KG COLLEGE OF ARTS AND SCIENCE
Autonomous Institution | Affiliated to Bharathiar University
Accredited with A++ Grade by NAAC
ISO 9001:2015 Certified Institution
KGiSL Campus, Saravanampatti, Coimbatore – 641 035

Regulations 2026 -27 for Undergraduate Programme

Learning Outcomes Based Curriculum Framework- (LOCF) model with

Choice Based Credit System (CBCS)

Programme: B.Sc. Biotechnology (B.Sc. BT)

Programme Code: BBT

(Applicable for the Students Admitted During the Academic Year 2026 - 27 onwards)

Eligibility

Candidates for admission to the first year of the Bachelor of Science (Biotechnology) Degree Programme should have passed Higher Secondary examination with Chemistry with Biology / Botany/ Zoology/ Microbiology / Biotechnology / Biochemistry / Nutrition & Dietetics / Nursing Vocational group – Agricultural / Food Science / Home Science.
(As per the eligibility condition given by Bharathiar University Ref. BU/R/B3-B4/Eligibility Condition/2026/7425 dated 15/05/2026).

Program Learning Outcomes (PLOs)

The successful completion of the B.Sc. Biotechnology programme shall enable the students to

PLO1	Inculcate deeper knowledge in theoretical and practical skills enabling them to work with disciplinary and interdisciplinary domains of Biotechnology.
PLO2	Enhance students learning abilities, technological solutions in digital domains of biotechnology for their applications in industry, research and entrepreneurship.
PLO3	Demonstrate their skills to apply approaches and methods in biotechnology for global environmental problems like climate change and waste management.
PLO4	Validate health safety and legal issues ethically with an understanding in the biotechnological principles behind, for society which could fetch career in food and agricultural industry.
PLO5	Understand and apply the Indian Knowledge System (IKS) in emerging Biotechnological industry.

B.Sc. Biotechnology
Distribution of Credits and Hours for all the Semesters

Part	Course Category	No. of Courses	Hours		Credits		Total Credits	Semester
I	Language-I	4	4 X 4	16	4 X 3	12	12	1 – 4
II	Language-II	4	4 X 4	16	4 X 3	12	12	1 – 4
III	Core Theory (6 hrs. / week)	4	4 X 6	24	4 X 4	16	100	3, 6
	Core Theory (5 hrs. / week)	8	8 X 5	40	8 X 4	32		1,2,4,5
	Core Theory (5 hrs. / week)	1	1 X 5	5	1 X 3	3		6
	Core Lab (4 hrs. / week)	1	1 X 4	4	1 X 2	2		1
	Core Lab (4 hrs. / week)	3	3 X 4	12	3 X 3	9		2,3,4
	Core Lab (5 hrs. / week)	2	2 X 5	10	2 X 3	6		5
	Allied (5 hrs. / week)	1	1 X 5	5	1 X 4	4		4
	Allied (4 hrs. / week)	1	1 X 4	4	1 X 2	2		3
	Allied (4 hrs. / week)	1	1 X 4	4	1 X 3	3		2
	Allied Lab (4 hrs. / week)	2	2 X 4	8	2 X 2	4		2, 3
	Electives	2	2 X 5	10	2 X 3	6		5 , 6
	Project	1	1 X 6	6	1 X 5	5		6
	Internship (IT)	1	-	-	1 X 2	2		5
	Skill Enhancement (SEC)	3	3 X 2	6	3 X 2	6		3, 4 , 6
IV	Foundation Course (FC)	2	2 X 2	4	2 X 2	4	14	1 – 2
	Foundation Course (FC)	1	-	-	1 X 2	2		3
	Ability Enhancement Compulsory Course(AECC)	3	3 X 2	6	3 X 2	6		1, 2 , 4
	Ability Enhancement Compulsory Course(AECC) – Online Course- MOOC	1	-	-	1 X 2	2		3
V	Liberal Arts – (Extra-Curricular & Co-curricular)	-	-	-	2	2	2	4
	Total	**46**		**180**		**140**	**140**	

Consolidated Semester wise and Component wise Hours and Credits Distribution

Semester	Part I		Part II		Part III		Part IV		Part V		Total	
	Hrs.	Credits	Hrs.	Credits	Hrs.	Credits	Hrs.	Credits	Hrs.	Credits	Hrs.	Credits
1	4	3	4	3	18	13	4	4	-	-	**30**	**23**
2	4	3	4	3	18	13	4	4	-	-	**30**	**23**
3	4	3	4	3	22	15	-	4	-	-	**30**	**25**
4	4	3	4	3	20	15	2	2		2	**30**	**25**
5	-	-	-	-	30	23	-	-	-		**30**	**23**
6	-	-	-	-	30	21	-	-	-	-	**30**	**21**
Total	**16**	**12**	**16**	**12**	**136**	**100**	**12**	**14**	**-**	**2**	**180**	**140**

Curriculum

B.Sc. Biotechnology

Semester – 1									
Course Code	**Part**	**Course Category**	**Course Name**	**Hours / Week**	**Examination**				**Credits**
					Duration in Hours	**Max Marks**			
						CIA	**ESE**	**Total**	
26TAM11L	I	Language – I	Tamil – I	4	3	25	75	100	3
26HIN11L	I		Hindi – I						
26MAL11L	I		Malayalam – I						
26FRE11L	I		French – I						
26ENG12L	II	Language – II	English – I	4	3	25	75	100	3
26BBT13C	III	Core – I	Cell Biology	5	3	25	75	100	4
26BBT14C	III	Core - II	Genetics	5	3	25	75	100	4
26BBT15P	III	Core Lab - I	Cell Biology and Genetics Lab	4	3	40	60	100	3
26BBT16A	III	Allied – I	Chemistry	4	3	25	75	100	2
26ENV1FC	IV	FC – I	Environmental Studies	2	2	50	-	50	2
26SOF1AE	IV	AECC – I	Soft Skills	2	2	-	50	50	2
			Total	**30**				**700**	**23**

Semester – 2									
Course Code	Part	Course Category	Course Name	Hours/ Week	Examination				Credits
					Duration in Hours	Max Marks			
						CIA	ESE	Total	
	I	Language – I	Tamil – II	4	3	25	75	100	3
	I		Hindi – II						
	I		Malayalam – II						
	I		French – II						
	II	Language – II	English – II	4	3	25	75	100	3
	III	Core - III	Microbiology	5	3	25	75	100	4
	III	Core - IV	Biochemistry	5	3	25	75	100	4
	III	Core Lab- II	Microbiology & Biochemistry Lab	4	3	40	60	100	3
	III	Allied Lab - I	Chemistry Lab	4	3	40	60	100	2
	IV	FC - II	Human Rights/ Disaster Management	2	2	50	-	50	2
	IV	AECC – II	Innovation & Design Thinking	2	2	-	50	50	2
			Intellectual Property Rights						
			Entrepreneurship Development						
Total				**30**				**700**	**23**

