



# **RANI CHANNAMMA UNIVERSITY**

# **BELAGAVI**

**THE COURSE STRUCTURE OF UNDER GRADUATE**

**BATULOR OF SCIENCE**

w.e.f.

Academic Year 2020-21 and Onwards  
Under

**CHOICE BASED CREDIT SYSTEM (CBCS)**

## 1. KANNADA

Sem	Course Code	Title of the Paper	Teaching Hours/Week	Credits	Marks		Total	Duration of Exam
					Sem End Exam	IA		
I	AECC KAN	Kannada Language I	4	2	80	20	100	3 Hrs
II	AECC KAN	Kannada Language II	4	2	80	20	100	3 Hrs
III	AECC KAN	Kannada Language III	4	2	80	20	100	3 Hrs
IV	AECC KAN	Kannada Language IV	4	2	80	20	100	3 Hrs

## 2. ENGLISH

Sem	Course Code	Title of the Paper	Teaching Hours/Week	Credits	Marks		Total	Duration of Exam
					Sem End Exam	IA		
I	AECC ENG117	English Gems I	4	2	80	20	100	3 Hrs
II	AECC ENG118	English Gems II	4	2	80	20	100	3 Hrs
III	AECC ENG119	English Language Skills I	4	2	80	20	100	3 Hrs
IV	AECC ENG120	English Language Skills II	4	2	80	20	100	3 Hrs

### 3. HINDI

Sem	Course	Title of the Paper	Paper	Teaching Hours per week	Duration of Exam (Hrs)	Marks			Credits
						IA	Exam	Total	
I	AECC	1) गद्य फुलवारी (गद्य संकलन) 2) हिंदी भाषा के विविध रूप 3) स्वर तथा व्यंजन 4) अनुवाद (पारिभाषिक शब्दावली)	1T*	4	3	20	80	100	3
II	AECC	1) काव्य कुसुम (कविता संकलन) 2) व्याकरण 3) पत्रलेखन	1T*	4	3	20	80	100	3
III	AECC	1) कथा भारती (कहानी संकलन) 2) भाषा संप्रेषण 3) मुहावरे और लोकोक्तियाँ 4) पर्यायवाची शब्द, विलोम शब्द, अनेक शब्दों के लिए एक शब्द	1T*	4	3	20	80	100	3
	SEC	1) संभाषण कला 2) प्रयोजनमूलक हिंदी	1T*	2	2	10	40	50	2
IV	AECC	1) गिलिगडु (उपन्यास) 2) पल्लवन तथा संक्षेपण 3) अनुवाद	1T*	4	3	20	80	100	3
	SEC	चलचित्र लेखन	1T*	2	2	10	40	50	2

## 4. MARATHI

Sem	Course	Title of the Paper	Paper	Teaching Hours per week	Duration of Exam (Hrs)	Marks			Credits
						IA	Exam	Total	
I	AECC	विनोदी वाङ्मय	1 T	4	3	20	80	100	3
II	AECC	वाङ्मयप्रकार:नाटक	1 T	4	3	20	80	100	3
III	AECC	कादंबरी	1 T	4	3	20	80	100	3
	SEC	जाहिरात लेखन	1 T	2	2	10	40	50	2
IV	AECC	वाङ्मयप्रकार:चरित्र	1 T	4	3	20	80	100	3
	SEC	श्राव्य माध्यमांसाठी लेखन कौशल्य	1 T	2	2	10	40	50	2

## 5. ARABIC

Sem	Course	Title of the Paper	Paper	Teaching Hours per week	Duration of Exam (Hrs)	Marks			Credits
						IA	Exam	Total	
I	AECC	Prose, Poetry, History of Arabic literature and Grammar.	1 T	4	3	20	80	100	3
II	AECC	Prose, Poetry, History of Arabic literature and Grammar.	1 T	4	3	20	80	100	3
III	AECC	Prose, Poetry, History of Arabic literature and Grammar.	1 T	4	3	20	80	100	3
	SEC	Arabic Calligraphy	1 T	2	2	10	40	50	2
IV	AECC	Prose, Poetry, History of Arabic literature and Grammar.	1 T	4	3	20	80	100	3
	SEC	Arabic Phonetics	1 T	2	2	10	40	50	2

## 6. URDU

I	AECC	Study of Prose and poetry	1 T*	4 Hrs	3	20	80	100	3
II	AECC	Study of Prose and poetry	1 T*	4 Hrs	3	20	80	100	3
III	AECC	Study of Prose and poetry	1 T*	4 Hrs	3	20	80	100	3
	SEC	This SEC paper as per B A IIISem Syllabi	1 T	2 Hrs	2	10	40	50	2
IV	AECC	Study of Prose and poetry	1 T*	4 Hrs	3	20	80	100	3
	SEC	This SEC paper as per B A IV semSyllabi	1 T	2 Hrs	2	10	40	50	2

## 7. SANSKRIT

### Part 1: AECC - Ability Enhancement Compulsory Course (Basic Sanskrit)

Sem	Course Code	Title of the Paper	Teaching Hours/Week	Credits	Marks		Total	Duration of Exam
					Sem End Exam	IA		
I	AECC SAN	Sanskrit Language I	4	2	80	20	100	3 Hrs
II	AECC SAN	Sanskrit Language II	4	2	80	20	100	3 Hrs
III	AECC SAN	Sanskrit Language III	4	2	80	20	100	3 Hrs
IV	AECC SAN	Sanskrit Language IV	4	2	80	20	100	3 Hrs

### Part 3: SEC - Skill Enhancement Course for all courses (Open Elective Course)

Sem	Course Code	Title of the Paper	Teaching Hours/Week	Credits	Marks		Total	Duration of Exam
					Sem End Exam	IA		
III	SEC SAN	TRANSLATION	2	2	40	10	50	2 Hrs
IV	SEC SAN	PATHANAM	2	2	40	10	50	2 Hrs
V	SEC SAN	BHAASHAA KAUSHALAM	2	2	40	10	50	2 Hrs
VI	SEC SAN	PATRA LEKHANAM	2	2	40	10	50	2 Hrs



