UNIVERSITY OF CALICUT

B.Sc. ELECTRONICS HONOURS

(MAJOR, MINOR AND GENERAL FOUNDATION COURSES)

SYLLABUS & MODEL QUESTION PAPERS

w.e.f. 2024 admission onwards

(CUFYUGP Regulations 2024)

B.Sc. ELECTRONICS HONOURS

(MAJOR, MINOR AND GENERAL FOUNDATION COURSES)

SYLLABUS

PROGRAMME OUTCOMES (PO):

At the end of the graduate programme at Calicut University, a student would:

PO1	Knowledge Acquisition: Demonstrate a profound understanding of knowledge trends and their impact on the chosen discipline of study.
PO2	Communication, Collaboration, Inclusiveness, and Leadership: Become a team player who drives positive change through effective communication, collaborative acumen, transformative leadership, and a dedication to inclusivity.
PO3	Professional Skills: Demonstrate professional skills to navigate diverse career paths with confidence and adaptability.
PO4	Digital Intelligence: Demonstrate proficiency in varied digital and technological tools to understand and interact with the digital world, thus effectively processing complex information.
PO5	Scientific Awareness and Critical Thinking: Emerge as an innovative problem-solver and impactful mediator, applying scientific understanding and critical thinking to address challenges and advance sustainable solutions.
PO6	Human Values, Professional Ethics, and Societal and Environmental Responsibility: Become a responsible leader, characterized by an unwavering commitment to human values, ethical conduct, and a fervent dedication to the well-being of society and the environment.
PO7	Research, Innovation, and Entrepreneurship: Emerge as a researcher and entrepreneurial leader, forging collaborative partnerships with industry, academia, and communities to contribute enduring solutions for local, regional, and global development.

PROGRAMME SPECIFIC OUTCOMES (PSO):

At the end of the BSc Electronics Honours programme at Calicut University, a student would:

PSO1	To analyse, design, and develop solutions by applying foundational concepts of electronics and communication.
PSO2	Apply design principles in the development of quality products for science and commercial applications.
PSO3	To develop essential skills for developing, troubleshooting, and managing electronic hardware and software systems.
PSO4	To have a profound theoretical understanding of core subjects, including the principles and applications of electronic components, electronic measuring and testing instruments, as well as analog and digital integrated circuits (ICs)
PSO5	To demonstrate proficiency in programming using both assembly language and high-level languages, as well as the ability to interface electronic devices with computers.

PSO6	To create capability in assessing and implementing computer-based systems, processes, components, or programs to fulfil specific requirements.

MINIMUM CREDIT REQUIREMENTS OF THE DIFFERENT PATHWAYS IN THE THREE-YEAR PROGRAMME IN CUFYUGP

Sl. No.	Academic Pathway	Major	Minor/ Other Disciplines	Foundation Courses AEC: 4 MDC: 3 SEC: 3 VAC: 3	Intern -ship	Total Credits	Example
		Each course has 4 credits		Each course has 3 credits			
1	Single Major (A)	68 (17 courses)	24 (6 courses)	39 (13 courses)	2	133	Major: Electronics + six courses in different disciplines in different combinations
2	Major (A) with Multiple Disciplines (B, C)	68 (17 courses)	12 + 12 (3 + 3 = 6 courses)	39 (13 courses)	2	133	Major: Electronics + Computer Science and Mathematics
3	Major (A) with Minor (B)	68 (17 courses)	24 (6 courses)	39 (13 courses)	2	133	Major: Electronics Minor: Computer Science
4	Major (A) with Vocational Minor (B)	68 (17 courses)	24 (6 courses)	39 (13 courses)	2	133	Major: Electronics Minor: AI, Robotics and Consumer Electronics
5	Double Major (A, B)	A: 48 (12 courses) B: 44 (11 courses)	- The 24 credits in the Minor stream are distributed between the two Majors. 2 MDC, 2 SEC, 2 VAC and the Internship should be in Major A. Total credits in Major A should be 48 + 20 = 68 (50% of 133)	12 + 18 + 9	2	133	Electronics and Computer Appl./ Sc. Or Electronics and Physics

			1 MDC, 1 SEC and 1 VAC should be in Major B. Total credits in Major B should be 44 + 9 = 53 (40% of 133)		
Exit with UG Degree / Proceed to Fourth Year with 133 Credits					

B.Sc. ELECTRONICS HONOURS PROGRAMME

COURSE STRUCTURE FOR PATHWAYS 1 – 4

1. Single Major
2. Major with Multiple Disciplines
3. Major with Minor
4. Major with Vocational Minor

Semester	Course Code	Course Title	Total Hours	Hours/ Week	Credits	Marks		
						Internal	External	Total
1	ELE1CJ 101/ ELE1MN 100	Core Course 1 in Major – Electrical and Electronic Fundamentals (P)	75	5	4	30	70	100
		Minor Course 1	60/ 75	4/ 5	4	30	70	100
		Minor Course 2	60/ 75	4/ 5	4	30	70	100
	ENG1FA 101(2)	Ability Enhancement Course 1– English	60	4	3	25	50	75
		Ability Enhancement Course 2 – Additional Language	45	3	3	25	50	75
		Multi-Disciplinary Course 1 – Other than Major	45	3	3	25	50	75
		Total		**23/ 25**	**21**			**525**
2	ELE2CJ 101/ ELE2MN 100	Core Course 2 in Major – Semiconductor Devices and Circuits (P)	75	5	4	30	70	100
		Minor Course 3	60/ 75	4/ 5	4	30	70	100
		Minor Course 4	60/ 75	4/ 5	4	30	70	100
	ENG2FA 103(2)	Ability Enhancement Course 3– English	60	4	3	25	50	75
		Ability Enhancement Course 4 – Additional Language	45	3	3	25	50	75
		Multi-Disciplinary Course 2 – Other than Major	45	3	3	25	50	75
		Total		**23/ 25**	**21**			**525**

3	ELE 3CJ 201	Core Course 3 in Major – Foundational Mathematics	60	4	4	30	70	100
	ELE3CJ 202/ ELE3MN 200	Core Course 4 in Major – Digital Electronics (P)	75	5	4	30	70	100
		Minor Course 5	60/ 75	4/ 5	4	30	70	100
		Minor Course 6	60/ 75	4/ 5	4	30	70	100
		Multi-Disciplinary Course 3 – Kerala Knowledge System	45	3	3	25	50	75
	ENG3FV 108(2)	Value-Added Course 1 – English	45	3	3	25	50	75
		Total		**23/ 25**	**22**			**550**
4	ELE4CJ 203	Core Course 5 in Major – Network Analysis (P)	75	5	4	30	70	100
	ELE4CJ 204	Core Course 6 in Major – Microprocessors and Microcontrollers(P)	75	5	4	30	70	100
	ELE4CJ 205	Core Course 7 in Major – Analog Electronics (P)	75	5	4	30	70	100
	ENG4FV 109(2)	Value-Added Course 2 – English	45	3	3	25	50	75
		Value-Added Course 3 – Additional Language	45	3	3	25	50	75
	ENG4FS 111(2)	Skill Enhancement Course 1 – English	60	4	3	25	50	75
		Total		**25**	**21**			**525**
5	ELE5CJ 301	Core Course 8 in Major – Field Theory	60/75	4/5	4	30	70	100
	ELE5CJ 302	Core Course 9 in Major – Python Programming (P)	75	5	4	30	70	100
	ELE5CJ 303	Core Course 10 in Major – Signals and Systems(P)	75	5	4	30	70	100
	ELE5EJ 304 /ELE5EJ 305	Elective Course 1 in Major	60	4	4	30	70	100