Semester – 3									
Course Code	**Part**	**Course Category**	**Course Name**	**Hours/ Week**	**Examination**				**Credits**
					Duration in Hours	**Max Marks**			
						CIA	**ESE**	**Total**	
	I	Language – I	Tamil – III	4	3	25	75	100	3
	I		Hindi – III						
	I		Malayalam – III						
	I		French – III						
	II	Language – II	English – III	4	3	25	75	100	3
	III	Core – V	Bioinstrumentation	6	3	25	75	100	4
	III	Core- VI	Molecular Genetics	6	3	25	75	100	4
	III	Core Lab-III	Bioinstrumentation & Molecular genetics Lab	4	3	40	60	100	2
	III	Allied -II	Basics of Biopython	4	3	25	75	100	3
	III	SEC – I	Chemiformatics	2	3	40	60	100	2
	IV	FC – II	Basic Tamil	-	2	50	-	50	2
			Advanced Tamil						
			Indian Knowledge Systems (IKS)						
	IV	AECC – III	Online Course – MOOC	-	-	-	50	50	2
Total				**30**				**800**	**25**

Semester – 4									
Course Code	**Part**	**Course Category**	**Course Name**	**Hours /Week**	**Examination**				**Credits**
					Duration in Hours	**Max Marks**			
						CIA	**ESE**	**Total**	
	I	Language – I	Tamil – IV	4	3	25	75	100	3
	I		Hindi – IV						
	I		Malayalam – IV						
	I		French – IV						
	II	Language – II	English – IV	4	3	25	75	100	3
	III	Core-VII	Recombinant DNA Technology	5	3	25	75	100	4
	III	Core Lab-IV	Recombinant DNA Technology	4	3	40	60	100	3
	III	Allied -III	Biostatistics	5	3	25	75	100	4
	III	Allied Lab-II	Lab: Computer for Biologist Using Python Lab	4	3	40	60	100	2
	III	SEC Lab – II	Medical Coding Lab	2	3	40	60	100	2
	IV	AECC – IV	Innovation/IPR/ Entrepreneurship	2	2	-	50	50	2
	V	Extension Activity	Liberal Arts	-	-	50	-	50	2
			Total	**30**				**800**	**25**

Semester – 5									
Course Code	**Part**	**Course Category**	**Course Name**	**Hours / Week**	**Examination**				**Credits**
					Duration in Hours	**Max. Marks**			
						CIA	**ESE**	**Total**	
	III	Core- VIII	Plant Biotechnology	5	3	25	75	100	4
	III	Core -IX	Animal Biotechnology	5	3	25	75	100	4
	III	Core Lab-V	Plant & Animal Biotechnology Lab	5	3	40	60	100	3
	III	Core -X	Environmental & Industrial Biotechnology	5	3	25	75	100	4
	III	Core Lab -VI	Environmental & Industrial Biotechnology Lab	5	3	40	60	100	3
	III	Elective – II	Agricultural Biotechnology	5	3	25	75	100	3
			Nano biotechnology						
			Forensic Science						
	III	SEC-III	Internship	-	-	50	-	50	2
Total				**30**				**650**	**23**

Semester – 6									
Course Code	**Part**	**Course Category**	**Course Name**	**Hours/ Week**	**Examination**				**Credits**
					Duration in hours	**Max. Marks**			
						CIA	**ESE**	**Total**	
	III	Core -XI	Bioentrepreneurship	6	3	25	75	100	4
	III	Core - XII	Pharmaceutical Biotechnology	5	3	25	75	100	3
	III	Core -XIII	Immunology & Immunotechnology	6	3	25	75	100	4
	III	Elective - II	Food Technology	5	3	25	75	100	3
			Drug Designing						
			Bioethics and Biosafety						
	III	SEC - IV	AI in Life Science	2	3	25	75	100	2
	III	Core	Project	6	3	40	60	100	5
Total				**30**				**600**	**21**
Grand Total				**180**				**4250**	**140**

Semester 1

Semester – 1									
Course Code	**Part**	**Course Category**	**Course Name**	**Hours/ Week**	**Examination**				**Credits**
					Duration in Hours	**Max Marks**			
						CIA	**ESE**	**Total**	
26TAM11L	I	Language – I	Tamil – I	4	3	25	75	100	3
26HIN11L	I		Hindi – I						
26MAL11L	I		Malayalam – I						
26FRE11L	I		French – I						
26ENG12L	II	English – I	English – I	4	3	25	75	100	3
26BBT13C	III	Core – I	Cell Biology	5	3	25	75	100	4
26BBT14C	III	Core - II	Genetics	5	3	25	75	100	4
26BBT15P	III	Core Lab - I	Cell Biology and Genetics Lab	4	3	40	60	100	3
26BBT16A	III	Allied – I	Chemistry	4	3	25	75	100	2
26ENV1FC	IV	FC – I	Environmental Studies	2	2	50	-	50	2
26SOF1AE	IV	AECC – I	Soft Skills	2	2	-	50	50	2
			Total	**30**				**700**	**23**

Course Code	Course Name	Category	Hours / Week	Credits
26TAM11L	Tamil - I	Language – I	4	3

Course Objectives

The Course intends to cover

- இலக்கியத்தின் வளர்ச்சி நிலைகளைக் கற்பித்தல்
- மொழியியல் அடிப்படையில் இலக்கணம் கற்பித்தல்
- திறனாய்வு முறையினை ஊக்குவித்தல்
- படைப்பாக்கத் திறன் பயிற்சி அளித்தல்

Course Learning Outcomes

On the successful completion of the course, students will be able to

CLO	CLO Statements	Knowledge Level
CLO1	புதுக்கவிதையின் மூலம் வாழ்வியல் விழுமியங்களை உணர்ந்து கொள்வர்.	K1, K2
CLO2	சிறந்த மற்றும் வாழும் கவிஞர்களின் கவிதை வழியாக தர்மம், அன்பு, ஈகை போன்ற மனித மாண்புகளை அறிந்து கொள்வர்.	K2, K3
CLO3	சிறந்த படைப்பாளர்களின் சிறுகதைகள் மற்றும் குறுநாவலில் வெளிப்படும் சமூகச் சிந்தனைகளை அறிந்து ஒழுகுதல்.	K3
CLO4	தற்கால இலக்கியங்களான புதுக்கவிதை, சிறுகதை தோன்றி வளர்ந்த பின்புலத்தை அறிதல்.	K1, K3
CLO5	மொழித்திறனைக் கற்றலின் வாயிலாக நடைமுறை வாழ்வியலுக்குத் தேவையான சிறுகதை மற்றும் புதுக்கவிதைகளைப் படைத்தல்.	K2, K3
K1 - Remember; **K2** - Understand; **K3** – Apply		