## 8. PHYSICS

B.Sc., PHYSICS Syllabus as per CBCS (With effect from the academic year 2020-21 onwards)								
Sem	Part	Paper Code	Title of the Paper	Hours/Week	Marks			Subject Credits
					IA	Exam	Total	
I	Part – 1 DSC	PHYDSCT1.1	Mechanics and Theory of Relativity	4	20	80	100	3
		PHYDSCP1.1	Practical I	3	10	40	50	1
	<b>Total : Hours / Credits</b>			<b>7</b>			<b>150</b>	<b>4</b>
II	Part – 1 DSC	PHYDSCT2.1	Electricity & Magnetism	4	20	80	100	3
		PHYDSCP2.1	Practical II	3	10	40	50	1
	<b>Total : Hours / Credits</b>			<b>7</b>			<b>150</b>	<b>4</b>

B.Sc., PHYSICS Syllabus as per CBCS (With effect from the academic year 2021-22 onwards)								
Sem	Part	Paper Code	Title of the Paper	Hours/Week	Marks			Subject Credits
					IA	Exam	Total	
III	Part – 1 DSC	PHYDSCT3.1	Thermodynamics-I, Sound and Waves	4	20	80	100	3
		PHYDSCP3.1	Practical III	3	10	40	50	1
	Part – 2 SEC	PHYSECT3.2	Weather Forecasting	2	10	40	50	2
	<b>Total : Hours / Credits</b>			<b>9</b>			<b>200</b>	<b>6</b>
IV	Part – 1 DSC	PHYDSCT4.1	Thermodynamics-II, Statistical Mechanics and Optics	4	20	80	100	3
		PHYDSCP4.1	Practical IV	3	10	40	50	1
	Part – 2 SEC	PHYSECT4.2	Renewable Energy sources and Energy Harvesting	2	10	40	50	2
	<b>Total : Hours / Credits</b>			<b>9</b>			<b>200</b>	<b>6</b>

**B.Sc., PHYSICS Syllabus as per CBCS  
(With effect from the academic year 2022-23 onwards)**

Sem	Part	Paper Code	Title of Paper	Hours/Week	Marks			Subject Credits
					IA	Exam	Total	
V	Part – 1  DSE	PHYDSET5.1	Mathematical Physics – I, Nuclear and Particle Physics and Classical Mechanics	4	20	80	100	3
		PHYDSEP5.1	Practical V	3	10	40	50	1
		PHYDSET5.2A (Elective I)	Quantum Mechanics – I, Electronics and Optoelectronics	4	20	80	100	3
		PHYDSEP5.2A (Elective I)	Practical VIA	3	10	40	50	1
		PHYDSET5.2B (Elective II)	Modern Physics - I	4	20	80	100	3
		PHYDSEP5.2B (Elective II)	Practical VIB	3	10	40	50	1
	Part – 2 SEC	PHYSECT5.3	Basic Instrumentation Skills	2	10	40	50	2
	<b>Total : Hours / Credits</b>			<b>16</b>			<b>350</b>	<b>10</b>

**Note: Students have to choose either Elective-I or Elective-II**

VI	Part – 1  DSE	PHYDSET6.1	Mathematical Physics – II, Atomic, Molecular and Optical Physics and Atmospheric Physics.	4	20	80	100	3
		PHYDSEP6.1	Practical VII	3	10	40	50	1
		PHYDSET6.2A (Elective III)	Quantum Mechanics – II, Condensed Matter Physics and Nanomaterials	4	20	80	100	3
		PHYDSEP6.2A (Elective III)	Practical VIIIA	3	10	40	50	1
		PHYDSET6.2B (Elective IV)	Modern Physics - II	4	20	80	100	3
		PHYDSEP6.2B (Elective IV)	Practical VIIIB	3	10	40	50	1
	Part – 2 SEC	PHYSECT6.3	Electrical Circuits And Network Skills	2	10	40	50	2
	<b>Total : Hours / Credits</b>			<b>16</b>			<b>350</b>	<b>10</b>

**Note: Students have to choose either Elective-III or Elective-IV**

T: Theory, P: Practical, CC/EA: Co-curricular/Extension Activities. AECC: Ability Enhancement Compulsory Course, DSC: Discipline Specific Course. DSE: Discipline Specific Elective, SEC: Skill Enhancement Course)

**Note: Duration of examinations is 03 Hrs for 80 Marks theory and 02 hrs for 40 marks theory. For practical's duration of examination is 03 Hrs.**

## 9. CHEMISTRY

(With effect from the academic year 2020-21 onwards)

Sem	Part	Paper Code	Title of the Paper	Hours/Week	Marks			Subject Credits
					IA	Exam	Total	
I	Part – 1	CHEDSCT 1.1	Chemistry-1	4	20	80	100	3
	DSC	CHEDSCT 1.1	Practicals-1	3	10	40	50	1
	Total: Hours / Credits			7			150	4
II	Part – 1	CHEDSCT 2.1	Chemistry-2	4	20	80	100	3
	DSC	CHEDSCT 2.1	Practicals-2	3	10	40	50	1
	Total: Hours / Credits			7			150	4

(With effect from the academic year 2021-22 onwards)

Sem	Part	Paper Code	Title of the Paper	Hours/Week	Marks			Subject Credits
					IA	Exam	Total	
III	Part – 1	CHEDSCT3.1	Chemistry-3	4	20	80	100	3
	DSC	CHEDSCT3.1	Practicals-3	3	10	40	50	1
	Part – 2 SEC	CHESECT3.2	Chemistry of Cosmetics & Perfumes	2	10	40	50	2
	Total: Hours / Credits			9			200	6
IV	Part – 1	CHEDSCT4.1	Chemistry-4	4	20	80	100	3
	DSC	CHEDSCT4.1	Practicals-4	3	10	40	50	1
	Part – 2 SEC	CHESECT4.2	Fuel Chemistry	2	10	40	50	2
	Total: Hours / Credits			9			200	6

(With effect from the academic year 2022-23 onwards)

