

**SRI CHANDRASEKHARENDRA SARASWATHI VISWA MAHA
VIDYALAYA**

(Deemed to be University U/S 3 of UGC Act 1956)
Accredited with "A" Grade by NAAC
Enathur, Kanchipuram-631561



**FULL TIME BE -
ELECTRONICS AND INSTRUMENTATION
ENGINEERING**

(Students admitted from 2018-19 onwards)

CURRICULUM

(Choice Based Credit System)

DEPARTMENT OF ELECTRONICS AND INSTRUMENTATION ENGINEERING

VISION

Academic Excellence and to be in dynamic equilibrium with Contemporary Industry.

MISSION

- To develop students with strong foundation in fundamentals
- To establish a laboratory with latest technologies.
- To provide continuous help to students to develop their overall personality, skills, confidence and character.

PROGRAMME EDUCATIONAL OBJECTIVES

The Department of Electronics and Instrumentation Engineering has developed and maintained a well-defined set of educational objectives and desired program outcomes. Educational objectives of the program cater to the requirements of the stakeholders such as students, parents, employers, alumni, faculty members etc. These objectives will be evident by professional visibility (publications, presentations, inventions, patents and awards), entrepreneurial activities, and international activities (participation in international conferences, collaborative research and employment abroad).

The PEOs are as follows:

PEO 1 To provide sound foundation in the mathematical, scientific and engineering fundamentals to formulate, solve and analyze problems related to Electronics and Instrumentation Engineering.

PEO 2 To prepare graduates for employment in core / IT industries that are socially responsible and integrated with professional and ethical skills.

PEO 3 To prepare graduates to involve in research, higher studies and / or to become entrepreneurs in the long run.

DEFINITION OF CREDIT

1 Hour Lecture /week (L)	1 credit
1 Hour Tutorial /week (T)	1 credit
1 Hour Practical/week (P)	0.5 credit

COURSE CODE AND DEFINITION

COURSE CODE	DEFINITIONS
L	Lecture
T	Tutorial
P	Practical
BSC	Basic Science Courses
ESC	Engineering Science Courses
HSMC	Humanities / Social Sciences / Management Courses
PCC	Programme Core Courses
PEC	Professional Elective Courses
OEC	Open Elective Courses
LC	Laboratory Course
MC	Mandatory Courses
PIIC	Project / Industrial Practice / Internship

CREDIT DISTRIBUTION

SL.NO	CATEGORY	CREDITS
1.	Basic Science Courses(BSC)	22
2.	Engineering Science Courses (ESC)	25
3.	Programme Core Courses (PCC)	73
4.	Professional Elective Courses (PEC)	21
5.	Humanities / Social Sciences / Management Courses (HSMC)	6
6.	Project / Industrial Practice / Internship Courses (PIIC)	14
7.	Open Elective Courses (OEC)	12
8.	Mandatory Course(MC)	12*
Total Credits		173

*Not included in total credits

PROGRAMME OBJECTIVES (POs)

Graduates of Electronics and Instrumentation Engineering program of Sri Chandrasekharendra Saraswathi Viswa Mahavidyalaya will have the ability to

- PO.1 Engineering Knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems
- PO.2 Problem Analysis:** Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
- PO.3 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 considerations.
- PO.4 Conduct Investigations 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.
- PO.5 Modern Tool Usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
- PO.6 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.
- PO.7 Environment and Sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
- PO.8 Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
- PO.9 Individual and Team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
- PO.10 Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write

effective reports and design documentation, make effective presentations, and give and receive clear instructions.

PO.11 Project Management and Finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

PO.12 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.

B.E- EIE (FULL TIME) - CURRICULUM
(For candidates admitted during the year 2018 onwards)

Semester Wise Structure of Curriculum

[L = Lecture, T = Tutorial, P = Practical & C = Credit]

[IA = Internal Assessment, EA = External Assessment & TM = Total Mark]

Semester I (First year)