Part – I: Language-I-Tamil – I

Unit	Content	No. of Hours
I	**நாட்டுப்பற்று** 1. பாரதியார - உலகத்தை நோக்கி வினவுதல் 2. பாரதிதாசன் - தமிழ்ப்பேறு 3. கவிமணி - ஒற்றுமையே உயிர்நிலை 4. தேவதேவன் - சாலையும் மரங்களும் செருப்பும், புதிய வீடு 5. அப்துல் ரகுமான் - போட்டி, பாதை 6. கவிஞர் வாலி - புத்தகச் சந்தை	14
II	**சமூகம்** 1. ஈரோடு தமிழன்பன் - எட்டாவது சீர்... 2. கவிஞர் தாமரை - தொலைந்து போனேன் 3. நா. காமராசன் - திருநங்கைகள் காகிதப் பூக்கள் 4. வைரமுத்து - மரங்களைப் பாடுவேன் 5. அமுத பாரதி - புள்ளிப் பூக்கள் (ஹைக்கூ) 6. நாட்டுப்புறப் பாடல்கள் (தாலாட்டுப் பாடல் , தெம்மாங்கு பாடல் , உழவுத்தொழில்)	14
III	**வாழ்வியல்** சிறுகதை 1. காஞ்சனை - புதுமைப்பித்தன் 2. சோற்றுக் கணக்கு - ஜெயமோகன் 3. மரத்தைக் கர்ப்பம் சுமந்தவள் - ஆண்டாள் பிரியதர்சினி குறுநாவல் • ஆயிஷா – இரா.நடராசன்	12
IV	**இலக்கிய வரலாறு** 1. மரபுக்கவிதையின் தோற்றமும் வளர்ச்சியும் 2. புதுக்கவிதையின் தோற்றமும் வளர்ச்சியும் 3. ஹைக்கூ கவிதையின் தோற்றமும் வளர்ச்சியும் 4. சிறுகதையின் தோற்றமும் வளர்ச்சியும்	10

Unit	Content	No. of Hours
V	**இலக்கணம் மற்றும் படைப்பாற்றல்** 1. எழுத்துகள் (முதல் எழுத்துகள், சார்பெழுத்துகள்) 2. எழுத்துக்களின் பிறப்பு 3. மாத்திரைகள் படைப்பாற்றல் திறன்(சிறுகதை மற்றும் புதுக்கவிதைப் படைத்தல்)	10
	Total Hours	**60**

Reference Books	
1	பேரா. குருசாமி, ம.ரா.போ. (2014), பாரதி பாடல்கள், ஆய்வுப் பாதிப்பு, தமிழ்ப் பல்கலைக் கழகம், தஞ்சாவூர்.
2	அப்துல் ரகுமான்,(2000), ஆலாபனை, கவிக்கோ பதிப்பகம்.
3	தாமரை, (1995), ஒரு கதவும் கொஞ்சம் கள்ளிப்பாலும் கவிதை தொகுப்பு, காந்தளகம் பதிப்பகம், சென்னை.
4	வரதராசனார் மு, (2021), தமிழ் இலக்கிய வரலாறு, சாகித்ய அகாடமி பதிப்பு.
5	முனைவர் பஞ்சாங்கம் கா, (2017), தமிழ் இலக்கிய வரலாறு, காவ்யா பதிப்பகம்.
6	முனைவர் வேங்கடராமன் கா. கோ (2008), தமிழ் இலக்கிய வரலாறு, கலையக வெளியீடு.
7	ஜெயமோகன், (2024), அறம் (சிறுகதை), விஷ்ணுபுரம் பதிப்பகம்.
8	இரா.நடராசன், (2022) ஆயிஷா, பாரதி புத்தகாலயம்.
9	குமரன் கோ (2010), தமிழ் இலக்கணம் எளிய அறிமுகம் , சந்தியா பதிப்பகம்.
10	சக்திவேல் சு,(2012), நாட்டுப்புறவியல், மணிவாசகர் பதிப்பகம்.

Course Code	Course Name	Category	Hours / Week	Credits
26HIN11L	Hindi - I	Language - I	4	3

Course Objectives

The Course intends to

- Improve grammatical knowledge
- Continue to read and learn about articles and think about them
- Read and understand short stories and the thoughts and life of the people of this country
- Provide translation knowledge and the ability to read and analyse a message are also gained

Course Learning Outcomes

On the successful completion of the course, students will be able to

CLO	CLO Statements	Knowledge Level
CLO1	Understand the text styles and grammatical elements.	K1
CLO2	Discuss the content of a reading passage.	K2
CLO3	Develop an interest in the appreciation of short stories.	K2, K3
CLO4	Comprehend the grammatical structures and sentence making.	K3
CLO5	Understand the language and developing English to Hindi translation skill.	K4
K1 - Remember; **K2 -** Understand; **K3** – Apply; **K4**-Analyse		

Part – I: Language-I-Hindi – I

Unit	Content	No. of Hours
I	**Prose : Bharthi Gadya Sangrah** 1.Sanskurthi hai kya? (Lalith nibandh)- Ramdhari singh Dinkar 2. Voh cheeni Bhayi (Rekha chitra) – Mahadevi varma 3. Badthe shor ka gahratha sankat (pradoshan) - Rajendrakumr ray & Ravindra Varma 4. Ghar Loutthe huye – (Athma katha) – Harivamshraai Bacchan 5. Paramanu urja evam khadya padarth samrakshan (vaigyanik lek) - Parmaanu urja vibhag (Bharth sarkar) 6. Cinema (film) – Manmohan Chdda	14
II	**Non Detailed Text Short Stories: Aat Kahaniyan** 1. Vrath-bang - Jayashankar Prasad 2. Sath gathi - Premchand 3. parda - Yespal 4. Apna apna bhagya - Jaynendrakumar 5. Bhrammarakshas ka shishya - Mukthibhodh 6. Dana-bhusa - Markandeya	14
III	**Grammar : Shabdha Vichar only** (Noun, Pronoun, Adjective, Verb, Tense, Case Endings) Theoretical & Applied.	12
IV	**Translation : English – Hindi only** Anuvadh Abhyas – III (1-15 Lessons only)	10
V	**Comprehension**: 1 Passage From Anuvadh Abhyas–III (16-30)	10
	Total Hours	**60**

Text Books	
1	Bharathi gadya sangrah, editor: Madhudhavan, publisher: Vani prakashan, 4697/5,Daryaganch, New Delhi – 110002.
2	Aatt Kahaniyan, Editor : Dr. H.R. Mihir, Publisher : Jaya bharthi prakashan, 267 B, Maya press Road, Allahabad–211 003
Reference Book	
1	Naveenhindivyakaran, 2002,Dakshin Bharat Hindi Prachar, Sabha,Chennai–600017

Course Code	Course Name	Category	Hours / Week	Credits
26MAL11L	Malayalam - I	Language - I	4	3

Course Objectives

The Course intends to

- Improve grammatical knowledge
- Read and learn about articles and think about them
- Read and understand short stories and the thoughts and life of the people of this state
- Provide translation knowledge and the ability to read and analyze a message

Course Learning Outcomes

On the successful completion of the course, students will be able to

CLO	CLO Statements	Knowledge Level
CLO1	Understand the text styles and grammatical elements	K1
CLO2	Discuss the content of a reading passage	K1
CLO3	Develop an interest in the appreciation of short stories	K2
CLO4	Comprehend the grammatical structures and sentence making	K3
CLO5	Understand the language and developing English to Malayalam translation skill	K4
K1 - Remember; **K2** - Understand; **K3** – Apply ; **K4**-Analyse.		