Sem	Part	Paper Code	Title of Paper	Hours/Week	Marks			Subject Credits
					IA	Exam	Total	
V	Part – 1 DSE	CHESET 5.1	Chemistry-5	4	20	80	100	3
		CHESEP 5.1	Practicals-5	3	10	40	50	1
		CHESET 5.2A (Elective I)	Chemistry-5A	4	20	80	100	3
		CHESEP 5.2A (Elective I)	Practicals-5A	3	10	40	50	1
		CHESET 5.2B (Elective II)	Chemistry-5B	4	20	80	100	3
		CHESEP 5.2B (Elective II)	Practicals-5B	3	10	40	50	1
	Part – 2 SEC	CHESECT5.3	Basic Analytical Chemistry	3	10	40	50	2
		<b>Total: Hours / Credits</b>			<b>17</b>			<b>350</b>

Note: Students have to choose either Elective-I or Elective-II

VI	Part – 1 DSE	CHESET 6.1	Chemistry-6	4	20	80	100	3
		CHESEP 6.1	Practicals-6	3	10	40	50	1
		CHESET 6.2A (Elective III)	Chemistry-6A	4	20	80	100	3
		CHESEP 6.2A (Elective III)	Practicals-6A	3	10	40	50	1
		CHESET 6.2B (Elective IV)	Chemistry-6B	4	20	80	100	3
		CHESEP 6.2B (Elective IV)	Practicals-6B	3	10	40	50	1
	Part – 2 SEC	CHESECT 6.3	Pharmaceutical Chemistry	3	10	40	50	2
		<b>Total: Hours / Credits</b>			<b>17</b>			<b>350</b>

Note: Students have to choose either Elective-III or Elective-IV

T: Theory, P: Practical, CC/EA: Co-curricular/Extension Activities. AECC: Ability Enhancement Compulsory Course, DSC: Discipline Specific Course. DSE: Discipline Specific Elective, SEC: Skill Enhancement Course).  
**Note: Duration of examinations is 03 h for 80 Marks theory and 02 h for 40 marks theory. For practicals, duration of examination is 03 h.**

## 10. ELECTRONICS

B.Sc., ELECTRONICS Syllabus under CBCS scheme (With effect from the academic year 2020-21 onwards)								
Sem	Part	Paper Code	Title of the Paper	Hours/ Week	Marks			Subject Credits
					IA	Exam	Total	
I	Part – 1	ELEDSCT1.1	Network Analysis And Analog Electronics	4	20	80	100	3
	DSC	ELEDSC P1.1	Practical I	3	10	40	50	1
	<b>Total : Hours / Credits</b>			<b>7</b>			<b>150</b>	<b>4</b>
II	Part – 1	ELEDSCT2.1	Electronic Circuits And Special Purpose Devices	4	20	80	100	3
	DSC	ELEDSC P2.1	Practical II	3	10	40	50	1
	<b>Total : Hours / Credits</b>			<b>7</b>			<b>150</b>	<b>4</b>

B.Sc., ELECTRONICS Syllabus under CBCS scheme (With effect from the academic year 2021-22 onwards)								
Sem	Part	Paper Code	Title of the Paper	Hours/ Week	Marks			Subject Credits
					IA	Exam	Total	
III	Part – 1	ELEDSCT3.1	Linear Integrated Circuits And ‘C’ Programming	4	20	80	100	3
	DSC	ELEDSCP3.1	Practical III	3	10	40	50	1
	Part – 2 SEC	ELESECT3.2	Weather Forecasting	2	10	40	50	2
	<b>Total : Hours / Credits</b>			<b>9</b>			<b>200</b>	<b>6</b>
IV	Part – 1	ELEDSCT4.1	Digital Electronics	4	20	80	100	3
	DSC	ELEDSCP4.1	Practical IV	3	10	40	50	1
	Part – 2 SEC	ELESECT4.2	Renewable Energy sources and Energy Harvesting	2	10	40	50	2
	<b>Total : Hours / Credits</b>			<b>9</b>			<b>200</b>	<b>6</b>

**B.Sc., ELECTRONICS Syllabus under CBCS scheme  
(With effect from the academic year 2022-23 onwards)**

Sem	Part	Paper Code	Title of Paper	Hours/ Week	Marks			Subject Credits
					IA	Exam	Total	
V	Part – 1 DSE	ELEDSET5.1	Communication-I	4	20	80	100	3
		ELEDSEP5.1	Practical V	3	10	40	50	1
		ELEDSET5.2A (Elective I)	Microprocessor -8085, Signals And Systems	4	20	80	100	3
		ELEDSEP5.2A (Elective I)	Practical VIA	3	10	40	50	1
		ELEDSET5.2B (Elective II)	Microprocessor -8085 & 8086	4	20	80	100	3
		ELEDSEP5.2B (Elective II)	Practical VIB	3	10	40	50	1
	Part – 2 SEC	ELESECT5.3	Basic Instrumentation Skills	2	10	40	50	2
	<b>Total : Hours / Credits</b>				<b>16</b>			<b>350</b>

**Note: Students have to choose either Elective-I or Elective-II**

VI	Part – 1 DSE	ELEDSET6.1	Communication-II	4	20	80	100	3
		ELEDSEP6.1	Practical VII	3	10	40	50	1
		ELEDSET6.2A (Elective III)	Microcontroller -8051 & Embedded System	4	20	80	100	3
		ELEDSEP6.2A (Elective III)	Practical VIIIA	3	10	40	50	1
		ELEDSET6.2B (Elective IV)	Microcontroller&MATLAB	4	20	80	100	3
		ELEDSEP6.2B (Elective IV)	Practical VIIIB	3	10	40	50	1
	Part – 2 SEC	ELESECT6.3	Electrical Circuits And Network Skills	2	10	40	50	2
	<b>Total : Hours / Credits</b>				<b>16</b>			<b>350</b>

**Note: Students have to choose either Elective-III or Elective-IV**

T: Theory, P: Practical, CC/EA: Co-curricular/Extension Activities. AECC: Ability Enhancement Compulsory Course, DSC: Discipline Specific Course. DSE: Discipline Specific Elective, SEC: Skill Enhancement Course).

