

B.Sc.ELECTRONICS

Syllabus

AFFILIATED COLLEGES

Program Code :
22M

2022 – 2023 Onwards



BHARATHIAR UNIVERSITY

**A State University, Accredited with "A" Grade by
NAAC, Ranked 13th among Indian Universities by
MHRD-NIRF,**

Program Educational Objectives (PEOs)	
The B. Sc. Electronics program describe accomplishments that graduates are expected to attain within five to seven years after graduation	
PEO1	Provide graduates with a strong foundation in Electronics domain and to enable them to devise and deliver efficient solutions to challenging problems in Electronics, Communications and allied disciplines.
PEO2	Impart analytic and thinking skills to develop initiatives and innovative ideas for R&D, Industry and societal requirements.
PEO3	Provide sound theoretical and practical knowledge of Electronics, managerial and entrepreneurial skills to enable students to contribute to the wellbeing of society with a global outlook.
PEO4	Inculcate qualities of teamwork as well as social, interpersonal and leadership skills and an ability to adapt to evolving professional environments in the domains of engineering and technology.
PEO5	Motivate graduates to become good human beings and responsible citizens for the overall welfare of the society.
PEO6	Develop attitude in lifelong learning, applying and adapting new ideas and technologies as their field evolves.
PEO7	To prepare graduates who will have knowledge, ability and courage to pursue higher studies and research.

Program Specific Outcomes (PSOs)	
After the successful completion of B.Sc. Electronics program, the students are expected to	
PSO1	Demonstrate proficiency in use of software and hardware required to practice electronics and communication profession.
PSO2	Graduates will be able to apply fundamentals of electronics in various domains of analog and digital systems
PSO3	Apprehend and analyze specific engineering problems of communication, electronic circuits, computer programming, embedded systems, VLSI design and semiconductor technology by applying the knowledge of basic sciences, engineering mathematics and engineering fundamentals.
PSO4	Ability to communicate effectively with excellent interpersonal skills and demonstrate the practice of professional ethics for societal benefit
PSO5	Graduates will be able to apply fundamentals of electronics in various domains of analog and digital systems.
PSO6	Use embedded system concepts for developing IoT applications



Program Outcomes (POs)	
On successful completion of the B. Sc. Electronics program	
PO1	Engineering knowledge: Apply the knowledge of mathematics, Science, Engineering fundamentals and an engineering specialization to the solution of complex engineering problems
PO2	Problem analysis: Identify, formulate, review research literature and analyze complex engineering problems reaching substantiated conclusion using principles of mathematics and Engineering sciences
PO3	Design/Development of solutions: Design solutions for complex Engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal and environmental conditions.
PO4	Conduct investigation of complex problems: Use research based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
PO5	Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations
PO6	The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
PO7	Environment and Sustainability: Understand the impact of the professional engineering solution in societal and environmental contexts, and demonstrate the knowledge of and need fir sustainabledevelopment
PO8	Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
PO9	Individual and team work: Function effectively as an individual, an as a member or leader in diverse teams, and in multidisciplinary settings.
PO10	Life-Long learning: Recognize the need for and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

BHARATHIAR UNIVERSITY: COIMBATORE 641 046

B. Sc. Electronics Curriculum (University Affiliated Colleges)
(For the students admitted during the academic year 2022 – 23 onwards)

Course Code	Title of the Course	Credits	Hours		Maximum Marks		
			Theory	Practical	CIA	CEE	TOTAL
FIRST SEMESTER							
11T	Language –I	4	6	-	50	50	100
12E	English – I	4	6	-	50	50	100
13A	Core Paper I : Basic Electronics	4	5	-	50	50	100
--	Core Practical I: Basic Electronics Lab	-	-	3	-	-	-
--	Core Practical II : Semiconductor Devices Lab	-	-	3	-	-	-
1AA	Allied I Mathematics–I	4	5	-	50	50	100
1FA	Environmental Studies #	2	2	-	-	50	50
Total		18	T 24	L 06	200	250	450
SECOND SEMESTER							
21T	Language – II	4	6	-	50	50	100
22E	English – II	2	4	-	25	25	50
23A	Core Paper II : Semiconductor Devices	4	5	-	50	50	100
23P	Core Practical I: Basic Electronics Lab	4	-	3	50	50	100
23Q	Core Practical II: Semiconductor Devices Lab	4	-	3	50	50	100
2AA	Allied : II Mathematics–II	4	5	-	50	50	100
2FB	Value Education- Human Rights #	2	2	-	-	50	50
2NM	NAAN MUTHALVAN Generic Name: Language Proficiency for Employability Course Name: Effective English	2	2	-	25	25	50**
Swatch Bharat- Summer internship **							
Total		26	T 24	L 06	300	350	650