Part – I: Language-I - Malayalam – I

Unit	Content	No. of Hours
I	Novel – Njanabharam - E. Santhoshkumar	14
II	Novel – Njanabharam - E. Santhoshkumar	14
III	Short Story - Ente Priyapetta Kadhakal –Sara Joseph	12
IV	Short Story - Ente Priyapetta Kadhakal – Sara Joseph	10
V	Composition & Translation (English to Malayalam)	10
	Total Hours	**60**

Text Books

1	Novel -Njanabharam - E. (2018) Santhoshkumar, Mathrubhumi Books, Kochi, Kerala.
2	Short Story-Ente Priyappeta Kadhakal -Sara Joseph, (2005) D.C.Books,Kottayam, Kerala.
3	Expansion of ideas, General Essay and Translation. (A Simple passage).

Reference Books

1	Malayala Novel SahithyaCharitram-K.M.Tharakan (2018) (N.B.S.Kottayam)
2	Cherukatha Innale Innu-M.Achuyuthan (2020) (D.C Books, Kottayam)
3	Sahithya Charitram Prasthanangalilude- Dr.K.M George, (2017) (D.C.Books Kottayam)
4	Malayala Sahithyavimarsam- Sukumar Azheekode (2022) (D.C.books)

Course Code	Course Name	Category	Hours / Week	Credits
26FRE11L	French - I	Language - I	4	3

Course Objectives

The Course intends to cover

- Familiar everyday expressions and basic phrases aimed at the satisfaction of concrete needs.
- Key aspects and recognize of Francophone cultures such as greetings, etiquette, daily life, and basic geography of French-speaking countries.
- Short, simple texts such as postcards, emails, or short descriptions about themselves and their immediate environment.
- Construction of simple sentences using correct word order and basic vocabulary.
- The developing of sensitivity to cross-cultural differences in communication and social practices.
- The reading and understanding of short, simple texts such as personal messages, advertisements, menus, and schedules.

Course Outcomes

On the successful completion of the course, student will be able to

CLO	CLO Statements	Knowledge Level
CLO1	Improve all the four French language skills (speaking, listening, reading, and writing) (Effective communicators).	K1
CLO2	Comprehend French and other Francophone nations' cultures and civilizations.	K2
CLO3	Comprehend the fundamentals of language structure, vocabulary, grammar, and phonetics (language skill).	K3
CLO4	The French DELF-A1 Certification is appreciated.	K4
K1 - Remember; **K2** - Understand; **K3** – Apply; **K4**-Analyse		

Part – I: Language-I - French – I

Unit	Content	No. of Hours
I	Grammaire: pg(122-124) Bienvenue (pg 10-17)	14
II	Contacts(pg 18-28) Grammaire: pg(125-128)	14
III	Communication pg(29-33) Grammaire: pg(129-130)	12
IV	Qu'est-ce qu'il font pg(34-44) Grammaire: pg(131-136)	10
V	Communication pg(45-49) Grammaire: pg(137-139(	10
Semester I Portions from Textbook « Nouvelle Génération A1» :UNITÉ 1, UNITÉ 2(Pg 10-49). Cahier d'exercices (Pg122-139)		
	Total Hours	**60**

Reference Books	
1	Luca Giachino, Carla Baracco, Romain Chrétien(DELF), (2022) Nouvelle Génération A1, Didier FLE.
2	Nathalie Hirschsprung, Tony Tricot, 2017, Cosmopolite, Hachette.

Course Code	Course Name	Category	Hours / Week	Credits
26ENG12L	English - I	Language II	4	3

Course Objectives

The course intends to cover

- Textual analysis of poetry and short stories that explore themes of *nature* and *morality*.
- Vocabulary through contextual guessing, lexical relations and diverse word formation processes.
- Usage of Grammar and Communication.

Course Learning Outcomes

On the successful completion of the course, students will be able to

CLO	CLO Statements	Knowledge Level
CLO1	Identify and interpret poetic elements in nature poetry to nurture aesthetic sensibility, creativity, and cultural awareness.	K1, K2
CLO2	Apply characterization and narrative techniques to appreciate literary qualities in short stories and to comprehend ethical responsibility through textual analysis.	K2,K3
CLO3	Employ grammatical proficiency in nouns, pronouns, and verbs to enhance clarity and correctness in academic and workplace communication.	K3, K4
CLO4	Apply vocabulary strategies to enhance clarity in diverse communicative situations.	K3
CLO5	Demonstrate effective communication skills that support professional growth and lifelong learning.	K3
K1 - Remember; **K2** - Understand; **K3** – Apply; **K4**-Analyse		

Part - II: Language-II- English – I

Unit	Content	No. of Hours
I	**Poetry** : **Nature** 1. I Wandered Lonely as a Cloud - William Wordsworth 2. The Bird Sanctuary - Sarojini Naidu 3. Stopping by Woods on a Snowy Evening – Robert Frost	12
II	**Short Stories: Morality** 1. The Necklace – Guy de Maupassant 2. The Taxi Driver – K.S. Duggal 3. The Monkey's Paw - W. W. Jacobs	12
III	**Grammar** 1. **Nouns:** Types, Singular vs. Plural forms, Case and Gender, Common errors with nouns 2. **Pronouns:** Types, Personal, Possessive, Reflexive, Intensive (Emphatic), Demonstrative, Relative, Interrogative, Indefinite, and Reciprocal pronouns, Common errors with pronouns 3. **Verbs:** Action verbs and linking verbs, Transitive and intransitive verbs, Auxiliary verbs and Modal verbs, Verb tenses, Common errors with verbs	12
IV	**Language Competency: Vocabulary** 1. **Vocabulary:** Synonyms, Antonyms, Guessing meaning from context, 2. **Word Formation**: Homonyms, Homophones, Homographs, Portmanteau words, Collocations, Compounding Words, Root Words, Prefixes and Suffixes, Clipping, Acronym, Abbreviations, Reduplication	12
V	**English for Communication** 1. Listening for General and Specific Information. 2. Self - Introduction, Introducing others, Greetings. 3. Intensive Reading - a prose passage, a poem and a short story 4. Descriptive writing – writing descriptive essays in two to three paragraphs.	12
	Total Hours	**60**

Reference Books

1. Carter, R., McCarthy, M., Mark, G., & O'Keeffe, A. (2016). English Grammar Today. Cambridge University Press.
2. Swan, M. (2021). Practical English Usage (4th ed.). Oxford University Press.
3. McCarthy, M., & O'Dell, F. (2017). English Vocabulary in Use: Advanced (3rd ed.). Cambridge University Press.
4. Ramazani, J., Ellmann, R., & O'Clair, R. (Eds.). (2003). The Norton Anthology of Modern and Contemporary Poetry (Vols. 1–2). W. W. Norton & Company.
5. Wren, P. C., & Martin, H. (2015). High School English Grammar and Composition (50th ed.). S. Chand & Company.
6. Jones, L. (2015). Cambridge English for Life Skills. Cambridge University Press.