SL.No	Category	Code	Course Title	L	T	P	C	IA	EA	TA
1.	HSMC	CHSEN18T10	English [#]	2	1	-	3	40	60	100
2.	BSC	CBSMAA8T20	Mathematics I(Calculus & Differential Equations) [#]	3	1	-	4	40	60	100
3.	BSC	CBSPH18T30	Engineering Physics [#]	3	-	-	3	40	60	100
4.	ESC	CESCS18T40	Programming for Problem Solving	2	1	-	3	40	60	100
5.	BSC	CBSPH18P50	Physics Lab [#]	-	-	3	2	40	60	100
6.	ESC	CESCS18P60	Programming for Problem Solving Lab	-	-	3	2	40	60	100
7.	ESC	CESME18P70	Workshop/Manufacturing Practices ^{\$}	-	-	3	2	40	60	100

Science and Humanities

^{\$}Mechanical Engineering**Total Credits: 19**

Semester II (First year)

SL.No	Category	Code	Course Title	L	T	P	C	IA	EA	TA
1.	BSC	CBSMAF8T10	Mathematics – II (Linear Algebra, Transform Calculus and Numerical methods) [#]	3	1	-	4	40	60	100
2.	BSC	CBSCH18T20	Engineering Chemistry [#]	3	-	-	3	40	60	100
3.	ESC	CESEE18T30	Basic Electrical Engineering [@]	3	-	-	3	40	60	100
4.	MC*	CMCCH28T50	Environmental Sciences and Engineering ^{**}	2	0	0	2*	40	60	100
5.	BSC	CBSCH18P60	Chemistry Laboratory [#]	-	-	3	2	40	60	100
6.	ESC	CESEE18P70	Basic Electrical Engineering Lab	-	-	3	2	40	60	100
7.	ESC	CESME18P50	Engineering Graphics & Design ^{\$}	-	-	3	3	40	60	100

Science and Humanities @ Electrical Engineering ^{\$}Mechanical Engineering**Total Credits: 17+2***

Semester III (Second year)

SL.No	Category	Code	Course Title	L	T	P	C	IA	EA	TA
1.	BSC	BEIF183T10	Mathematics –III (Probability and Statistics) #	3	1	-	4	40	60	100
2.	PCC	BEIF183T30	Electronic Devices and Circuits	3	0	-	3	40	60	100
3.	PCC	BEIF183T40	Signals and Systems	2	1	-	3	40	60	100
4.	PCC	BEIF183T50	Electrical Measurements@	3	0	-	3	40	60	100
5.	PCC	BEIF183T60	Sensors and Actuator	3	0	-	3	40	60	100
6.	ESC	BEIF183T20	Object Oriented Programming Using C++&	3	0	-	3	40	60	100
7.	MC*	BETF183MC2	Sanskrit & Indian Culture*	2	-	-	2*	40	60	100
8.	MC*	BETF183MC3	Soft Skill**-I	-	-	-	1*	40	60	100
9.	PCC	BEIF183P80	Electronic Devices and Circuits Lab	-	-	3	2	40	60	100
10.	PCC	BEIF183P90	Electrical Measurements Lab@	-	-	3	2	40	60	100
11.	ESC	BEIF183P70	Object Oriented Programming Using C++ Lab&	-	-	3	2	40	60	100

Science and Humanities @ Electrical Engineering & Computer Engineering **Total Credits: 25+3*****Semester IV (Second year)**

SL.No	Category	Code	Course Title	L	T	P	C	IA	EA	TA
1.	PCC	BEIF184T10	Digital Signal Processing	2	1	-	3	40	60	100
2.	PCC	BEIF184T20	Industrial Instrumentation	3	0	-	3	40	60	100
3.	PCC	BEIF184T30	Principles of Communication	3	0	-	3	40	60	100
4.	ESC	BEIF184T40	Thermodynamics ^s	3	0	-	3	40	60	100
5.	PCC	BEIF184T50	Linear Integrated Circuits	3	0	-	3	40	60	100
6.	PCC	BEIF184T60	Digital Electronics	3	0	-	3	40	60	100
7.	MC*	BETF184MC4	Soft Skill**-II	-	-	-	1*	40	60	100
8.	PCC	BEIF184P70	Linear Integrated Circuits & Digital Electronics Lab	-	-	3	2	40	60	100
9.	ESC	BEIF184P80	Thermal Engineering Lab ^s	-	-	3	2	40	60	100
10.	PCC	BEIF184P90	Transducer and Industrial Instruments Lab	-	-	3	2	40	60	100