**Note: Duration of examinations is 03 Hrs for 80 Marks theory and 02 hrs for 40 marks theory. For practical's duration of examination is 03 Hrs.**

## 11. GEOGRAPHY

Sem.	Title of the Paper	Paper Code	Teaching Hours / Week	Duration of Exam	Evaluation Pattern			Credits
					I A	Sem. End Exam	Total	
I	<u>Theory – 1.1</u> Physical Geography- Part A	DSC1.1	5	3	20	80	100	3
	<u>Practical – 1.2</u> <i>Introduction to cartography</i>	DSC- 1.2	3	3	10	40	50	1
II	<u>Theory – 2.1</u> Physical Geography- Part B	DSC- 2.1	5	3	20	80	100	3
	<u>Practical – 2.2</u> <i>Representation of Relief</i>	DSC- 2.2	3	3	10	40	50	1
III	<u>Theory – 3.1</u> Human Geography	DSC- 3.1	5	3	20	80	100	3
	<u>Practical – 3.2</u> <i>Map Projections</i>	DSC- 3.2	3	3	10	40	50	1
<b>Skill Enhanced Course (Compulsory Paper)</b>								
	<u>Theory – 3.3 (Compulsory Paper)</u> Basics of Physical Geography	SEC- I - 3.3	2	2	10	40	50	2
IV	<u>Theory – 4.1</u> Regional Geography of Karnataka	DSC- 4.1	5	3	20	80	100	3
	<u>Practical – 4.2</u> <i>Basics Statistics</i>	DSC- 4.2	3	3	10	40	50	1
<b>Skill Enhanced Course (Compulsory Paper)</b>								
	<u>Theory – 4.3 (Compulsory Paper)</u> Geography of Karnataka	SEC- II 4.3	2	2	10	40	50	2
V	<u>Theory – 5.1 [Compulsory]</u> Environmental Geography	DSE- 5.1	4	3	20	80	100	3
	(Choice any one from 5.2-a or 5.3-b)	DSE- 5.2	4	3	20	80	100	3
	<u>Theory – 5.2-a</u> Development of Modern Geography	DSE- 5.3	4	3	20	80	100	3
	<u>Theory – 5.2-b</u> Population Geography							
	<u>Practical 1<sup>st</sup> - 5.3</u> Interpretation of SOI Topographical Maps	DSE- 5.4	3	3	10	40	50	1
	<u>Practical 2<sup>nd</sup> – 5.4</u> Representation of Geographical	DSE- 5.5	3	3	10	40	50	1
<b>Skill Enhanced Course (Compulsory Paper)</b>								

	<u>Theory – 5.5</u> Population Geography (Compulsory Paper)	SEC- III – 5.6	2	2	10	40	50	2
VI	<u>Theory – 6.1</u> [Compulsory] Regional Geography of India	DSE- 6.1	4	3	20	80	100	3
	(Choice any one from 6.2-a or 6.2-b ) <u>Theory – 6.2-a</u> Settlement Geography	DSE- 6.2- a	4	3	20	80	100	3
	<u>Theory – 6.2-b</u> Regional Planning and Development	DSE- 6.2- b	4	3	20	80	100	3
	<u>Practical 1<sup>st</sup> – 6.3</u> Interpretation of IMD Weather Reports	DSE- 6.3	3	3	10	40	50	1
	<u>Practical 2<sup>nd</sup> – 6.4</u> Field Based Project work/Report	DSE- 6.4	3	3	10	40	50	1
<b>Skill Enhanced Course (Compulsory Paper)</b>								
	<u>Theory – 6.5</u> Geography of India (Compulsory Paper)	SEC- IV – 6.5	2	2	10	40	50	2

**Note:**

DSC: Discipline Specific Course Papers [All DSC Papers are Compulsory for I sem to IV sem]

DSE : Discipline Specific Elective Papers [Students can select any one elective papers from DSE -5.2-a or 5.2-b for V semester and DSE – 6.2-a or 6.2-b for VI semester.



## 12. MICROBIOLOGY

(With effect from the academic year 2020-21 onwards)								
Sem	Part	Paper Code	Title of the Paper	Hours/Week	Marks			Subject Credits
					IA	Exam	Total	
I	Part – 1	MCBDSCT1.1	General Microbiology	4	20	80	100	3
	DSC	MCBDSCP1.1	Practicals-1	3	10	40	50	1
	<b>Total: Hours / Credits</b>			<b>7</b>			<b>150</b>	<b>4</b>
II	Part – 1	MCBDSCT2.1	Microbiological Techniques	4	20	80	100	3
	DSC	MCBDSCP2.1	Practicals-2	3	10	40	50	1
	<b>Total: Hours / Credits</b>			<b>7</b>			<b>150</b>	<b>4</b>

(With effect from the academic year 2021-22 onwards)								
Sem	Part	Paper Code	Title of the Paper	Hours/Week	Marks			Subject Credits
					IA	Exam	Total	
III	Part – 1	MCBDSCT3.1	Microbial Physiology and Genetics	4	20	80	100	3
	DSC	MCBDSCP3.1	Practicals-3	3	10	40	50	1
	Part – 2 SEC	MCBSECT3.2	Microbial quality control in Food and Pharmaceutical Industries	2	10	40	50	2
	<b>Total: Hours / Credits</b>			<b>9</b>			<b>200</b>	<b>6</b>
IV	Part – 1	MCBDSCT4.1	Molecular biology and Genetic Engineering	4	20	80	100	3
	DSC	MCBDSCP4.1	Practicals-4	3	10	40	50	1
	Part – 2 SEC	MCBSECT4.2	Microbial Diagnostic in health clinics	2	10	40	50	2
	<b>Total: Hours / Credits</b>			<b>9</b>			<b>200</b>	<b>6</b>

(With effect from the academic year 2022-23 onwards)								
Sem	Part	Paper Code	Title of Paper	Hours/ Week	Marks			Subject Credits
					IA	Exam	Total	
V	Part – 1 DSE	MCMDSET5.1	Environmental Microbiology	4	20	80	100	3
		MCBDSEP5.1	Practical-5	3	10	40	50	1
		MCBDSET5.2A (Elective I)	Soil and agricultural microbiology	4	20	80	100	3
		MCBDSEP5.2A (Elective I)	Practicals-5A	3	10	40	50	1
		MCBDSET5.2B (Elective II)	Microbes in Sustainable agriculture and development	4	20	80	100	3
		MCBDSEP5.2B (Elective II)	Practicals-5B	3	10	40	50	1
	Part – 2 SEC	MCBSECT5.3	Biofertilizers and Biopesticides	3	10	40	50	2
		<b>Total: Hours / Credits</b>			<b>17</b>			<b>350</b>