	ELE5EJ 306 /ELE5EJ 307	Elective Course 2 in Major	60	4	4	30	70	100
	ELE 5FS 112/ ELE1VN 101/ ELE2VN102	Skill Enhancement Course 2- Computer Aided Design and 3D printing	45	3	3	25	50	75
		Total		**25**	**23**			**575**
6	ELE6CJ 304 /ELE8MN304	Core Course 11 in Major – Opto Electronics	60/75	4/5	4	30	70	100
	ELE6CJ 305/ ELE8MN 305	Core Course 12 in Major– Analog and Digital communication (P)	75	5	4	30	70	100
	ELE 6CJ 306/ ELE8MN 306	Core Course 13 in Major – Embedded System Design with IOT (P)	75	5	4	30	70	100
	ELE6EJ 307/ ELE6EJ 308	Elective Course 3 in Major	60	4	4	30	70	100
	ELE6EJ 309/ ELE6EJ 310	Elective Course 4 in Major	60	4	4	30	70	100
	ELE 6FS 113 /ELE1VN 101/ ELE2VN 102	Skill Enhancement Course 3 – EV Technology	45	3	3	25	50	75
	ELE 6CJ 349	Internship in Major (Credit for internship to be awarded only at the end of Semester 6)	60		2	50	-	50
		Total		**25**	**25**			**625**

Total Credits for Three Years					**133**			**3325**
7	ELE7CJ 401	Core Course 14 in Major – Digital System Design (P)	75	5	4	30	70	100
	ELE7CJ 402	Core Course 15 in Major – Antennas and RF Technology (P)	75	5	4	30	70	100
	ELE7CJ 403	Core Course 16 in Major – Advanced Digital Signal Processing (P)	75	5	4	30	70	100
	ELE7CJ 404	Core Course 17 in Major – Control System Engineering(P)	75	5	4	30	70	100
	ELE7CJ 405	Core Course 18 in Major – Digital Image Processing(P)	75	5	4	30	70	100
		Total		**25**	**20**			**500**
8	ELE8CJ 406/ ELE8MN 406	Core Course 19 in Major – Optical Fiber Communication	60/75	4/5	4	30	70	100
	ELE8CJ 407 /ELE8MN 407	Core Course 20 in Major – Satellite and Radar Systems	60/75	4/5	4	30	70	100
	ELE8CJ 408/ ELE8MN 408	Core Course 21 in Major – Optimisation Algorithms	60/75	4/5	4	30	70	100
	OR (instead of Core Courses 19 – 21 in Major)							
	ELE8CJ 449	Project (in Honours programme)	360*	13*	12	90	210	300
	ELE8CJ 499	Project (in Honours with Research programme)	360*	13*	12	90	210	300
	ELE8EJ 409/ ELE8EJ 410	Elective Course 5 in Major / Minor Course 7	60	4	4	30	70	100
	ELE8EJ 411/ ELE8EJ 412	Elective Course 6 in Major / Minor Course 8	60	4	4	30	70	100
	ELE8EJ 413/ ELE8EJ 414	Elective Course 7 in Major / Minor Course 9 / Major Course in any Other Discipline	60	4	4	30	70	100

	OR (instead of Elective Course 7 in Major, in the case of Honours with Research Programme)							
	ELE8CJ 489	Research Methodology in Electronics	60	4	4	30	70	100
		Total		**25**	**24**			**600**
Total Credits for Four Years					**177**			**4425**

* The teacher should have 13 hrs/week of engagement (the hours corresponding to the three core courses) in the guidance of the Project(s) in Honours programme and Honours with Research programme, while each student should have 24 hrs/week of engagement in the Project work. Total hours are given based on the student's engagement.

CREDIT DISTRIBUTION FOR PATHWAYS 1 – 4

1. Single Major
2. Major with Multiple Disciplines
3. Major with Minor
4. Major with Vocational Minor

Semester	**Major Courses**	**Minor Courses**	**General Foundation Courses**	**Internship/ Project**	**Total**
1	4	4 + 4	3 + 3 + 3	-	21
2	4	4 + 4	3 + 3 + 3	-	21
3	4 + 4	4 + 4	3 + 3	-	22
4	4 + 4 + 4	-	3 + 3 + 3	-	21
5	4 + 4 + 4 + 4 + 4	-	3	-	23
6	4 + 4 + 4 + 4 + 4	-	3	2	25
Total for Three Years	**68**	**24**	**39**	**2**	**133**
7	4 + 4 + 4 + 4 + 4	-	-	-	20
8	4 + 4 + 4	4 + 4 + 4	-	12*	24
* Instead of three Major courses					
Total for Four Years	**88 + 12 = 100**	**36**	**39**	**2**	**177**

DISTRIBUTION OF MAJOR COURSES IN ELECTRONICS FOR PATHWAYS 1 – 4

1. Single Major
2. Major with Multiple Disciplines
3. Major with Minor
4. Major with Vocational Minor

Semester	**Course Code**	**Course Title**	**Hours/ Week**	**Credits**

1	ELE1CJ 101/ ELE1MN100	Core Course 1 in Major – Fundamentals of Electrical and Electronics (P)	5	4
2	ELE2CJ 101/ ELE2MN100	Core Course 2 in Major – Semiconductor Devices and Circuits (P)	5	4
3	ELE 3CJ 201	Core Course 3 in Major – Foundational Mathematics	4	4
	ELE3CJ 202/ ELE3MN200	Core Course 4 in Major – Digital Electronics (P)	5	4
4	ELE4CJ 203	Core Course 5 in Major – Network Analysis (P)	5	4
	ELE4CJ 204	Core Course 6 in Major – Microprocessors and Microcontrollers(p)	5	4
	ELE4CJ 205	Core Course 7 in Major – Analog Electronics (P)	5	4
5	ELE5CJ 301	Core Course 8 in Major – Field Theory	5	4
	ELE5CJ 302	Core Course 9 in Major – Python Programming (P)	5	4
	ELE5CJ 303	Core Course 10 in Major – Signals and Systems(P)	4	4
	ELE5EJ 304 /ELE5EJ 305	Elective Course 1 in Major	4	4
	ELE5EJ 306 /ELE5EJ 307	Elective Course 2 in Major	4	4