Web Resources (Swayam/NPTEL)

1. https://nptel.ac.in/courses/109105205

Course Code	Course Name	Category	Hours /Week	Credits
26BBT13C	Cell Biology	Core – I	5	4

Course Objectives

The course intends to cover

- The structures and purposes of basic components of prokaryotic and eukaryotic cells, especially macromolecules, membranes, and organelles.
- The cellular components are used to generate and utilize energy in cells.

Course Learning Outcomes

On the successful completion of the course, students will be able to

CLO	CLO Statements	Knowledge Level
CLO1	Know the cell discovery and cell organization.	K1
CLO2	Know the mechanisms of cell transport phenomenon.	K1
CLO3	Understand the cell cytoplasmic compartments.	K2
CLO4	Understand the cell division.	K2
CLO5	Understand the communications of cells with other cells and to the environment.	K2
K1 - Remember; **K2** – Understand		

CLO – PLO Mapping

CLOs/PLOs	PLO1	PLO2	PLO3	PLO4	PLO5
CLO1	2	3	2	2	2
CLO2	3	2	2	3	2
CLO3	-	-	3	3	-
CLO4	2	2	2	-	3
CLO5	1	1	2	1	1
3 - Substantial (high)		**2** - Moderate (medium)		**1** - Slight (low)	

Core - I: Cell Biology

Unit	Content	No. of Hours
I	**Basics of Cells**: Cell as a basic unit: Discovery of the cells, classification of cell types, development of cell theory, early chemical investigation in cell biology.Prokaryotic and Eukaryotic cell organization.	15
II	**Mechanisms of Cell Transport**: Cell transport phenomenon: Membrane architecture. Active, Passive, diffusion and osmosis. Chemistry of carbohydrates, lipids, proteins and nucleic acids.	15
III	**Cytoplasmic Compartments of The Cell**: Structure and function of cytoplasmic Compartments of the cell: ribosome and protein synthesis, energy flow through mitochondrion, chloroplast and photosynthesis, Golgi apparatus, lysozymes and micro bodies, endoplasmic reticulum, vacuoles, peroxysomes, lysozomes and Nuclear compartment. Heterochromatin and euchromatin, polytene chromosomes.	15
IV	**Cell Division**: Cell division in prokaryotes and eukaryotes: Cell cycle, Mitosis, Meiosis, Crossing over and Characteristics of cancer. Apoptosis, Stem cell, Prions.	15
V	**Specialized Cells and Interaction**: Integrative and specialized cellular events: Cell-cell signaling, specialized cells nerve cells, sperm cells, microfilaments, microtubules, muscle cells. Cells of vision, Nucleocytoplasmic interaction, cell cloning.	15
	Total Hours	**75**
Text Books		
1.	Alberts. B., (2014), Molecular Biology of the cell, W. W. Norton & Company, 6th Edition.	
2.	Devasena.T., (2012), Cell Biology, Oxford University Press, New Delhi, 1st Edition	
3.	Granger.S., (2018), Text Book of Cell Biology, Callisto Publishers, USA	
4.	Kukerti. S, Joshi.D, Sharma.C.S., (2022), Text of Study of Cell Biology, Lambert Publishers,Uttarakhand.	
5.	James. D, Watson., (2001), The Double Helix: A personal account of the Discovery of the Structure of DNA, Touchstone Publishers	
Reference Books		
1.	Cooper.G.M., (2015), The Cell: A Molecular Approach, Sinauer Associates, Qxford University Press, 7th Edition	
2.	James. D, Watson.,(2014), Molecular Biology of the Gene, Pearson Publications, 7th Edition.	
3.	Karp's.,(2015), Cell and Molecular Biology: Concepts and Experiments. Wiley Publications, 8th Edition.	
4.	Lodish.H., (2016), Molecular Cell Biology, W. H. Freeman Publications, 6th Edition.	
5.	Plopper.G, Ivankovic.D.B., (2020), Principles of Cell Biology, Jones & Bartlett, USA,3rd Edition.	
Web Resources (Swayam / NPTEL)		
1.	https://nptel.ac.in/courses/102108086	
2.	https://nptel.ac.in/courses/102103012	

Course Code	Course Name	Category	Hours /Week	Credits
26BBT14C	Genetics	Core – II	5	4

Course Objectives

The course intends to cover

- The concepts of heredity, genes, Mendelian genetics, Blood group inheritance, Genetic map preparation, Human and Population genetics and Recombination.
- Inherited diseases and related traits.

Course Learning Outcomes

On the successful completion of the course, students will be able to

CLO	CLO Statements	Knowledge Level
CLO1	Understand historical overview of genetic materials for a better appreciation of genetic evolution	K2
CLO2	Gain knowledge on chromosomes, linkage & crossing over to imply on genetic disorders.	K1
CLO3	Understand structure of gene and the genetic material hypothesis	K2
CLO4	Gain knowledge on Mutation.	K2
CLO5	Apply and Analyze the concepts of genetics in genetic counseling.	K3, K4
K1 - Remember; **K2** - Understand; **K3** – Apply; **K4** - Analyze		

CLO – PLO Mapping

CLOs/PLOs	PLO1	PLO2	PLO3	PLO4	PLO5
CLO1	2	2	2	2	2
CLO2	2	-	2	2	2
CLO3	1	3	1	1	1
CLO4	-	1	3	3	3
CLO5	2	2	-	3	3
3 - Substantial (high)		**2** - Moderate (medium)		**1** - Slight (low)	