**Note: Students have to choose either Elective-I or Elective-II**

VI	Part – 1 DSE	MCBDSET6.1	Food and industrial Microbiology	4	20	80	100	3
		MCBDSEP6.1	Practicals-6	3	10	40	50	1
		MCBDSET6.2A (Elective III)	Immunology and Medicinal Microbiology	4	20	80	100	3
		MCBDSEP6.2A (Elective III)	Practicals-6A	3	10	40	50	1
		MCBDSET6.2B (Elective IV)	Instrumentation and Biotechniques (Theory)	4	20	80	100	3
		MCBDSEP6.2B (Elective IV)	Practicals-6B	3	10	40	50	1
	Part – 2 SEC	MCBSECT6.3	Management of Human Microbial diseases	3	10	40	50	2
		<b>Total: Hours / Credits</b>			<b>17</b>			<b>350</b>

**Note: Students have to choose either Elective-III or Elective-IV**

T: Theory, P: Practical, CC/EA: Co-curricular/Extension Activities. AECC: Ability Enhancement Compulsory Course, DSC: Discipline Specific Course. DSE: Discipline Specific Elective, SEC: Skill Enhancement Course).

**Note: Duration of examinations is 03 h for 80 Marks theory and 02 h for 40 marks theory. For practicals, duration of examination is 03 h.**

### 13. BIOTECHNOLOGY

(With effect from the academic year 2020-21 onwards)								
Sem	Part	Paper Code	Title of the Paper	Hours/Week	Marks			Subject Credits
					IA	Exam	Total	
I	Part – 1	BTNDSCT 1.1	Cell Biology and Genetics	4	20	80	100	3
	DSC	BTNDSCP 1.1	Practicals-1	3	10	40	50	1
	Total: Hours / Credits			7			150	4
II	Part – 1	BTNDSCT 2.1	Biochemistry and Biogenetics	4	20	80	100	3
	DSC	BTNDSCP 2.1	Practicals-2	3	10	40	50	1
	Total: Hours / Credits			7			150	4

(With effect from the academic year 2021-22 onwards)								
Sem	Part	Paper Code	Title of the Paper	Hours/Week	Marks			Subject Credits
					IA	Exam	Total	
III	Part – 1	BTNDSCT3.1	Microbiology and Immunology	4	20	80	100	3
	DSC	BTNDSCP3.1	Practicals-3	3	10	40	50	1
	Part – 2 SEC	BTNSECT3.2	Molecular Diagnostics	2	10	40	50	2
	Total: Hours / Credits			9			200	6
IV	Part – 1	BTNDSCT4.1	Molecular Biology.	4	20	80	100	3
	DSC	BTNDSCP4.1	Practicals-4	3	10	40	50	1
	Part – 2 SEC	BTNSECT4.2	Industrial Fermentations	2	10	40	50	2
	Total: Hours / Credits			9			200	6

(With effect from the academic year 2022-23 onwards)

Sem	Part	Paper Code	Title of Paper	Hours/Week	Marks			Subject Credits
					IA	Exam	Total	
V	Part – 1 DSE	BTNDSET 5.1	Plant and Animal cell Technology.	4	20	80	100	3
		BTNDSEP 5.1	Practicals 5	3	10	40	50	1
		BTNDSET 5.2A (Elective I)	Recombinant DNA Technology and Nanotechnology	4	20	80	100	3
		BTNDSEP 5.2A (Elective I)	Practicals-5A	3	10	40	50	1
		BTNDSET 5.2B (Elective II)	Bioinformatics.	4	20	80	100	3
		BTNDSEP 5.2B (Elective II)	Practicals-5B	3	10	40	50	1
	Part – 2 SEC	BTNSECT5.3	Industrial Fermentations	3	10	40	50	2
		<b>Total: Hours / Credits</b>			<b>17</b>			<b>350</b>

**Note: Students have to choose either Elective-I or Elective-II**

VI	Part – 1 DSE	BTNDSET 6.1	Industrial and Environmental Biotechnology	4	20	80	100	3
		BTNDSEP 6.1	Practicals-6	3	10	40	50	1
		BTNDSET 6.2A (Elective III)	Agricultural and medical Biotechnology	4	20	80	100	3
		BTNDSEP 6.2A (Elective III)	Practicals-6A	3	10	40	50	1
		BTNDSET 6.2B (Elective IV)	Medical Microbiology	4	20	80	100	3
		BTNDSEP 6.2B (Elective IV)	Practicals 6B	3	10	40	50	1
	Part – 2 SEC	BTNSECT 6.3	Basics of Forensic Science	3	10	40	50	2
		<b>Total: Hours / Credits</b>			<b>17</b>			<b>350</b>

**Note: Students have to choose either Elective-III or Elective-IV**

T: Theory, P: Practical, CC/EA: Co-curricular/Extension Activities. AECC: Ability Enhancement Compulsory Course, DSC: Discipline Specific Course. DSE: Discipline Specific Elective, SEC: Skill Enhancement Course).

**Note: Duration of examinations is 03 h for 80 Marks theory and 02 h for 40 marks theory. For practicals, duration of examination is 03 h.**

## 14. BOTANY

B.Sc., BOTANY Syllabus under CBCS scheme (With effect from the academic year 2020-21 onwards)								
Sem	Part	Paper Code	Title of the Paper	Hours/ Week	Marks			Subject Credits
					IA	Exam	Total	
I	Part – 1 DSC	BOTDSCT1.1	Biodiversity (Microbes, Algae, Fungi and Archegoniate)	4	20	80	100	3
		BOTDSCP1.1	Practical I	3	10	40	50	1
	<b>Total : Hours / Credits</b>			<b>7</b>			<b>150</b>	<b>4</b>
II	Part – 1 DSC	BOTDSCT2.1	Plant Ecology and Diversity of angiosperms	4	20	80	100	3
		BOTDSCP2.1	Practical II	3	10	40	50	1
	<b>Total : Hours / Credits</b>			<b>7</b>			<b>150</b>	<b>4</b>