6	ELE6CJ 304/ ELE8MN304	Core Course 11 in Major – Opto Electronics	5	4
	ELE6CJ 305/ ELE8MN305	Core Course 12 in Major – Analog and Digital communication (P)	5	84
	ELE 6CJ 306/ ELE8MN306	Core Course 13 in Major – Embedded System Design with IOT (P)	4	4
	ELE6EJ 307/ ELE6EJ 308	Elective Course 3 in Major	4	4
	ELE6EJ309/ ELE6EJ310	Elective Course 4 in Major	4	4
	ELE6CJ 349	Internship in Major	-	2
Total for the Three Years				**70**
7	ELE7CJ 401	Core Course 14 in Major – – Digital System Design (P)	5	4
	ELE7CJ 402	Core Course 15 in Major – Antennas and RF Technology (P)	5	4
	ELE7CJ 403	Core Course 16 in Major – Advanced Digital Signal Processing (P)	5	4
	ELE7CJ 404	Core Course 17 in Major – Control System Engineering(P)	5	4
	ELE7CJ 405	Core Course 18 in Major – Digital Image Processing(P)	5	4
	ELE8CJ 406/ ELE8MN406	Core Course 19 in Major – Optical Fiber Communication	5	4
	ELE8CJ	Core Course 20 in Major – Satellite and Radar Systems	4	4

8	407/ ELE8MN407			
	ELE8CJ 408/ ELE8MN408	Core Course 21 in Major – Optimisation Algorithms	4	4
	OR (instead of Core Courses 19 – 21 in Major)			
	ELE8CJ 449	Project (in Honours programme)	13	12
	ELE8CJ 499	Project (in Honours with Research programme)	13	12
	ELE8EJ 409/ ELE8EJ 410	Elective Course 5 in Major	4	4
	ELE8EJ 411/ ELE8EJ 412	Elective Course 6 in Major	4	4
	ELE8EJ 413/ ELE8EJ 414	Elective Course 7 in Major	4	4
	OR (instead of Elective course 7 in Major, in Honours with Research programme)			
	ELE8CJ 489	Research Methodology in Electronics	4	4
Total for the Four Years				**114**

ELECTIVE COURSES IN ELECTRONICS WITH SPECIALISATION

Group No.	Sl. No.	Course Code	Title	Semester	Total Hrs	Hrs/ Week	Credits	Marks		
								Internal	External	Total
1		**SEMICONDUCTOR ICs & ARTIFICIAL INTELLIGENCE**								
	1	ELE5EJ 304	Semiconductor Fabrication Technology	5	60	4	4	30	70	100
	2	ELE5EJ	Smart Materials	5	60	4	4	30	70	100

		306								
	3	ELE6EJ 307	VLSI Technology	6	60	4	4	30	70	100
	4	ELE6EJ309	Introduction to Artificial Intelligence	6	60	4	4	30	70	100
	5	ELE8EJ 409	Introduction to Machine Learning	8	60	4	4	30	70	100
	6	ELE8EJ 411	Drone Technology	8	60	4	4	30	70	100
	7	ELE8EJ 413	Integrating AI with Flutter	8	60	4	4	30	70	100
2		**INDUSTRIAL ELECTRONICS & ROBOTICS**								
	1	ELE5EJ 305	Computer Hardware & Network Maintenance	5	60	4	4	30	70	100
	2	ELE5EJ 307	Power Electronics	5	60	4	4	30	70	100
	3	ELE6EJ 308	Medical Electronics	6	60	4	4	30	70	100
	4	ELE6EJ 310	Mobile Communication	6	60	4	4	30	70	100
	5	ELE8EJ 410	Light and Audio Systems Engineering	8	60	4	4	30	70	100
	6	ELE8EJ 412	Fundamentals of Robotics and Applications	8	60	4	4	30	70	100
	7	ELE8EJ 414	Industrial Automation	8	60	4	4	30	70	100

GROUPING OF MINOR COURSES IN ELECTRONICS

(Title of the Minor: **MODERN ELECTRONICS)**

*The Minor courses given below should not be offered to students who have taken Electronics as the Major discipline. They should be offered to students from other Major disciplines.

Group No.	**Sl. No.**	**Course Code**	**Title**	**Semester**	**Total Hrs**	**Hrs/ Week**	**Credits**	**Marks**		
								Internal	**External**	**Total**
1		**ANALOG / DIGITAL FUNDAMENTALS & EMBEDDED C PROGRAMMING** (preferable for Computer Appl./ Sc. and Physics students)								
	1	ELE1MN 101	Electronic Fundamentals (P)	1	75	5	4	30	70	100

	2	ELE2MN 101	Fundamentals of Digital Electronics(P)	2	75	5	4	30	70	100
	3	ELE3MN 201	Arduino Coding with Embedded C(P)	3	75	5	4	30	70	100
	4	ELE8MN 401	Mobile Phone Technology (P)	8	75	5	4	30	70	100
	5	ELE8MN 402	Consumer Electronics (P)	8	75	5	4	30	70	100
	6	ELE8MN 403	Fundamentals of Artificial Intelligence (P)	8	75	5	4	30	70	100
2		**INTERNET OF THINGS & PYTHON PROGRAMMING FOR IOT** (preferable for Computer Appl./ Sc.and Physics students)								
	1	ELE1MN 102	Arduino Programming (P)	1	75	5	4	30	70	100
	2	ELE2MN 102	IOT Hardware and Interfacing (P)	2	75	5	4	30	70	100
	3	ELE3MN 202	Python Programming for IOT Applications (P)	3	75	5	4	30	70	100
	4	ELE8MN 401	Mobile Phone Technology (P)	8	75	5	4	30	70	100
	5	ELE8MN 402	Consumer Electronics (P)	8	75	5	4	30	70	100
	6	ELE8MN 403	Fundamentals of Artificial Intelligence (P)	8	75	5	4	30	70	100

GROUPING OF VOCATIONAL MINOR COURSES IN ELECTRONICS

(Title of the Vocational Minor: **VOCATIONAL ELECTRONICS)**

* The Vocational Minor courses given below should not be offered to students who have taken Electronics as the Major discipline. They should be offered to students from other Major disciplines.