THIRD SEMESTER							
31T	Language – III	4	4	-	50	50	100
32E	English – III	4	4	-	50	50	100
33A	Core Paper III : Digital Principles and Applications	4	4	-	50	50	100
33B	Core Paper IV: Electronic Circuits	4	4	-	50	50	100
3AC	Allied : III Object Oriented Programming using C++	3	3	-	30	45	75
3ZA	Skill Based Subject : I BioMedical Instrumentation	3	3	-	30	45	75
--	Core Practical : III Digital Electronics and Linear IC's Lab - III	-	-	3	-	-	-
--	Core Practical : IV Electronics Circuits and Communication Lab -IV	-	-	3	-	-	-
3NM	NAAN MUTHALVAN Generic Name: Digital skills for Employability Course Name: Microsoft Office Essential	25			25	25	50**
3FB / 3FC/ 3FD	Tamil @ / Advanced Tamil#(OR) Non-major elective - I (Yoga for Human excellence # Womens Rights#)	2	2	-	-	50	50
Total		26	Theory-24	Lab- 06	285	365	650

FOURTH SEMESTER							
41T	Language – IV	4	4	-	50	50	100
42E	English – IV	4	4	-	50	50	100
43A	Core Paper V: IC's and Instrumentation	4	5	-	50	50	100
4AD	Allied : IV Python Programming	4	5		50	50	100
4NM	Skill Based Subject :II NAAN MUDHALVAN CourseGenericName : Digital skills for Employability Course Name: Office Fundamentals	2	2	-	25	25	50**
43P	Core Practical: III Digital Electronics and Linear IC's Lab	3	-	3	30	45	75
43Q	Core Practical: IV Electronics Circuits and Communication Lab -IV	3	-	3	30	45	75
43R	ALLIED Practical: V Computer Programming Lab	2	-	2	25	25	50
4FB/ 4FE	Tamil @ /Advanced Tamil # (OR)Non-major elective-II(General Awareness #)	2	2	-	-	50	50
Total		28	Theory 22	Lab 08	310	390	700

FIFTH SEMESTER							
53A	Core Paper VI: 8051 Microcontroller and its Applications	4	5	-	50	50	100
53B	Core Paper VII: Internet of Things	4	5		50	50	100
5EA/ 5EB/ 5EC/ 5ED	Elective I	3	4		30	45	75
5EE/ 5EF/ 5EG/ 5EH	Elective II	3	4		30	45	75
--	Core Practical VI: Internet of Things System Design Lab	-	-	3	-	-	-
--	Core Practical VII: Industrial and Power Electronics Lab	-	-	3	-	-	-
--	Core Practical VIII : Microcontroller Lab	-	-	3	-	-	-
5ZC	Skill based subject – III Visual Programming	3	3	-	30	45	75
5NM	NAAN MUTHALVAN Generic Name: Technical skills for Employability Course Name: Data Analytics with Tableau	2			25	25	50**
Total		19	Theory 21	Lab 09	215	260	475

SIXTH SEMESTER							
63A	Core Paper VIII: Design with PIC Microcontroller	4	6		50	50	100
6EI/ 6EJ/ 6EK/ 6EL	Elective III	3	6		30	45	75
63P	Core Practical VI: Internet of Things System Design Lab	4	-	3	50	50	100
63Q	Core Practical VII: Industrial and Power Electronics Lab	4	-	3	50	50	100
63R	Core Practical VIII: 8051 Microcontroller Lab	4	-	3	50	50	100
67V	PROJECT	2	2	-	20	30	50
6ZP	Skill based Subject – IV Practical Visual Programming	2	-	3	25	25	50
67A	Extension Activities @	2	2	-	-	50	50
6NM	NAAN MUDHALVAN SALES FORCE	2	2	-	25	25	50**
	Total	27	Theory 18	Lab 12	300	375	675
	Grand Total	144					3600

@ No University Examinations. Only Continuous Internal Assessment (CIA)

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Project report *20 marks and viva-voce *30 marks

** Naan Mudhalvan – Skill courses- external 25 marks will be assessed by Industry and 25 marks internal will be offered by respective course teacher. Its Mandatory

*** Swatch Bharat Summer internship- extra 2 credits would be given. It is mandatory

List of Elective papers (Colleges can choose any one of the paper as electives)		
Elective – I	A	PCB Design and Fabrication
	B	Advanced Communication Systems
	C	Artificial Intelligence
	D	Advanced Computer Architecture
Elective – II	E	Arduino with Sensors
	F	Microwave and Fiber Optic Communication
	G	Automotive Electronics
	H	Satellite Communications
Elective – III	I	Industrial and Power Electronics
	J	Robotics
	K	Programmable Logic Controllers
	L	VLSI Design

Government of Tamil Nadu “ NAAN MUDHALVAN SCHEME” www. naanmudhalvan.tn.gov.in List of Course for each semester	
Semester	Name of The Courses
II	Effective English
III	Digital skills for Employability
IV	Digital Skills For Employability
V	Technical skills for Employability
VI	Emerging Technology For Employability III

NAAN MUDHALVAN SCHEME SYLLABUS

[http://kb.naanmudhalvan.in/Bharathiar_University_\(BU\)](http://kb.naanmudhalvan.in/Bharathiar_University_(BU))