B.Sc., BOTANY Syllabus under CBCS scheme (With effect from the academic year 2021-22 onwards)								
Sem	Part	Paper Code	Title of the Paper	Hours/ Week	Marks			Subject Credits
					IA	Exam	Total	
III	Part – 1 DSC	BOTDSCT3.1	Plant Anatomy and Embryology	4	20	80	100	3
		BOTDSCP3.1	Practical III	3	10	40	50	1
	Part – 2 SEC	BOTSECT3.2	Herbal technology	2	10	40	50	2
		<b>Total : Hours / Credits</b>			<b>9</b>			<b>200</b>
IV	Part – 1 DSC	BOTDSCT4.1	Plant Physiology and Biochemistry	4	20	80	100	3
		BOTDSCP4.1	Practical IV	3	10	40	50	1
	Part – 2 SEC	BOTSECT4.2	Nursery and Gardening	2	10	40	50	2
		<b>Total : Hours / Credits</b>			<b>9</b>			<b>200</b>

**B.Sc., BOTANY Syllabus under CBCS scheme  
(With effect from the academic year 2022-23 onwards)**

Sem	Part	Paper Code	Title of Paper	Hours/ Week	Marks			Subject Credits
					IA	Exam	Total	
V	Part – 1  DSE	BOTDSET5.1	Economic Botany and Biotechnology	4	20	80	100	3
		BOTDSEP5.1	Practical V	3	10	40	50	1
		BOTDSET5.2A (Elective I)	Cell and Molecular Biology	4	20	80	100	3
		BOTDSEP5.2A (Elective I)	Practical VIA	3	10	40	50	1
		BOTDSET5.2B (Elective II)	Genetics, Plant Breeding and Evolution	4	20	80	100	3
		BOTDSEP5.2B (Elective II)	Practical VIB	3	10	40	50	1
	Part – 2 SEC	BOTSECT5.3	Medicinal Botany	2	10	40	50	2
		<b>Total : Hours / Credits</b>			<b>16</b>		<b>350</b>	<b>10</b>

**Note: Students have to choose either Elective-I or Elective-II**

VI	Part – 1  DSE	BOTDSET6.1	Analytical Techniques in Plants.	4	20	80	100	3
		BOTDSEP6.1	Practical VII	3	10	40	50	1
		BOTDSET6.2A (Elective III)	Research Methodology	4	20	80	100	3
		BOTDSEP6.2A (Elective III)	Practical VIIIA	3	10	40	50	1
		BOTDSET6.2B (Elective IV)	Biofertilizers and Organic Farming	4	20	80	100	3
		BOTDSEP6.2B (Elective IV)	Practical VIIIB	3	10	40	50	1
	Part – 2 SEC	BOTSECT6.3	Ethnobotany	2	10	40	50	2
		<b>Total : Hours / Credits</b>			<b>16</b>		<b>350</b>	<b>10</b>

**Note: Students have to choose either Elective-III or Elective-IV**

## 15. MATHEMATICS

B.Sc.: Mathematics as one of the optional subject revised syllabus under CBCS (w.e.f. 2020-21 and onwards)								
Sem	Part	Paper Code	Title of Paper	Hours/Week	Marks			Subject Credits
					IA	Exam	Total	
I	Part – 1 DSC	MATDSCT 1.1	Algebra–I and Calculus–I	4	20	80	100	3
		MATDSCP 1.1	Practicals-I	3	10	40	50	1
	Total : Hours / Credits			7			150	4
II	Part – 1 DSC	MATDSCT 2.1	Calculus–II and 3-Dimensional Geometry	4	20	80	100	3
		MATDSCP 2.1	Practicals-II	3	10	40	50	1
	Total : Hours / Credits			7			150	4

B.Sc.: Mathematics as one of the optional subject revised syllabus under CBCS (w.e.f. 2021-22 and onwards)								
Sem	Part	Paper Code	Title of Paper	Hours/Week	Marks			Subject Credits
					IA	Exam	Total	
III	Part – 1 DSC	MATDSCT3.1	Algebra-II, Real analysis and Differential Equations	4	20	80	100	3
		MATDSCP 3.1	Practicals-III	3	10	40	50	1
	Part – 2 SEC	MATSECT 3.2	Set Theory and Theory of Equations	2	10	40	50	2
Total : Hours / Credits			9			200	6	
IV	Part – 1 DSC	MATDSCT 4.1	Vector Calculus, Infinite Series and Deferencial Equations	4	20	80	100	3
		MATDSCP 4.1	Practicals-IV	3	10	40	50	1
	Part – 2 SEC	MATSECT 4.2	Fourier Transforms	2	10	40	50	2

**B.Sc.: Mathematics as one of the optional subject revised syllabus under CBCS  
(w.e.f. 2022-23 and onwards)**

Sem	Part	Paper Code	Title of Paper	Hours/ Week	Marks			Subject Credits
					IA	Exam	Total	
V	Part – 1  DSE	MATDSET 5.1	Real Analysis	4	20	80	100	3
		MATDSEP 5.1	Practicals-V	3	10	40	50	1
		MATDSET 5.2A (Elective-I)	Numerical Analysis and Difference Equations	4	20	80	100	3
		MATDSEP 5.2A (Elective-I)	Practicals	3	10	40	50	1
		MATDSET5.2B (Elective-II)	Dynamics and Calculus of Variation	4	20	80	100	3
		MATDSEP 5.2B (Elective-II)	Practicals	3	10	40	50	1
	Part – 2 SEC	MATSECT 5.3	Number theory	2	10	40	50	2
	<b>Total : Hours / Credits</b>				<b>16</b>			<b>350</b>

**Note: Students have to choose either Elective-I or Elective-II**

VI	Part – 1  DSE	MATDSET 6.1	Complex Analysis and Ring Theory	4	20	80	100	3
		MATDSEP 6.1	Practicals	3	10	40	50	1
		MATDSET 6.2A (Elective-III)	Differential Equations	4	20	80	100	3
		MATDSEP 6.2A (Elective-III)	Practicals	3	10	40	50	1
		MATDSET6.2B (Elective-IV)	Topology and Laplace Transforms	4	20	80	100	3
		MATDSEP 6.2B (Elective-IV)	Practicals	3	10	40	50	1
	Part – 2 SEC	MATSECT 6.3	Graph Theory	2	10	40	50	2
	<b>Total : Hours / Credits</b>				<b>17</b>			<b>350</b>