Group No.	Sl. No.	Course Code	Title	Semester	Total Hrs	Hrs/ Week	Credits	Marks		
								Internal	External	Total
1		**AI & ROBOTICS**								
	1	ELE1VN 101	Fundamentals Of Artificial Intelligence	1	75	5	4	30	70	100
	2	ELE2VN 101	Mobile Phone Technology	2	75	5	4	30	70	100
	3	ELE3VN 201	Robotics & Drone Technology	3	75	5	4	30	70	100

	4	ELE8VN 301	AI And Flutter	8	60	4	4	30	70	100
2		**POPULAR ELECTRONICS**								
	1	ELE1VN 102	Basics of Electricals and Electronics	1	75	5	4	30	70	100
	2	ELE2VN 102	Solar Power Technology	2	75	5	4	30	70	100
	3	ELE3VN 202	Consumer Electronics	3	75	5	4	30	70	100
	4	ELE8VN 302	Light & Sound Engineering	8	60	4	4	30	70	100

(i). Students in Single Major pathway can choose course/courses from any of the Minor/ Vocational Minor groups offered by a discipline other than their Major discipline.

(ii). Students in Major with Multiple Disciplines pathway can choose as one of the multiple disciplines, all the three courses from any one of the Minor/ Vocational Minor groups offered by any discipline, including their Major discipline. If they choose one of the Minor/ Vocational Minor groups offered by their Major discipline as the first one of the multiple disciplines, then their choice as the second one of the multiple disciplines should be any one of the Minor/ Vocational Minor groups offered by a discipline other than the Major discipline. If the students choose any one of the Minor/ Vocational Minor groups in Electronics as given above, then the title of the group will be the title of that multiple discipline.

(iii). Students in Major with Minor pathway can choose all the courses from any two Minor groups offered by any discipline. If the students choose any two Minor groups in Electronics as given above, then the title of the Minor will be **Modern Electronics.**

(iv). Students in Major with Vocational Minor pathway can choose all the courses from any two Vocational Minor groups offered by any discipline. If the students choose any two Vocational Minor groups in Electronics as given above, then the title of the Vocational Minor will be **Vocational Electronics.**

DISTRIBUTION OF GENERAL FOUNDATION COURSES IN ELECTRONICS

		Course Title	Total		Credits	Marks

Semester	Course Code		Hours	Hours/ Week		Internal	External	Total
1	ELE1FM 105	Multi-Disciplinary Course 1 – Clean Energy Solution	45	3	3	25	50	75
2	ELE2FM 106	Multi-Disciplinary Course 2 – Computer Hardware	45	3	3	25	50	75
3	ELE3FV 108	Value-Added Course 1 – Green Energy for Sustainable Development	45	3	3	25	50	75
4	ELE4FV 110	Value-Added Course 2 – E-Waste Management	45	3	3	25	50	75
5	ELE5FS 112	Skill Enhancement Course 2 – Computer Aided Design and 3D printing	45	3	3	25	50	75
6	ELE6FS 113	Skill Enhancement Course 3 – Solar and EV Technology	45	3	3	25	50	75

COURSE STRUCTURE FOR BATCH A1(B2)
IN PATHWAY 5: DOUBLE MAJOR

A1: 68 credits in Electronics (Major A) ***B1: 68 credits in Major B***

A2: 53 credits in Electronics (Major A) ***B2: 53 credits in Major B***

The combinations available to the students: (A1 & B2), (B1 & A2)

Note: Unless the batch is specified, the course is for all the students of the class

Semester	Course Code	Course Title	Total Hours	Hours/ Week	Credits	Marks		
						Internal	External	Total
1	ELE1CJ 101 / ELE1MN 100	Core Course 1 in Major Electronics – Fundamentals of Electrical and Electronics (P)	75	5	4	30	70	100
	BBB1CJ 101	Core Course 1 in Major B –	60/ 75	4/ 5	4	30	70	100

	ELE1CJ 102 / ELE2CJ 102 / ELE 4CJ 205*	Core Course 2 in Major Electronics – Semiconductor Devices and Circuits (P) (for batch A1 only)	75	5	4	30	70	100
	ENG1FA 101(2)	Ability Enhancement Course 1 – English	60	4	3	25	50	75
		Ability Enhancement Course 2 – Additional Language	45	3	3	25	50	75
	ELE1FM 105	Multi-Disciplinary Course 1 in Electronics – Clean Energy Solution (for batch A1 only)	45	3	3	25	50	75
		Total		**24/ 25**	**21**			**525**
2	ELE2CJ 101 / ELE2MN 100	Core Course 3 in Major Electronics – Foundational Mathematics	75	5	4	30	70	100
	BBB2CJ 101	Core Course 2 in Major B –	60/ 75	4/ 5	4	30	70	100
	BBB2CJ 102 / BBB1CJ 102	Core Course 3 in Major B – (for batch B2 only)	60/ 75	4/ 5	4	30	70	100
	ENG2FA 103(2)	Ability Enhancement Course 3 – English	60	4	3	25	50	75
		Ability Enhancement Course 4 – Additional Language	45	3	3	25	50	75
	ELE2FM 106 / ELE3FM 106	Multi-Disciplinary Course 2 in Electronics – Computer Hardware	45	3	3	25	50	75
		Total		**23 – 25**	**21**			**525**
3	ELE3CJ 201	Core Course 4 in Major Electronics – Digital Electronics (P)	60	4	4	30	70	100
	ELE3CJ 202 / ELE3MN 200	Core Course 5 in Major Electronics – Network Analysis (P)	75	5	4	30	70	100
	BBB3CJ 201	Core Course 4 in Major B	60/ 75	4/ 5	4	30	70	100

	BBB3CJ 202	Core Course 5 in Major B	60/ 75	4/ 5	4	30	70	100
	BBB3FM 106 / BBB2FM 106	Multi-Disciplinary Course 1 in B –	45	3	3	25	50	75
	ELE3FV 108	Value-Added Course 1 in Electronics – Green Energy for Sustainable Development (for batch A1 only)	45	3	3	25	50	75
		Total		**23 – 25**	**22**			**550**
4	ELE4CJ 203	Core Course 6 in Major Electronics – Microprocessors and Microcontrollers(p)	75	5	4	30	70	100
		Core Course 6 in Major B	60/ 75	4/ 5	4	30	70	100
	ELE4CJ 204	Core Course 7 in Major Electronics – Analog Electronics (P) (for batch A1 only)	75	5	4	30	70	100
	ELE4FV 110	Value-Added Course 2 in Electronics – E-Waste Management	45	3	3	25	50	75
	BBB4FV 110	Value-Added Course 1 in B –	45	3	3	25	50	75
	ELE4FS 112 / ELE5FS 112	Skill Enhancement Course 1 in Electronics – Computer Aided Design and 3D printing	45	3	3	25	50	75
		Total		**23/ 24**	**21**			**525**
5	ELE5CJ 302	Core Course 8 in Major Electronics – Field Theory	75	5	4	30	70	100
		Core Course 7 in Major B –	60/ 75	4/ 5	4	30	70	100
	ELE5CJ 303	Core Course 9 in Major Electronics – Python Programming (P) (for batch A1 only)	60	4	4	30	70	100
		Elective Course 1 in Major Electronics	60	4	4	30	70	100
		Elective Course 1 in Major B	60	4	4	30	70	100
	BBB5FS 112 / BBB4FS 112	Skill Enhancement Course 1 in B	45	3	3	25	50	75