Core – II: Genetics

Unit	Content	No of Hours
I	**History of Genetics:** Mendel's experiments, Monohybrid cross, Dihybrid cross, Backcross or Testcross, Mendel's laws. Incomplete dominance. Interaction of Genes. Epistasis – Lethal genes. Multiple alleles – In drosophila. Rabbit, and Blood group inheritance in man.	15
II	**Linkage and Crossing over:** Linkage - linkage in Drosophila- Morgan's experiments, factors affecting linkage. Crossing over- types, mechanism, significance of crossing over. Mapping of Chromosomes, interference and coincidence. Cytoplasmic inheritance. Sex Linked Inheritance and Sex Determination in Man.	15
III	**Fine Structure of Gene:** Fine structure of the gene and gene concept, Operon Concept. Identification of the DNA as the genetic material- Griffith experiments, Avery, McLeod, McCarty and Hershey Chase experiment. Microbial Genetics- bacterial recombination, Conjugation, Transformation, Transduction and sexduction.	15
IV	**Mutation:** Types of mutation, mutagens, DNA damage and Repair Mechanism.Chromosomal aberrations- Numerical and Structural, Pedigree Analysis-Mendelian inheritance in human. (Cystic Fibrosis, Muscular Dystrophy).	15
V	**Population Genetics:** Population Genetics– Hardy Weinberg principle, gene frequency, genotype frequency and factors affecting gene frequency**.** Eugenics, Euphenics and Euthenics. Genetic counselling.	15
	Total Hours	**75**

Text Books	
1.	Dr. Veer Bala Rastogi., (2000). Elements of Genetics
2.	Verma, P.S. and Agarwal, V.K., (2022). Genetics, S. Chand & Co.
Reference Books	
1.	Gardener E.J. Simmons M.J. Slustad D. P., (2006). Principles of Genetics.
2.	Griffiths, Miller, J.H., (2003). An Introduction to Genetic Analysis W.H. Freeman. New York.
3.	Good Enough U., (1985). Genetics. Hold Saunders international.
4.	Lewis, R., (2001). Human Genetics- Concepts and application. 4th edition. McGraw Hill.
5.	Winter, P.C., Hickey, G.J. and Fletcher., (2010), Instant notes in Genetics. Viva books, Ltd.
Web Resources (Swayam / NPTEL)	
1.	https://nptel.ac.in/courses/102104052
2.	https://nptel.ac.in/courses/102/103/102103013/

Course Code	Course Name	Category	Hours/Week	Credits
26BBT15P	Cell Biology and Genetics Lab	Core Lab – I	4	3

S. No.	List of Practicals
1	Laboratory Rules & Regulations. a) Basic reagents preparation & Basic lab instrumentation.
2	Components of a Compound / Light Microscope.
3	Blood smear preparation and Identification of Blood cells. Simple staining techniques
4	Buccal smear preparation and Identification of squamous epithelial cells.
5	Isolation and Identification of plant cells.
6	Mitotic stages of onion (Allium cepa) root tip.
7	Meiotic stages of cockroach testes/ Flower bud.
8	Giant chromosomes from Chironomus larvae/ Drosophila salivary glands.
9	Identification of Barr bodies from Buccal smear.
10	Blood typing in humans for multiple alleles and Rh factor.
11	Monohybrid cross and Dihybrid cross analysis
12	Problem solving in Sex Linked Inheritance
13	Problem solving in Pedigree analysis.
Total Hours	**60**

Course Code	Course Name	Category	Hours/ Week	Credits
26BBT16A	Chemistry	Allied – I	4	2

Course Objectives

The course intends to cover

- The fundamentals of chemical structure, pH and bonding of water molecules.
- Role of chemistry in day today life.

Course Learning Outcomes

On the successful completion of the course, students will be able to

CLO	CLO Statements	Knowledge Level
CLO1	Understand the importance of bonding and order.	K1, K2
CLO2	Understand the importance of carbohydrates.	K2
CLO3	Apply and Analyze the adulteration in food meticulously	K3, K4
CLO4	Analyse the role as agricultural and textile chemist	K4
CLO5	Analyze the empirical role as a pharmaceutical chemist	K4
K1-Remember; **K2** – Understand; **K3-** Apply; **K4 -** Analyze		

CLO – PLO Mapping

CLOs/PLOs	PLO1	PLO2	PLO3	PLO4	PLO5
CLO1	2	2	-	2	3
CLO2	3	3	1	-	-
CLO3	-	1	3	1	3
CLO4	2	2	2	2	2
CLO5	3	3	3	3	3
3 - Substantial (high)		**2** - Moderate (medium)			**1** - Slight (low)

Allied – I: Chemistry

Unit	Content	No. of Hours
I	**Atomic theory and Water molecules:** Atomic theory, formation of molecules, electronic configuration of atoms- s & p shapes of atomic orbitals. Types of chemical bonds. Types of reactions - addition, substitution, elimination, Condensation and polymerization. Chemical foundation of life. Water: its unique properties, ionization of water, buffering action in biological system, Properties, and characteristics of water.	12
II	**Environmental Chemistry**: Concept and scope of environmental Chemistry- Nomenclature: Pollutant, contaminant, receptor, sink, pathways of a pollutant. Water – Sources of water, qualities of potable water, soft and hard water, methods of removal of hardness- water pollution- dissolved oxygen, chemical oxygen demand (COD), biochemical oxygen demand (BOD)-Environmental segments. Atmosphere: Composition and structure of atmosphere, particles, ions and radicals in the atmosphere, Air Pollution: Air Pollutants, e.g. carbon monoxide, nitrogen oxides, hydrocarbons, oxides of sulfur, photochemical smog, acid rain and particulates.	12
III	**Food chemistry:** Food and Nutrition – Carbohydrates, Proteins, Fats, Vitamins and Minerals – Definition, Classification and their importance as food constituents Balanced diet- Calorie. Food Adulteration- Types and detection methods.	12
IV	**Pharmaceutical Chemistry:** Medicinally important Inorganic compounds: Compounds of Aluminium, Phosphorous, Arsenic, Iron and Mercury. Sulphonamide: mechanism and action of sulpha drugs- preparation and uses of sulphanilamide sulphadiazine & sulphapyridine. Analgesics-definition and actions-narcotic and non narcotic-morphine, Heroin. Heroin. Antipyretic analgesics-preparation and uses - methyl salicylate, aspirin & paracetamol	12
V	**Agricultural and Textile Chemistry:** Fertilizers: Effect of Nitrogen, potassium and phosphorous on plant growth – commercial method of preparation of urea, triple superphosphate. Complex fertilizers and mixed fertilizers – their manufacture and composition. Secondary nutrients – micronutrients – their function in plants. Dyes: azo and triphenylmethane dyes- Preparation one example-Methyl Orange, Malachite green.	12
	Total Hours	**60**

Text Books

1. Soni P.L., (2005), A Text book of Organic Chemistry, S. Chand & Sons publications, 11th Edition.
2. Krishnamurthy. N, Jayasubramanian.K and Vallinayagam., (1990), Applied Chemistry, Prentice Hall of India, New Delhi.
3. Chang.R and Over by.J., (2017), Chemistry, McGraw-Hill, 14th Edition.

Reference Books

1. Jeyashre Ghosh., (2005), A Text book of Pharmaceutical Chemistry, S.Chand & Company, New Delhi.
2. Meyer L. H., (2006).Text book of Food Chemistry - CBS Publishers, New Delhi.