**Note: Students have to choose either Elective-III or Elective-IV**



## 16. COMPUTER SCIENCE

BSc.: Computer Science as one of the optional subject revised syllabus as per CBCS (w.e.f. 2020-21 onwards)								
Sem	Part	Paper Code	Title of Paper	Hours/ Week	Marks			Subject Credits
					IA	Exam	Total	
I	Part – 1	CPSDSCT1.1	Digital Logic & Comp. Design	4	20	80	100	3
	DSC	CPSDSCP1.1	Digital Logic & Comp. Design – Lab	3	10	40	50	1
	<b>Total : Hours / Credits</b>			<b>7</b>			<b>150</b>	<b>4</b>
II	Part – 1	CPSDSCT2.1	Programming in C	4	20	80	100	3
	DSC	CPSDSCP2.1	Programming in C - Lab	3	10	40	50	1
	<b>Total : Hours / Credits</b>			<b>7</b>			<b>150</b>	<b>4</b>

BSc.: Computer Science as one of the optional subject revised syllabus as per CBCS (w.e.f. 2021-22 onwards)								
Sem	Part	Paper Code	Title of Paper	Hours/ Week	Marks			Subject Credits
					IA	Exam	Total	
III	Part – 1 DSC	CPSDSCT3.1	Data-Structures using C	4	20	80	100	3
		CPSDSCP3.1	Data-Structures using C – Lab	3	10	40	50	1
	Part – 2 SEC	CPSSECP3.2	Internet and e-Resources	2	10	40	50	2
	<b>Total : Hours / Credits</b>			<b>9</b>			<b>200</b>	<b>6</b>
IV	Part – 1 DSC	CPSDSCT4.1	Operating System	4	20	80	100	3
		CPSDSCP4.1	Operating System using Unix Lab	3	10	40	50	1
	Part – 2 SEC	CPSSECP4.2	Multimedia Technology	2	10	40	50	2
	<b>Total : Hours / Credits</b>			<b>9</b>			<b>200</b>	<b>6</b>



**BSc.: Computer Science as one of the optional subject revised syllabus as per CBCS  
(w.e.f. 2022-23 onwards)**

Sem	Part	Paper Code	Title of Paper	Hours/ Week	Marks			Subject Credits
					IA	Exam	Total	
V	Part – 1  DSE	CPSDSET5.1	Computer Networks	4	20	80	100	3
		CPSDSEP5.1	Computer Networks Lab	3	10	40	50	1
		CPSDSET5.2A	Elective-1 RDBMS	4	20	80	100	3
		CPSDSEP5.2A	Elective-1 RDBMS Lab	3	10	40	50	1
		CPSDSET5.2B	Elective-II Java Programming	4	20	80	100	3
		CPSDSEP5.2B	Elective-II Java Programming Lab	3	10	40	50	1
	Part – 2 SEC	CPSSECT5.3	Fundamental of e-Governance	2	10	40	50	2
	<b>Total : Hours / Credits</b>				<b>17</b>			<b>350</b>

**Note: Students have to choose either Elective-I or Elective-II**

VI	Part – 1  DSE	CPSDSET6.1	Web Technology	4	20	80	100	3
		CPSDSEP6.1	Web Technology Lab	3	10	40	50	1
		CPSDSET6.2A	Elective-III Python	4	20	80	100	3
		CPSDSEP6.2A	Elective-III Python Lab	3	10	40	50	1
		CPSDSET6.2B	Elective-IV PHP	4	20	80	100	3
		CPSDSEP6.2B	Elective-IV PHP-Lab	3	10	40	50	1
	Part – 2 SEC	CPSSECT6.3	Cyber Laws	2	10	40	50	2
	<b>Total : Hours / Credits</b>				<b>17</b>			<b>350</b>

**Note: Students have to choose either Elective-III or Elective-IV**

(T: Theory, P: Practical, CC/EA: Co-curricular/Extension Activities)

## 17. ZOOLOGY

(With effect from the academic year 2020-21 onwards)

Sem	Part	Paper Code	Title of the Paper	Hour s/ Week	Marks			Subject Credits
					IA	Exam	Total	
I	Part – 1	ZOODSCT 1.1	Animal discovery	4	20	80	100	3
	DSC	ZOODSCP 1.1	Practicals-1	3	10	40	50	1
	<b>Total: Hours / Credits</b>			<b>7</b>			<b>150</b>	<b>4</b>
II	Part – 1 DSC	ZOODSCT 2.1	Comparative anatomy and development biology of vertebrates	4	20	80	100	3
		ZOODSCP 2.1	Practicals-2	3	10	40	50	1
	<b>Total: Hours / Credits</b>			<b>7</b>			<b>150</b>	<b>4</b>

(With effect from the academic year 2021-22 onwards)

Sem	Part	Paper Code	Title of the Paper	Hours/ Week	Marks			Subject Credits
					IA	Exam	Total	
III	Part – 1	ZOODSCT3.1	Physiology, Biochemistry and history	4	20	80	100	3
	DSC	ZOODSCP3.1	Practicals-3	3	10	40	50	1
	Part – 2 SEC	ZOOSECT3.2	Medical diagnostics	2	10	40	50	2
	<b>Total: Hours / Credits</b>			<b>9</b>			<b>200</b>	<b>6</b>
IV	Part – 1	ZOODSCT4.1	Genetics and evolutionary biology	4	20	80	100	3
	DSC	ZOODSCP4.1	Practicals-4	3	10	40	50	1
	Part – 2 SEC	ZOOSECT4.2	Aquarium fish keeping	2	10	40	50	2
	<b>Total: Hours / Credits</b>			<b>9</b>			<b>200</b>	<b>6</b>

(With effect from the academic year 2022-23 onwards)

Sem	Part	Paper Code	Title of Paper	Hours/ Week	Marks			Subject Credits
					IA	Exam	Total	
V	Part – 1 DSE	ZOODSET 5.1	Applied zoology and Ethology	4	20	80	100	3
		ZOODSEP 5.1	Practicals-5	3	10	40	50	1
		ZOODSET 5.2A (Elective I)	Cell biology, Biotechnology, Biostatistics and research methodology	4	20	80	100	3
		ZOODSEP 5.2A (Elective I)	Practicals-5A	3	10	40	50	1
		ZOODSET 5.2B (Elective II)	Immunology	4	20	80	100	3
		ZOODSEP 5.2B (Elective II)	Practicals-5B	3	10	40	50	1
	Part – 2 SEC	ZOOSCT5.3	Apiculture	3	10	40	50	2
	<b>Total: Hours / Credits</b>				<b>17</b>			<b>350</b>