		Total		**24/ 25**	**23**			**575**
6	ELE6CJ 305/ ELE8MN 305	Core Course 10 in Major Electronics – Signals and Systems(P)	75	5	4	30	70	100
		Core Course 8 in Major B –	60/ 75	4/ 5	4	30	70	100
	BBB6CJ 305	Core Course 9 in Major B – (for batch B2 only)	60	4	4	30	70	100
		Elective Course 2 in Major Electronics	60	4	4	30	70	100
		Elective Course 2 in Major B	60	4	4	30	70	100
	ELE6FS 113	Skill Enhancement Course 2 in Electronics – Solar and EV Technology (for batch A1 only)	45	3	3	25	50	75
	ELE6CJ 349	Internship in Major Electronics (Credit for internship to be awarded only at the end of Semester 6)	60		2	50	-	50
		Total		**24/ 25**	**25**			**625**
Total Credits for Three Years					**133**			**3325**
For batch A1(B2), the course structure in semesters 7 and 8 is the same as for pathways 1 – 4, except that the number of the core and elective courses is in continuation of the number of courses in the two categories completed at the end of semester 6.								

* The course code of the same course as used for the pathways 1 – 4

CREDIT DISTRIBUTION FOR BATCH A1(B2) IN PATHWAY 5: DOUBLE MAJOR

Semester	Major Courses in Electronics	General Foundation Courses in Electronics	Internship/ Project in Electronics	Major Courses in B	General Foundation Courses in B	AEC	Total
1	4 + 4	3	-	4	-	3 + 3	21
2	4	3	-	4 + 4	-	3 + 3	21
3	4 + 4	3	-	4 + 4	3	-	22
4	4 + 4	3 + 3	-	4	3	-	21
5	4 + 4 + 4	-	-	4 + 4	3	-	23
6	4 + 4	3	2	4 + 4 + 4	-	-	25

Total for Three Years	**48**	**18**	**2**	**44**	**9**	**12**	**133**
	68			**53**		**12**	**133**
	Major Courses in Electronics	Minor Courses					
7	4 + 4 + 4 + 4 + 4	-			-	-	20
8	4 + 4 + 4	4 + 4 + 4	12*		-	-	24
* Instead of three Major courses							
Total for Four Years	**88 + 12 = 100**	**12**					**177**

COURSE STRUCTURE FOR BATCH B1(A2)
IN PATHWAY 5: DOUBLE MAJOR

A1: 68 credits in Electronics (Major A) ***B1: 68 credits in Major B***

A2: 53 credits in Electronics (Major A) ***B2: 53 credits in Major B***

The combinations available to the students: (A1 & B2), (B1 & A2)

Note: Unless the batch is specified, the course is for all the students of the class

Semester	Course Code	Course Title	Total Hours	Hours/ Week	Credits	Marks		
						Internal	External	Total
1	ELE1CJ 101 / ELE1MN 100	Core Course 1 in Major Electronics – Fundamentals of Electrical and Electronics (P)	75	5	4	30	70	100
	BBB1CJ 101	Core Course 1 in Major B –	60/ 75	4/ 5	4	30	70	100
	BBB1CJ 102 / BBB2CJ 102	Core Course 2 in Major B – (for batch B1 only)	60/ 75	4/ 5	4	30	70	100
	ENG1FA 101(2)	Ability Enhancement Course 1 – English	60	4	3	25	50	75
		Ability Enhancement Course 2 – Additional Language	45	3	3	25	50	75
	BBB1FM 105	Multi-Disciplinary Course 1 in B – (for batch B1 only)	45	3	3	25	50	75

		Total		**23 – 25**	**21**			**525**
2	ELE2CJ 101 / ELE2MN 100	Core Course 2 in Major Electronics – Semiconductor Devices and Circuits (P)	75	5	4	30	70	100
	BBB2CJ 101	Core Course 3 in Major B –	60/ 75	4/ 5	4	30	70	100
	ELE2CJ 102 / ELE1CJ 102 / ELE4CJ 205*	Core Course 3 in Major Electronics Foundational Mathematics (for batch A2 only)	75	5	4	30	70	100
	ENG2FA 103(2)	Ability Enhancement Course 3 – English	60	4	3	25	50	75
		Ability Enhancement Course 4 – Additional Language	45	3	3	25	50	75
	ELE2FM 106 / ELE3FM 106	Multi-Disciplinary Course 1 in Electronics – Clean Energy Solution	45	3	3	25	50	75
		Total		**24/ 25**	**21**			**525**
3	ELE3CJ 201	Core Course 4 in Major Electronics – Digital Electronics (P)	60	4	4	30	70	100
	ELE3CJ 202 / ELE3MN 200	Core Course 5 in Major Electronics – Network Analysis (P)	75	5	4	30	70	100
	BBB3CJ 201	Core Course 4 in Major B	60/ 75	4/ 5	4	30	70	100
	BBB3CJ 202	Core Course 5 in Major B	60/ 75	4/ 5	4	30	70	100
	BBB3FM 106 / BBB2FM 106	Multi-Disciplinary Course 2 in B –	45	3	3	25	50	75
	BBB3FV 108	Value-Added Course 1 in B – (for batch B1 only)	45	3	3	25	50	75
		Total		**23 – 25**	**22**			**550**

4	ELE4CJ 203	Core Course 6 in Major Electronics – Signals and Systems(P)	75	5	4	30	70	100
		Core Course 6 in Major B	60/ 75	4/ 5	4	30	70	100
		Core Course 7 in Major B – (for batch B1 only)	60/ 75	4/ 5	4	30	70	100
	ELE4FV 110	Value-Added Course 1 in Electronics – Green Energy	45	3	3	25	50	75
	BBB4FV 110	Value-Added Course 2 in B –	45	3	3	25	50	75
	ELE4FS 112 / ELE5FS 112	Skill Enhancement Course 1 in Electronics – Computer Aided Design and 3D printing	45	3	3	25	50	75
		Total		**22 – 24**	**21**			**525**
5	ELE5CJ 302	Core Course 7 in Major Electronics – Analog and Digital communication(P)	75	5	4	30	70	100
		Core Course 8 in Major B –	60/ 75	4/ 5	4	30	70	100
		Core Course 9 in Major B – (for batch B1 only)	60	4	4	30	70	100
		Elective Course 1 in Major Electronics	60	4	4	30	70	100
		Elective Course 1 in Major B	60	4	4	30	70	100
	BBB5FS 112 / BBB4FS 112	Skill Enhancement Course 1 in B	45	3	3	25	50	75
		Total		**24/ 25**	**23**			**575**
6	ELE6CJ 305/ ELE8MN 305	Core Course 8 in Major Electronics – Opto Electronics	75	5	4	30	70	100
		Core Course 10 in Major B –	60/ 75	4/ 5	4	30	70	100
	ELE6CJ 306/ ELE8MN 306	Core Course 9 in Major Electronics – Embedded System Design with IOT (P) (for batch A2 only)	60	4	4	30	70	100