^sMechanical Engineering**Total Credits: 24+1***

Semester V (Third year)

SL.No	Category	Code	Course Title	L	T	P	C	IA	EA	TA
1.	PEC	BEIF185E	Professional Elective – I	3	0	-	3	40	60	100
2.	OEC	BEIF185OE	Open Elective –I	3	0	-	3	40	60	100
3.	PCC	BEIF185T10	Control System	2	1	-	3	40	60	100
4.	PCC	BEIF185T20	Process Control Instrumentation	2	1	-	3	40	60	100
5.	PCC	BEIF185T30	Power Electronics and Industrial Drives	3	0	-	3	40	60	100
6.	PCC	BEIF185T40	Power Plant Instrumentation	3	0	-	3	40	60	100
7.	Optional OEC*		Japanese Primer/French Primer/ German Primer	-	-	1	2*	40	60	100
8.	MC*	BETF185MC05	Soft Skill*-III	-	-	-	1*	40	60	100
9.	PCC	BEIF185P60	Control System Lab	-	-	3	2	40	60	100
10.	PCC	BEIF185P70	Power Electronics and Industrial Drives Lab	-	-	3	2	40	60	100
11.	PCC	BEIF185P80	Industrial and Process Control Lab	-	-	3	2	40	60	100

*Not for CGPA

Total Credits: 24+3***Semester VI (Third year)**

SL.No	Category	Code	Course Title	L	T	P	C	IA	EA	TA
1.	PEC	BEIF186E	Professional Elective – II	3	0	-	3	40	60	100
2.	OEC	BEIF186OE	Open Elective –II	3	0	-	3	40	60	100
3.	PCC	BEIF186T10	PLC & Data Acquisition System	3	0	-	3	40	60	100
4.	HSMC	BEIF186T30	Principle of Management and Professional Ethics	3	0	-	3	40	60	100
5.	PCC	BEIF186T20	Microrprocessor and Microcontroller	3	0	-	3	40	60	100
6.	PCC	BEIF186T40	Industrial Chemical Process	3	0	-	3	40	60	100
7.	Optional OEC*	BEIF180OE	Japanese Primer/French Primer/ German Primer	-	-	1	2*	40	60	100
8.	MC*	BETF18MC06	Soft Skill**-IV	-	-	-	1*	40	60	100
9.	PCC	BEIF186P70	Microrprocessor and Microcontroller Lab	-	-	3	2	40	60	100
10.	PCC	BEIF186P80	Virtual Instrumentation Lab	-	-	3	2	40	60	100
11.	PCC	BEIF186P90	PLC Lab	-	-	-	2	40	60	100

*Not for CGPA

Total Credits: 21+3*

Semester VII (Fourth year)

SL.No	Category	Code	Course Title	L	T	P	C	IA	EA	TA
1.	PCC	BEIF187T10	Robotics and Automation	3	0	-	3	40	60	100
2.	PEC	BEIF187E	Professional Elective -III	3	0	-	3	40	60	100
3.	PEC	BEIF187E	Professional Elective -IV	3	0	-	3	40	60	100
4.	PEC	BEIF187E	Professional Elective -V	3	0	-	3	40	60	100
5.	OEC	BEIF187OE	Open Elective -III	3	0	-	3	40	60	100
6.		BEIF187P60	Internship and Industrial visit ***	-	-	-	2	40	60	100
7.		BEIF187Z70	Project Work Phase -I	-	-	-	2	40	60	100
8.	PCC	BEIF187P80	Instrumentation System Design Lab	-		3	2	40	60	100

****Industrial visit (minimum 5 Visits from I to VI sem) and minimum 5 weeks Internship should be carried out.

Total Credits:

22

Semester VIII (Fourth year)

SL.No	Category	Code	Course Title	L	T	P	C	IA	EA	TA
1	PEC	BEIF188E	Professional Elective -VI	3	0	-	3	40	60	100
2.	PEC	BEIF188E	Professional Elective -VII	3	0	-	3	40	60	100
3.	OEC	BEIF188OE	Open Elective -IV	3	0	-	3	40	60	100
4.		BEIF188Z40	Project Work Phase -II	-	-	-	10	40	60	100