**Note: Students have to choose either Elective-I or Elective-II**

VI	Part – 1 DSE	ZOODSET 6.1	Reproductive biology	4	20	80	100	3
		ZOODSEP 6.1	Practicals-6	3	10	40	50	1
		ZOODSET 6.2A (Elective III)	Ecology, Zoogeography and wildlife conservation.	4	20	80	100	3
		ZOODSEP 6.2A (Elective III)	Practicals-6A	3	10	40	50	1
		ZOODSET 6.2B (Elective IV)	Insects, Vectors and Diseases	4	20	80	100	3
		ZOODSEP 6.2B (Elective IV)	Practicals-6B	3	10	40	50	1
	Part – 2 SEC	ZOOSCT 6.3	Apiculture	3	10	40	50	2
	<b>Total: Hours / Credits</b>				<b>17</b>			<b>350</b>

**Note: Students have to choose either Elective-III or Elective-IV**

T: Theory, P: Practical, CC/EA: Co-curricular/Extension Activities. AECC: Ability Enhancement Compulsory Course, DSC: Discipline Specific Course. DSE: Discipline Specific Elective, SEC: Skill Enhancement Course).

**Note: Duration of examinations is 03 h for 80 Marks theory and 02 h for 40 marks theory. For practicals, duration of examination is 03 h**

## 18. GEOLOGY

19. B.Sc.: Geology as one of the optional subject revised syllabus under CBCS 20. (w.e.f. 2020-21 and onwards)								
Sem	Part	Paper Code	Title of Paper	Hours/ Week	Marks			Subject Credits
					IA	Exam	Total	
I	Part – 1 DSC	GEODSCT 1.1	Dynamic Geology, Geomorphology & Field Geology	4	20	80	100	3
		GEODSCP 1.1	Practicals-I	3	10	40	50	1
	<b>Total : Hours / Credits</b>			<b>7</b>			<b>150</b>	<b>4</b>
II	Part – 1 DSC	GEODSCT 2.1	Optical Mineralogy Crystallography & Mineralogy	4	20	80	100	3
		GEODSCP 2.1	Practicals-II	3	10	40	50	1
	<b>Total : Hours / Credits</b>			<b>7</b>			<b>150</b>	<b>4</b>

B.Sc.: Statistics as one of the optional subject revised syllabus under CBCS (w.e.f. 2021-22 and onwards)								
Sem	Part	Paper Code	Title of Paper	Hours/ Week	Marks			Subject Credits
					IA	Exam	Total	
III	Part – 1 DSC	GEODSCT3.1	Petrology: Igneous Sedimentary & Metamorphic	4	20	80	100	3
		GEODSCP 3.1	Practicals-III	3	10	40	50	1
	Part – 2 SEC	GEOSECT 3.2	Energy Resources	2	10	40	50	2
	<b>Total : Hours / Credits</b>			<b>9</b>			<b>200</b>	<b>6</b>
IV	Part – 1 DSC	GEODSCT 4.1	Palaeontology, Principles of Stratigraphy & Indian Stratigraphy	4	20	80	100	3
		GEODSCP 4.1	Practicals-IV	3	10	40	50	1
	Part – 2 SEC	GEOSECT 4.2	Fundamentals of Remote Sensing	2	10	40	50	2
	<b>Total : Hours / Credits</b>			<b>9</b>			<b>200</b>	<b>6</b>

**B.Sc.: Geology as one of the optional subject revised syllabus under CBCS  
(w.e.f. 2022-23 and onwards)**

Sem	Part	Paper Code	Title of Paper	Hours/Week	Marks			Subject Credits
					IA	Exam	Total	
V	Part – 1 DSE	GEODSET 5.1	Structural Geology and Surveying	4	20	80	100	3
		GEODSEP 5.1	Practicals-V	3	10	40	50	1
		GEODSET 5.2A (Elective-I)	Ore Processes, Indian Mineral Deposits and Exploration Geology	4	20	80	100	3
		GEODSEP 5.2A (Elective-I)	Practicals	3	10	40	50	1
		GEODSET 5.2B (Elective-II)	Marine Geology	4	20	80	100	3
		GEODSEP 5.2B (Elective-II)	Practicals	3	10	40	50	1
	Part – 2 SEC	GEOSECT 5.3	Gemology	2	10	40	50	2
<b>Total : Hours / Credits</b>				<b>16</b>			<b>350</b>	<b>10</b>

**Note: Students have to choose either Elective-I or Elective-II**

VI	Part – 1 DSE	GEODSET 6.1	Hydrogeology & Geochemistry	4	20	80	100	3
		GEODSEP 6.1	Practicals	3	10	40	50	1
		GEODSET 6.2A (Elective-III)	Remote Sensing & GIS	4	20	80	100	3
		GEODSEP 6.2A (Elective-III)	Practicals	3	10	40	50	1
		GEODSET 6.2B (Elective-IV)	Environmental Geology & Engineering Geology	4	20	80	100	3
		GEODSEP 6.2B (Elective-IV)	Practicals	3	10	40	50	1
	Part – 2 SEC	GEOSECT 6.3	Mining Geology	2	10	40	50	2
<b>Total : Hours / Credits</b>				<b>17</b>			<b>350</b>	<b>10</b>

**Note: Students have to choose either Elective-III or Elective-IV**

(T: Theory, P: Practical, CC/EA: Co-curricular/Extension Activities  
Aecc: Ability Enhancement Compulsory Course, DSC: Discipline Specific Course  
DSE: Discipline Specific Elective, SEC: Skill Enhancement Course)

Note: Duration of examinations is 03 Hrs for 80 Marks theory and 02 hrs for 40 marks theory. For practical's duration of examination is 03 Hrs.

  
**IQAC, Co-ordinator**

G. B. Arts & K. C. P. Science College,

  
**Principal,**

G. B. Arts & K. C. P. Sc. College,