		Elective Course 2 in Major Electronics	60	4	4	30	70	100
		Elective Course 2 in Major B	60	4	4	30	70	100
	BBB6FS 113	Skill Enhancement Course 2 in B – (for batch B1 only)	45	3	3	25	50	75
	BBB6CJ 349	Internship in Major B (Credit for internship to be awarded only at the end of Semester 6)	60		2	50	-	50
		Total		**24/ 25**	**25**			**625**
Total Credits for Three Years					**133**			**3325**
To continue to study Electronics in semesters 7 and 8, batch B1(A2) needs to earn additional 15 credits in Electronics to make the total credits of 68. Suppose this condition is achieved, and the student of batch B1(A2) proceeds to the next semesters to study Electronics. The course structure in semesters 7 and 8 is the same as for pathways 1 – 4, except that the number of the core and elective courses is in continuation of the number of courses in the two categories completed at the end of semester 6, taking into account the number of courses in Electronics taken online to earn the additional 15 credits.								

* The course code of the same course as used for the pathways 1 – 4

CREDIT DISTRIBUTION FOR BATCH B1(A2) IN PATHWAY 5: DOUBLE MAJOR

Semester	Major Courses in B	General Foundation Courses in B	Internship/ Project in B	Major Courses in Electronics	General Foundation Courses in Electronics	AEC	Total
1	4 + 4	3	-	4	-	3 + 3	21
2	4	-	-	4 + 4	3	3 + 3	21
3	4 + 4	3 + 3	-	4 + 4	-	-	22
4	4 + 4	3	-	4	3 + 3	-	21
5	4 + 4 + 4	3	-	4 + 4	-	-	23
6	4 + 4	3	2	4 + 4 + 4	-	-	25
Total for Three Years	**48**	**18**	**2**	**44**	**9**	**12**	**133**
	68			**53**		**12**	**133**
	Major Courses in B	Minor Courses					

7	4 + 4 + 4 + 4 + 4	-			-	-	20
8	4 + 4 + 4	4 + 4 + 4	12*		-	-	24
* Instead of three Major courses							
Total for Four Years	**88 + 12 = 100**	**12**					**177**

EVALUATION SCHEME

1. The evaluation scheme for each course contains two parts: internal evaluation (about 30%) and external evaluation (about 70%). Each of the Major and Minor courses is of 4-credits. It is evaluated for 100 marks, out of which 30 marks is from internal evaluation and 70 marks, from external evaluation. Each of the General Foundation course is of 3-credits. It is evaluated for 75 marks, out of which 25 marks is from internal evaluation and 50 marks, from external evaluation.
2. The 4-credit courses (Major and Minor courses) are of two types: (i) courses with only theory and (ii) courses with 3-credit theory and 1-credit practical.
    - In 4-credit courses with only theory component, out of the total 5 modules of the syllabus, one open-ended module with 20% content is designed by the faculty member teaching that course, and it is internally evaluated for 10 marks. The internal evaluation of the remaining 4 theory modules is for 20 marks.
    - In 4-credit courses with 3-credit theory and 1-credit practical components, out of the total 5 modules of the syllabus, 4 modules are for theory and the fifth module is for practical. The practical component is internally evaluated for 20 marks. The internal evaluation of the 4 theory modules is for 10 marks.
3. All the 3-credit courses (General Foundational Courses) in Electronics are with only theory component. Out of the total 5 modules of the syllabus, one open-ended module with 20% content is designed by the faculty member teaching that course, and it is internally evaluated for 5 marks. The internal evaluation of the remaining 4 theory modules is for 20 marks.

Sl. No.	Nature of the Course	Internal Evaluation in Marks (about 30% of the total)	External Exam	Total Marks

			Open-ended module / Practical	On the other 4 modules	on 4 modules (Marks)	
1	4-credit course	only theory (5 modules)	10	20	70	100
2	4-credit course	Theory (4 modules) + Practical	20	10	70	100
3	3-credit course	only theory (5 modules)	5	20	50	75

1. MAJOR AND MINOR COURSES

1.1. INTERNAL EVALUATION OF THEORY COMPONENT

Sl. No.	Components of Internal Evaluation of Theory Part of a Major / Minor Course	Internal Marks for the Theory Part of a Major / Minor Course of 4-credits			
		Theory Only		Theory + Practical	
		4 Theory Modules	Open-ended Module	4 Theory Modules	Practical
1	Test paper/ Mid-semester Exam	10	4	5	-
2	Seminar/ Viva/ Quiz	6	4	3	-
3	Assignment	4	2	2	-
		20	10	10	20*
	Total	30		30	

* Refer the table in section 1.2 for the evaluation of practical component

1.2. EVALUATION OF PRACTICAL COMPONENT

The evaluation of practical component in Major and Minor courses is completely by internal evaluation.

- Continuous evaluation of practical by the teacher-in-charge shall carry a weightage of 50%.
- The end-semester practical examination and viva-voce, and the evaluation of practical records shall be conducted by the teacher in-charge and an internal examiner appointed by the Department Council.

- The process of continuous evaluation of practical courses shall be completed before 10 days from the commencement of the end-semester examination.
- Those who passed in continuous evaluation alone will be permitted to appear for the end-semester examination and viva-voce.

The scheme of continuous evaluation and the end-semester examination and viva-voce of practical component shall be as given below:

Sl. No.	Evaluation of Practical Component of Credit-1 in a Major / Minor Course	Marks for Practical	Weightage
1	Continuous evaluation of practical/ exercise performed in practical classes by the students	10	50%
2	End-semester examination and viva-voce to be conducted by teacher-in-charge along with an additional examiner arranged internally by the Department Council	7	35%
3	Evaluation of the Practical records submitted for the end semester viva–voce examination by the teacher-in-charge and additional examiner	3	15%
	Total Marks	20	

1.3. EXTERNAL EVALUATION OF THEORY COMPONENT

External evaluation carries 70% marks. Examinations will be conducted at the end of each semester. Individual questions are evaluated in marks and the total marks are converted into grades by the University based on 10-point grading system (refer section 5).