Web Resources (Swayam / NPTEL)

1. https://nptel.ac.in/courses/104105130
2. https://nptel.ac.in/courses/104105076

Part – IV: Foundation Course

(All the Undergraduate Programmes)

Course Code	Course Name	Category	Hours / Week	Credits
26ENV1FC	Environmental Studies	FC- I	2	2

Unit	Content
I	The Multidisciplinary nature of environmental studies Definition; Scope and importance, Need for public awareness.
II	**Natural Resources:** Renewable and non-renewable resources: Natural resources and associated problems. • Forest resources: Use and Over-exploitation, deforestation, case studies. Timber extraction, mining, dams and their effects on forests and tribal people. • Water resources: Use and over-utilization of surface and ground water, floods, drought, conflicts over water, dams benefits and problems. • Mineral resources: Use and exploitation, environmental effects of extracting and using mineral resources, case studies. • Food resources: World food problems, changes caused by agriculture and overgrazing, effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity, case studies. • Energy resources: Growing energy needs, renewable and non-renewable energy sources, use of alternate energy sources, Case studies. • Land resources: Land as a resource, land degradation, man induced landslides, soil erosion and desertification. Role of an individual in conservation of natural resources. Equitable use of resources for sustainable lifestyles.
III	**Ecosystems** • Concept of an ecosystem. • Structure and function of an ecosystem. • Producers, consumers and decomposers. • Energy flow in the ecosystem. • Ecological succession. • Food chains, food webs and ecological pyramids. • Introduction, types, characteristic features, structure and function of the following ecosystem: - a. Forest ecosystem b. Grassland ecosystem c. Desert ecosystem d. Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries).

Unit	Content
IV	**Biodiversity and its Conservation** • Introduction-Definition: genetic, species and ecosystem diversity. • Bio geographical classification of India. • Value of biodiversity: consumptive use, productive use, social, ethical, aesthetic and option values. • Biodiversity at global, National and local levels. • India as a mega-diversity nation. • Hot-spots of biodiversity. • Threats to biodiversity: habital loss, poaching of wildlife, man-wildlife conflicts. • Endangered and endemic species of India. • Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity.
V	**Environmental Pollution Definition** • Causes, effects and control measures of: - a. Air pollution b. Water pollution c. Soil pollution d. Marine pollution e. Noise pollution f. Thermal pollution g. Nuclear hazards • Solid waste Management: Causes, effects and control measures of urban and industrial wastes. • Role of an individual in prevention of pollution. • Pollution case studies. • Disaster management: floods, earthquake, cyclone and landslides.
VI	**Social Issues and the Environment** • From Unsustainable to Sustainable development. • Urban problems related to energy. • Water conservation, rain water harvesting, watershed management. • Resettlement and rehabilitation of people; its problems and concerns. Case studies. • Environmental ethics: Issues and possible solutions. • Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust. Case studies. • Wasteland reclamation. • Consumerism and waste products. • Environment Protection Act. • Air (Prevention and Control of Pollution) Act. • Water (Prevention and Control of Pollution) Act. • Wildlife Protection Act. - Forest Conservation Act. • Issues involved in enforcement of environmental legislation. • Public awareness.

<table>
<tr><th>Unit</th><th>Content</th></tr>
<tr><td>VII</td><td>Human Population and the Environment
• Population growth, variation among nations.
• Population explosion-Family welfare Programme.
• Environment and human health.
• Human Rights.
• Value Education.
• HIV/AIDS.
• Women and Child Welfare.
• Role of information Technology in Environment and human health.
• Case Studies.
Biosafety and Biosecurity
The basic principles of biosafety.
- Biological hazards and assess risk in laboratory settings.
- Biosafety protocols to minimize risks associated with biological agents.
- Role of biosafety in the protection of public health, environment, and national security.
The theoretical knowledge as well as practical applications to prepare learners for real-world biosafety challenges.
1. Introduction to Biosafety
• Definition and importance of biosafety.
• Historical perspective on biosafety incidents.
• Biosafety vs. biosecurity: Key differences.
2. Biological Hazards and Risk Assessment
• Classification of biological agents (e.g., bacteria, viruses, fungi, parasites).
• Risk assessment methodology: Identifying hazards, evaluating risks, and control measures.
3. Biological Waste Management
• Types of biological waste: Solid, liquid, sharps, etc.
• Waste disposal techniques: Autoclaving, incineration, chemical disinfection.
• Environmental impact and regulations surrounding waste management.
4. Standard Operating Procedures (SOPs) and Safety Practices
• Developing and implementing SOPs for laboratory safety.
• Practices for handling, storing, and disposing of biological materials.</td></tr>
<tr><td>VIII</td><td>Field Work (Practical).
• Visit to a local area to document environmental assets-river/forest/grassland/ hill/mountain.
• Visit to a local polluted site-Urban/Rural/Industrial/Agricultural.
• Study of common plants, insects, birds.
• Study of simple ecosystems-pond, river, hill slopes, etc.</td></tr>
<tr><td colspan="2">Total Hours 30</td></tr>
<tr><td colspan="2">Reference Resources</td></tr>
<tr><td>1.</td><td>https://www.ugc.gov.in/oldpdf/modelcurriculum/env.pdf</td></tr>
<tr><td>2.</td><td>Biosafety in Microbiological and Biomedical Laboratories (CDC, NIH). (BMBL) 6th Edition</td></tr>
<tr><td>3.</td><td>Sateesh, M. K. (2010). Bioethics and Biosafety. New Delhi: I. K. International Pvt Ltd.</td></tr>
<tr><td>4.</td><td>Additional Readings:Relevant journal articles, government publications, and guidelines (e.g., WHO, CDC, European Union, etc.).https://www.iberdrola.com/innovation/what-is-biosafety</td></tr>
</table>

Course Code	Course Name	Category	Hours / Week	Credits
26SOF1AE	Soft Skills	AECC - I	2	2

Course Objectives

The course intends to cover

- The essential soft skills that is crucial for success in today's dynamic and interconnected workplace.

Course Learning Outcomes

On the successful completion of the course, students will be able to

CLO	CLO Statements	Knowledge Level
CLO1	Understand the comprehensive skills to participate actively in conversation, writing short texts with expression	K1, K2, K3
CLO2	Infer the cohesive devices to describe and discuss any objects, pictures using compound, complex sentence forms.	K2, K3
CLO3	Comprehend the logic in the given situation to organize the ideas to write formal and informal letters.	K2, K3
CLO4	Understand the given material to organize it in a logical sequence to present a paragraph with main and supporting ideas with concluding sentences.	K3
CLO5	Present valuable ideas in conversation to emulate the main ideas and key points in short essays.	K3
K1 - Remember; **K2** - Understand; **K3** - Apply;		