Total Credits: 19

CREDIT ANALYSIS

	I	II	III	IV	V	VI	VII	VIII	TOTAL
HSMC	3					3			6
BSC	9	9	4						22
ESC	7	8	5	5					25
PCC			16	19	18	15	5		73
PEC					3	3	9	6	21
OEC					3	3	3	3	12
MC		2*	3*	1*	3*	3*		-	12*
PROJECT							2	10	12
Internship & Industrial Visit							2		2
	19	17+2*	25+3*	24+1*	24+3*	24+3*	21	19	173

*Not included in total credits

LIST OF PROFESSIONAL ELECTIVES**Professional Elective Course -1****SEMESTER 5**

S.No	Sub.Code	Subject Name
1	BEIF185EA0	Analytical Instrumentation
2	BEIF185EB0	Instrumentation and Control in Iron and Steel Industries
3	BEIF185EC0	Digital Instrumentation
4	BEIF185ED0	Digital Image Processing.

Professional Elective Course -2**SEMESTERS 6**

S.No	Sub.Code	Subject Name
1	BEIF186EE0	Virtual Instrumentation
2	BEIF186EF0	Advanced Control Systems
3	BEIF186EG0	Instrumentation and Control in Paper and Pulp Industries
4	BEIF186EH0	Energy Management and Industrial Safety

Professional Elective Course -3**SEMESTER 7**

S.No	Sub.Code	Subject Name
1	BEIF187EI0	Embedded Systems
2	BEIF187EJ0	Neural Network and Fuzzy Logic
3	BEIF187EK0	Instrumentation and Control in Food Processing Industries
4	BEIF187EL0	Optimal Control Systems

Professional Elective Course -4**SEMESTER 7**

S.No	Sub.Code	Subject Name
1	BEIF187EM0	Computer Control of Process
2	BEIF187EN0	Process Equipment Design
3	BEIF187E00	Mechatronics
4	BEIF187EP0	Non Linear Control Systems

Professional Elective Course -5**SEMESTER 7**

S.No	Sub.Code	Subject Name
1	BEIF187EQ0	Aircraft Instrumentation
2	BEIF187ER0	Engineering Economics
3	BEIF187ES0	Fiber Optics and Laser Instrumentation
4	BEIF187ET0	Digital Control Systems

Professional Elective Course -6**SEMESTER 8**

S.No	Sub.Code	Subject Name
1	BEIF188EU0	Automotive Instrumentation
2	BEIF188EV0	VLSI Design
3	BEIF188EW0	Autotronics
4	BEIF188EX0	Real Time Embedded System Design

Professional Elective Course -7**SEMESTER 8**

S.No	Sub.Code	Subject Name
1	BEIF188EY0	Biomedical Instrumentation
2	BEIF188EZ0	Machine Vision
3	BEIF188EA1	MEMS
4	BEIF188EB1	Wireless Communication

SEMESTER BASED OPEN ELECTIVES**Open Elective Course -1****SEMESTER 5**

S.No	Sub.Code	Subject Name
1	BEIF185OEB	Green and Smart Buildings
2	BEIF185OEC	Operational Research
3	BEIF185OEA	Electric Hybrid Vehicle Technology
4	BEIF185OED	Material Science

Open Elective Course -2**SEMESTER 6**

S.No	Sub.Code	Subject Name
1	BEIF186OEE	Radar and Navigation
2	BEIF186OEF	Human Resources Management
3	BEIF186OEG	Waste Water Management
4	BEIF186OEH	Computer Aided Design

Open Elective Course -3**SEMESTER 7**

S.No	Sub.Code	Subject Name
1	BEIF187OEI	Data Communication and Network Systems
2	BEIF187OEJ	Energy Harvesting Technology
3	BEIF187OEK	Disaster Management
4	BEIF187OEL	Battery Technology

Open Elective Course -4**SEMESTER 8**

S.No	Sub.Code	Subject Name
1	BEIF188OEL	Data Compression Techniques
2	BEIF188OEM	Satellite Communication
3	BEIF188OEN	Entrepreneurship Development
4	BEIF188OEO	IoT in Automation

Optional Open Elective Course - Foreign Language

S.No	Sub.Code	Subject Name
1	BEIF1800EA	Japanese Primer
2	BEIF1800EB	French Primer
3	BEIF1800EC	German Primer