESE). Only Continuous Internal Assessment (CIA)

** No Continuous Internal Assessment (CIA). Only End of Semester Examinations (ESE)

*** Non Major Elective subjects; No CIA examination. Only ES Examinations

**** Practicum – 60 marks; Viva-voce – 20 marks; Internal – 20 marks

***** The students shall undergo an Internship training/field work for a minimum period of 2 weeks at the end of the fourth semester during summer vacation and submit the report in the fifth semester. The report will be evaluated for 100 marks along with the internal viva voce by the faculty members and HoD. According to their marks, the grades will be awarded as given below.

Marks %	Grade
85-100	O
70-84	D
60-69	A
50-59	B
40-49	C
<40	U (Reappear)

Major Elective Papers (2 papers are to be chosen from the following 6 papers)

1. Research Methodology and Biostatistics
2. Biodiversity and Bioentrepreneurship
3. Bionanotechnology, IPR and Biosafety

4. Natural Products and Algal Biotechnology
5. Enzyme Technology
6. Developmental Biology

UBT04

Non-Major Elective Papers

1. Human Rights
2. Women's Rights
3. Consumer Affairs

Skill Based Subjects

1. General Awareness (On-line Examination)
2. Clinical Lab Technology – I: Pathology
3. Clinical Lab Technology – II: Hematology
4. Practical: Clinical Lab Technology[‡]

[‡]The students shall attend the practical during fifth semester through the MoU signed between College and reputed Clinical laboratory and submit the practical record book and report. The report will be evaluated for 100 marks along with the internal viva voce by the faculty members and HoD. According to their marks, the grades will be awarded in the mark sheet as given below.

Marks %	Grade
85-100	O
70-84	D
60-69	A
50-59	B
40-49	C
<40	U (Reappear)

List of Extension Activities:

1. National Cadet Corps (NCC)
2. National Service Scheme (NSS)
3. Youth Red Cross (YRC)
4. Physical Education (PYE)
5. Eco Club (ECC)
6. Red Ribbon Club (RRC)
7. Women Empowerment Cell (WEC)

Job Oriented Courses (JOC)

1. Clinical Research and Medical Coding (20UBT0J1)
2. Agro Industrial biotechnology (20UBT0J2)

Note: JOC which are offered at present will be applicable for the students admitted during the academic year 2020-2021 and will be considered as extra credit courses.

Tally Table:

S. No.	Part	Subject	Marks	Credits
1.	I	Language Tamil/Hindi/Malayalam/French/Sanskrit	400	12
2.	II	English	400	12

3.	III	Core – Theory/Practical/Project	1700	65	
		Allied	400	20	
		Electives	200	10	
4.	IV	Basic Tamil/Advanced Tamil/Non-major elective	150	4	
		Skill Based Subjects	300	9	
		UBT05			
		Extra Departmental Course (EDC)	100	3	
		Environmental studies	50	2	
		Value Education	50	2	
5.	V	Extension Activities	50	1	
Total			3800	140	

Note: CBCS – Choice Based Credit System; CIA – Continuous Internal Assessment
ESE – End of Semester Examinations

- 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 5th semester and the course completed certificate should be submitted to the HOD. Two extra credits will be given to the candidates who have successfully completed.
- A **Field Trip** preferably relevant to the course should be undertaken every year.

Components of Continuous Internal Assessment

Components			Marks	Total	
Theory	CIA 1	75	(75+75 = 150/10) 15	25	
	CIA 2	75			
Assignment/ Demonstration/Seminar			5		
Attendance			5		
Practical			10		20
CIA Practical			10		
Observation Notebook			5		
Attendance			5		
Practical			25	40	
CIA Practical			25		
Observation Notebook			10		
Attendance			5		
Practicum Review			15	20	
Regularity			5		

BLOOM'S TAXONOMY BASED ASSESSMENT PATTERN**K1-Remember; K2-Understanding; K3-Apply; K4-Analyze; K5-Evaluate****1. Theory Examination - Part I, II & III****(i) CIA I & II and ESE: 75 Marks**

Knowledge Level	Section	Marks	Description	Total
K1 Q1 to 10	A (Answer all)	10 x 1 = 10	MCQ	75
K2 Q11 to 15	B (Either or pattern)	5 x 5 = 25	Short Answers	
K3 & K4 Q16 to 20	C (Either or pattern)	5 x 8 = 40	Descriptive / Detailed	

UBT06**(ii) CIA I & II and ESE: 55 Marks**

Knowledge Level	Section	Marks	Description	Total
K1 Q1 to 10	A (Answer all)	10 x 1 = 10	MCQ	55
K2 Q11 to 15	B (Either or pattern)	5 x 3 = 15	Short Answers	
K3 & K4 Q16 to 20	C (Either or pattern)	5 x 6 = 30	Descriptive / Detailed	

2. Practical Examination:

Knowledge Level	Section	Marks	Total
K3	Experiments	25	30
K4		05	
K5	Record Work		

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

3. Practicum and Viva - Voce:

Knowledge Level	Section	Marks	Total
K3	Project Report	60	80
K4		20	
K5	Viva voce		