Ability Enhancement Compulsory Course - I: Soft Skills

Unit	Module	Details	No. of Hours
Presentation Skills			
I	1	**Getting to Know You:** Grammar: Introduction to Tenses, Everyday English, Role-Play. Reading Activity: Different ways of communication. Activities: Fill in the blanks (Listening), Self Introduction (Speaking).	6
	2	**My Day:** Grammar: Present simple positive & negative/Adverbs of Frequency, Vocabulary & Speaking about Daily Activities. Listening: Observe and Answer/Telling the time. Activities: Reading & Writing: Describe where you live.	
	3	**Your World:** Grammar: Possessive determiners. Listening: Positive & negative contractions. Reading & Writing: Personal profile. Activities: Talk about countries, nationalities (Vocabulary & Speaking).	
	4	**The World of Work:** Grammar: Yes/No & Who Questions. Vocabulary & Speaking: Jobs. Listening: Recognize the schwa sound. Activities: Opening and closing an email (Reading & Writing).	
	5	**Places and Things:** Grammar: There is / there are, articles. Vocabulary & Speaking: Talk about rooms & furniture. Listening: Directions. Reading & Writing: Imperatives.	
	6	**24 Hours:** Grammar: Likes & Dislikes. Vocabulary & Speaking: Speak about hobbies and interests. Reading: Match the photos with descriptions. Writing: Write complete sentence using prompt. Activities: Observe & answer (Listening).	
		Practice: Listening & Speaking Presentations - Talking about how you learn – Understanding key information in a presentation –Writing sentences about you.	
Confidence			
II	1	**Clothes and Shopping:** Grammar: Modal verbs/Adverbs of Frequency/Adjectives and Adverbs. Vocabulary & Speaking: Shopping. Reading & Writing: Product Review. Activities: Observe & answer (Listening).	6
	2	**Travel & Transport:** Grammar: Past simple questions. Vocabulary & Speaking: Talk about holidays. Listening: At the train station. Activities: Email - A perfect holiday (Reading & Writing).	
	3	**Health & Fitness:** Grammar: Past simple irregular verbs; Listening: Listen & Answer; Reading & Writing: Time sequencers; Activities: Talk about a healthy lifestyle (Vocabulary & Speaking)	
	4	**Music:** Grammar: Present perfect simple; Vocabulary & Speaking: Survey about music; Listening: Listen two people talk about music; Activities: Use adjectives and create sentences (Reading)	
	5	**Let's go shopping:** Vocabulary & Speaking: Town Survey; Listening: Listen and answer; Reading & Writing: Read and match; Activities: Countable & Uncountable **(**Grammar)	
		Practice: Writing a personal statement.	

Unit	Module	Details	No. of Hours
		Creativity	
III	1	**Cooking & Eating:** Grammar: Some & Any, Quantifiers. Vocabulary & Speaking about Food & Drink. Activities Kitchen conversation (Listening). Reading an article & answering.	6
	2	**Survival:** Grammar: Comparison of adjectives. Activities Describing people (Speaking and Vocabulary). Listening to an audio & Answering. Reading & Writing: Read and Answer.	
	3	**Working Together:** Grammar: Verb + Noun phrases. Activities Technology (Vocabulary & Speaking). Listening: Listen & Answer. Reading & Writing: Notice.	
	4	**Music:** Grammar: Present perfect simple. Activities Survey about music (Vocabulary & Speaking). Listen to two people talking about music (Listening). Reading: Use adjectives and create sentences.	
	5	**Culture and Arts:** Grammar: Present perfect. Vocabulary & Speaking activity: Speak on the phone. Activities: Listen and answer. Reading & Writing activity: Review.	
		Practice: Writing comparison sentences & paragraphs.	
		Problem-Solving	
IV	1	**Do's and Don'ts:** Grammar, Modal Verbs. Activities Roleplay (Speaking). Holidays in January (Listening). Reading an article & answering.	6
	2	**Body:** Grammar: First conditional. Vocabulary & Speaking about Personality & Appearance. Activities Conversations about personality (Listening), Reading & Writing: Read and Answer about your skills.	
	3	**Speed:** Grammar: Present simple passive. Vocabulary & Speaking about relationships. Listening: Listen & Answer. Reading and Error spotting.	
	4	**Work:** Grammar: Adverbs of manner. Vocabulary & Speaking about work advice. Listening: Observe & Answer; Reading: Read & check your ideas.	
		Practice: Writing argumentative and descriptive essays.	
		Critical Thinking	
V	1	**Influence:** Grammar: would / past habits. Listening: Sentence Correction. Activities Your inspiration (Speaking). Picture description (Reading).Rewrite the sentences (Writing).	6
	2	**Money:** Grammar: Second conditional. Activities: Radio programme (Listening). Talk about games (Speaking). Reading & Writing: Fill in the blanks.	
	3	**Things that changed the world:** Grammar: articles. Activities: Talk about chewing gum (Speaking & Listening). Reading & Writing: Read and write a book review.	
		Practice: Writing Emails, reports and proposals.	
		Total Hours	**30**

Components for Internal Assessment and Distribution of Marks for CIA and ESE (Theory)

Max Marks	Marks for		Components for CIA						
	CIA	ESE	CIA		Model		Attendance	Active Engagement	Total
100	25	75	Actual	Weightage	Actual	Weightage	5	5	25
			50	**5**	75	**10**			

Question Paper Pattern

Component	Duration in Hours	Section A			Section B			Section C			Total
		Type of Question	No. of Questions	Marks	Type of Question	No. of Questions	Marks	Type of Question	No. of Questions	Marks	
CIA	2	MCQ	8	8x1=8	Either or	3	3x6=18	Either or	3	3x8=24	50
Model Exam / **ESE**	3	MCQ	10	10x1=10	Either or	5	5x5=25	Either or	5	5x8=40	75

Components for Internal Assessment and Distribution of Marks for CIA (Lab)

Max Marks	Marks for		Components for CIA						
	CIA	ESE	Test		Model		Experiments / Programs	Observation	Total
100	40	60	Actual	Weightage	Actual	Weightage	Marks	5	40
			50	**10**	60	**15**	**10**		

Examination Pattern

Component	Duration in Hours	Marks			Weightage
		Practical Exam	Record	Total Marks	
Test	2	50	-	**50**	10
Model	3	60	-	**60**	15
Experiments Completed	-	-	-	**10**	10
Observation Note	-	-	-	**05**	05
				Total Marks - CIA	**40**
ESE	3	50	10	-	**60**

Components for Internal Assessment and Distribution of Marks for CIA (Foundation Course -Theory)

Max Marks	Marks for		Components for CIA				
50	CIA	ESE	CIA		Model		Total
			Actual	Weightage	Actual	Weightage	
	50	-	50	25	50	25	50

Question Paper Pattern

Duration in Hours	Mode of Exam	Type of Questions	No. of Questions	Marks
2	Offline	Open Choice	5 (Out of 8)	5 x 10=50

Components for and Distribution of Marks for ESE (Theory) Ability Enhancement Compulsory Courses (AECC) & Question Paper Pattern

Duration in Hours	Mode of Exam	Type of Questions	No. of Questions	Marks
2	Online	MCQ	50	50x1=50