PATTERN OF QUESTION PAPER FOR MAJOR AND MINOR COURSES

Duration	Type	Total No. of Questions	No. of Questions to be Answered	Marks for Each Question	Ceiling of Marks
2 Hours	Short Answer	10	8 – 10	3	24
	Paragraph/ Problem	8	6 – 8	6	36
	Essay	2	1	10	10
				Total Marks	70

2. INTERNSHIP

- All students should undergo Internship of 2-credits during the first six semesters in a firm, industry or organization, or training in labs with faculty and researchers of their own institution or other Higher Educational Institutions (HEIs) or research institutions.
- Internship can be for enhancing the employability of the student or for developing the research aptitude.
- Internship can involve hands-on training on a particular skill/ equipment/ software. It can be a short project on a specific problem or area. Attending seminars or workshops related to an area of learning or skill can be a component of Internship.
- A faculty member/ scientist/ instructor of the respective institution, where the student does the Internship, should be the supervisor of the Internship.

2.1. GUIDELINES FOR INTERNSHIP

1. Internship can be in Electronics or allied disciplines.
2. There should be minimum 60 hrs. of engagement from the student in the Internship.
3. Summer vacations and other holidays can be used for completing the Internship.
4. In BSc. Electronics Honours programme, institute/ industry visit or study tour is a requirement for the completion of Internship. Visit to minimum one national research institute, research laboratory and place of scientific importance should be part of the study tour. A brief report of the study tour has to be submitted with photos and analysis.
5. The students should make regular and detailed entries in to a personal log book through the period of Internship. The log book will be a record of the progress of the Internship and the time spent on the work, and it will be useful in writing the final report. It may contain experimental conditions and results, ideas, mathematical expressions, rough work and calculation, computer file names etc. All entries should be dated. The Internship supervisor should periodically examine and countersign the log book.
6. The log book and the typed report must be submitted at the end of the Internship.
7. The institution at which the Internship will be carried out should be prior-approved by the Department Council of the college where the student has enrolled for the UG Honours programme.

2.2. EVALUATION OF INTERNSHIP

- The evaluation of Internship shall be done internally through continuous assessment mode by a committee internally constituted by the Department Council of the college where the student has enrolled for the UG Honours programme.
- The credits and marks for the Internship will be awarded only at the end of semester 6.
- The scheme of continuous evaluation and the end-semester viva-voce examination based on the submitted report shall be as given below:

Sl. No.	Components of Evaluation of Internship		Marks for Internship 2 Credits	Weightage
1	Continuous evaluation of internship through interim presentations and reports by the committee internally constituted by the Department Council	Acquisition of skill set	10	40%
2		Interim Presentation and Viva-voce	5	
3		Punctuality and Log Book	5	
4	Report of Institute Visit/ Study Tour		5	10%
5	End-semester viva-voce examination to be conducted by the committee internally constituted by the Department Council	Quality of the work	6	35%
6		Presentation of the work	5	
7		Viva-voce	6	
8	Evaluation of the day-to-day records, the report of internship supervisor, and final report submitted for the end semester viva–voce examination before the committee internally constituted by the Department Council		8	15%
	Total Marks		50	

3. PROJECT

3.1. PROJECT IN HONOURS PROGRAMME

- In Honours programme, the student has the option to do a Project of 12-credits instead of three Core Courses in Major in semester 8.
- The Project can be done in the same institution/ any other higher educational institution (HEI)/ research centre/ training centre.
- The Project in Honours programme can be a short research work or an extended internship or a skill-based training programme.

- A faculty member of the respective institution, where the student does the Project, should be the supervisor of the Project.

3.2. PROJECT IN HONOURS WITH RESEARCH PROGRAMME

- Students who secure 75% marks and above (equivalently, CGPA 7.5 and above) cumulatively in the first six semesters are eligible to get selected to Honours with Research stream in the fourth year.
- A relaxation of 5% in marks (equivalently, a relaxation of 0.5 grade in CGPA) is allowed for those belonging to SC/ ST/ OBC (non-creamy layer)/ Differently-Abled/ Economically Weaker Section (EWS)/ other categories of candidates as per the decision of the UGC from time to time.
- In Honours with Research programme, the student has to do a mandatory Research Project of 12-credits instead of three Core Courses in Major in semester 8.
- The approved research centres of University of Calicut or any other university/ HEI can offer the Honours with Research programme. The departments in the affiliated colleges under University of Calicut, which are not the approved research centres of the University, should get prior approval from the University to offer the Honours with Research programme. Such departments should have minimum two faculty members with Ph.D., and they should also have the necessary infrastructure to offer Honours with Research programme.
- A faculty member of the University/ College with a Ph.D. degree can supervise the research project of the students who have enrolled for Honours with Research. One such faculty member can supervise maximum five students in Honours with Research stream.
- The maximum intake of the department for Honours with Research programme is fixed by the department based on the number of faculty members eligible for project supervision, and other academic, research, and infrastructural facilities available.
- If a greater number of eligible students are opting for the Honours with Research programme than the number of available seats, then the allotment shall be based on the existing rules of reservations and merits.

3.3. GUIDELINES FOR THE PROJECT IN HONOURS PROGRAMME AND HONOURS WITH RESEARCH PROGRAMME

1. Project can be in Electronics or allied disciplines.

2. Project should be done individually.
3. Project work can be of experimental/ theoretical/ computational in nature.
4. There should be minimum 360 hrs. of engagement from the student in the Project work in Honours programme as well as in Honours with Research programme.
5. There should be minimum 13 hrs./week of engagement (the hours corresponding to the three core courses in Major in semester 8) from the teacher in the guidance of the Project(s) in Honours programme and Honours with Research programme.
6. The various steps in project works are the following:
    - Wide review of a topic.
    - Investigation on a problem in systematic way using appropriate techniques.
    - Systematic recording of the work.
    - Reporting the results with interpretation in a standard documented form.
    - Presenting the results before the examiners.
7. During the Project the students should make regular and detailed entries in to a personal log book through the period of investigation. The log book will be a record of the progress of the Project and the time spent on the work, and it will be useful in writing the final report. It may contain experimental conditions and results, ideas, mathematical expressions, rough work and calculation, computer file names etc. All entries should be dated. The Project supervisor should periodically examine and countersign the log book.
8. The log book and the typed report must be submitted at the end of the Project. A copy of the report should be kept for reference at the department. A soft copy of the report too should be submitted, to be sent to the external examiner in advance.
9. It is desirable, but not mandatory, to publish the results of the Project in a peer reviewed journal.
10. The project report shall have an undertaking from the student and a certificate from the research supervisor for originality of the work, stating that there is no plagiarism, and that the work has not been submitted for the award of any other degree/ diploma in the same institution or any other institution.
11. The project proposal, institution at which the project is being carried out, and the project supervisor should be prior-approved by the Department Council of the college where the student has enrolled for the UG Honours programme.

3.4. EVALUATION OF PROJECT

- The evaluation of Project will be conducted at the end of the eighth semester by both internal and external modes.
- The Project in Honours programme as well as that in Honours with Research programme will be evaluated for 300 marks. Out of this, 90 marks is from internal evaluation and 210 marks, from external evaluation.
- The internal evaluation of the Project work shall be done through continuous assessment mode by a committee internally constituted by the Department Council of the college where the student has enrolled for the UG Honours programme. 30% of the weightage shall be given through this mode.
- The remaining 70% shall be awarded by the external examiner appointed by the University.
- The scheme of continuous evaluation and the end-semester viva-voce of the Project shall be as given below:

Components of Evaluation of Project	Marks for the Project (Honours/ Honours with Research)	Weightage
Continuous evaluation of project work through interim presentations and reports by the committee internally constituted by the Department Council	90	30%
End-semester viva-voce examination to be conducted by the external examiner appointed by the university	150	50%
Evaluation of the day-to-day records and project report submitted for the end-semester viva–voce examination conducted by the external examiner	60	20%
Total Marks	300	

INTERNAL EVALUATION OF PROJECT

Sl. No	Components of Evaluation of Project	Marks for the Project (Honours/ Honours with Research)
1	Skill in doing project work	30
2	Interim Presentation and Viva-Voce	20
3	Punctuality and Log book	20
4	Scheme/ Organization of Project Report	20

Total Marks	90

EXTERNAL EVALUATION OF PROJECT

Sl. No	Components of Evaluation of Project	Marks for the Project (Honours/ Honours with Research) 12 credits
1	Content and relevance of the Project, Methodology, Quality of analysis, and Innovations of Research	50
2	Presentation of the Project	50
3	Project Report (typed copy), Log Book and References	60
4	Viva-Voce	50
	Total Marks	210

4. GENERAL FOUNDATION COURSES

- All the General Foundation Courses (3-credits) in Electronics are with only theory component.

4.1. INTERNAL EVALUATION

Sl. No.	Components of Internal Evaluation of a General Foundation Course in Electronics	Internal Marks of a General Foundation Course of 3-credits in Electronics	
		4 Theory Modules	Open-ended Module
1	Test paper/ Mid-semester Exam	10	2
2	Seminar/ Viva/ Quiz	6	2
3	Assignment	4	1
		20	5
	Total	25	

4.2. EXTERNAL EVALUATION

External evaluation carries about 70% marks. Examinations will be conducted at the end of each semester. Individual questions are evaluated in marks and the total marks are converted into grades by the University based on 10-point grading system (refer section 5).

PATTERN OF QUESTION PAPER FOR GENERAL FOUNDATION COURSES

Duration	Type	Total No. of Questions	No. of Questions to be Answered	Marks for Each Question	Ceiling of Marks
1.5 Hours	Short Answer	10	8 – 10	2	16
	Paragraph/ Problem	5	4 – 5	6	24
	Essay	2	1	10	10
				Total Marks	50

5. LETTER GRADES AND GRADE POINTS

- Mark system is followed for evaluating each question.
- For each course in the semester letter grade and grade point are introduced in 10-point indirect grading system as per guidelines given below.
- The Semester Grade Point Average (SGPA) is computed from the grades as a measure of the student's performance in a given semester.
- The Cumulative GPA (CGPA) is based on the grades in all courses taken after joining the programme of study.
- Only the weighted grade point based on marks obtained shall be displayed on the grade card issued to the students.

LETTER GRADES AND GRADE POINTS

Sl. No.	Percentage of Marks (Internal & External Put Together)	Description	Letter Grade	Grade Point	Range of Grade Points	Class
1	95% and above	Outstanding	O	10	9.50 – 10	First Class with Distinction
2	Above 85% and below 95%	Excellent	A+	9	8.50 – 9. 49	
3	75% to below 85%	Very Good	A	8	7.50 – 8.49	
4	65% to below 75%	Good	B+	7	6.50 – 7.49	First Class
5	55% to below 65%	Above Average	B	6	5.50 – 6.49	
6	45% to below 55%	Average	C	5	4.50 – 5.49	Second Class
7	35% to below 45% aggregate	Pass	P	4	3.50 – 4.49	Third Class

	(internal and external put together) with a minimum of 30% in external valuation					
8	Below an aggregate of 35% or below 30% in external evaluation	Fail	F	0	0 – 3.49	Fail
9	Not attending the examination	Absent	Ab	0	0	Fail

- When students take audit courses, they will be given Pass (P) or Fail (F) grade without any credits.
- The successful completion of all the courses and capstone components prescribed for the three-year or four-year programme with 'P' grade shall be the minimum requirement for the award of UG Degree or UG Degree Honours or UG Degree Honours with Research, as the case may be.

5.1. COMPUTATION OF SGPA AND CGPA

- The following method shall be used to compute the Semester Grade Point Average (SGPA):

  The SGPA equals the product of the number of credits (Ci) with the grade points (Gi) scored by a student in each course in a semester, summed over all the courses taken by a student in the semester, and then divided by the total number of credits of all the courses taken by the student in the semester,

  $$\text{i.e. SGPA } (Si) = \Sigma i\ (Ci \times Gi) / \Sigma i\ (Ci)$$

  where Ci is the number of credits of the i^{th} course and Gi is the grade point scored by the student in the i^{th} course in the given semester. Credit Point of a course is the value obtained by multiplying the credit (Ci) of the course by the grade point (Gi) of the course.

$$\text{SGPA} = \frac{\text{Sum of the credit points of all the courses in a semester}}{\text{Total credits in that semester}}$$

ILLUSTRATION – COMPUTATION OF SGPA

Semester	**Course**	**Credit**	**Letter Grade**	**Grade point**	**Credit Point** (Credit x Grade)
I	Course 1	3	A	8	3 x 8 = 24
I	Course 2	4	B+	7	4 x 7 = 28

I	Course 3	3	B	6	3 x 6 = 18
I	Course 4	3	O	10	3 x 10 = 30
I	Course 5	3	C	5	3 x 5 = 15
I	Course 6	4	B	6	4 x 6 = 24
	Total	20			139
	SGPA				139/20 = 6.950

- The Cumulative Grade Point Average (CGPA) of the student shall be calculated at the end of a programme. The CGPA of a student determines the overall academic level of the student in a programme and is the criterion for ranking the students.

  CGPA for the three-year programme in CUFYUGP shall be calculated by the following formula.

$$\text{CGPA} = \frac{\text{Sum of the credit points of all the courses in six semesters}}{\text{Total credits in six semesters (133)}}$$

  CGPA for the four-year programme in CUFYUGP shall be calculated by the following formula.

$$\text{CGPA} = \frac{\text{Sum of the credit points of all the courses in eight semesters}}{\text{Total credits in eight semesters (177)}}$$

- The SGPA and CGPA shall be rounded off to three decimal points and reported in the transcripts.
- Based on the above letter grades, grade points, SGPA and CGPA, the University shall issue the transcript for each semester and a consolidated transcript indicating the performance in all semesters.