

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
CHOICE BASED CREDIT SYSTEM (CBCS)
SCHEME OF TEACHING AND EXAMINATION 2017-2018 (Approved)

B.E.: Electronics and Instrumentation Engineering

III SEMESTER

Sl. No.	Course Code	Title	Teaching Department	Teaching Hours /Week		Examination				Credits
				Theory	Practical/ Drawing	Duration (in Hrs)	SEE Marks	CIE Marks	Total Marks	
1	17MAT31	Engineering Mathematics-III	Mathematics	04	-	03	60	40	100	4
2	17EI32	Electronic Instrumentation and Measurements	EI	04	-	03	60	40	100	4
3	17EI33	Analog Electronic Circuits	EI	04	-	03	60	40	100	4
4	17EI34	Digital Design and HDL	EI	04	-	03	60	40	100	4
5	17EI35	Transducers and Instrumentation	EI	04	-	03	60	40	100	4
6	17EI36	Network Analysis	EI	03	-	03	60	40	100	3
7	17EIL37	Analog Electronic Circuits Lab	EI	-	1Hr-Instruction 2Hr-Practical	03	60	40	100	2
8	17EIL38	Digital Design and HDL Lab	EI	-	1Hr-Instruction 2Hr-Practical	03	60	40	100	2
9	17KL / CPH39/49	Kannada / Constitution of India, Professional Ethics and Human Rights	Humanities	01		01	30	20	50	1
TOTAL				24	6	25	510	340	850	28

1. Kannada/Constitution of India, Professional Ethics and Human Rights: 50 % of the programs of the Institution have to teach Kannada/Constitution of India, Professional Ethics and Human Rights in cycle based concept during III and IV semesters.

2. Audit Course:

(i) *All lateral entry students (except B.Sc. candidates) have to register for Additional Mathematics – I, which is 03 contact hours per week.

1	17MATDIP31	Additional Mathematics –I	Mathematics	03	--	03	60	--	60	--
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(ii) Language English (Audit Course) be compulsorily studied by all lateral entry students (except B.Sc. candidates)

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IV SEMESTER

Sl. No	Subject Code	Title	Teaching Department	Teaching Hours /Week		Examination				Credits
				Theory	Practical/ Drawing	Duration (in Hrs)	SEE Marks	CIE Marks	Total Marks	
1	17MAT41	Engineering Mathematics-IV	Mathematics	04	-	03	60	40	100	4
2	17EI42	Signal Conditioning and Data Acquisition Circuits	EI	04	-	03	60	40	100	4
3	17EI43	Embedded Controllers	EI	04	-	03	60	40	100	4
4	17EI44	Control Systems	EI	04	-	03	60	40	100	4
5	17EI45	Process Instrumentation	EI	04	-	03	60	40	100	4
6	17EI46	Scientific and Analytical Instrumentation	EI	03	-	03	60	40	100	3
7	17EIL47	Embedded Controllers Lab	EI	-	1Hr-Instruction 2Hr-Practical	03	60	40	100	2
8	17EIL48	Instrumentation and Measurements Lab	EI	-	1Hr-Instruction 2Hr-Practical	03	60	40	100	2
9	17KL / CPH39/49	Kannada / Constitution of India, Professional Ethics and Human Rights	Humanities	01		01	30	20	50	1
TOTAL				24	06	25	510	340	850	28

1. Kannada/Constitution of India, Professional Ethics and Human Rights: 50 % of the programs of the Institution have to teach Kannada/Constitution of India, Professional Ethics and Human Rights in cycle based concept during III and IV semesters.

2. Audit Course:

(i) *All lateral entry students (except B.Sc. candidates) have to register for Additional Mathematics – I, which is 03 contact hours per week.

1	17MATDIP41	Additional Mathematics –II	Mathematics	03	--	03	60	--	60	--
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(ii) Language English (Audit Course) be compulsorily studied by all lateral entry students (except B.Sc. candidates)

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V SEMESTER

Sl. No	Subject Code	Title	Teaching Department	Teaching Hours /Week		Examination				Credits
				Theory	Practical/ Drawing	Duration (in Hrs)	SEE Marks	CIE Marks	Total Marks	
1	17ES51	Management and Entrepreneurship Development	EI / Humanities	04	-	03	60	40	100	4
2	17EI52	Fundamentals of Signals & DSP	EI	04	-	03	60	40	100	4
3	17EI53	Process Control Systems	EI	04	-	03	60	40	100	4
4	17EI54	Biomedical Instrumentation	EI	04	-	03	60	40	100	4
5	17EI55X	Professional Elective-I	EI	03	-	03	60	40	100	3
6	17EI56X	Open Elective-I	EI	03	-	03	60	40	100	3
7	17EIL57	Signal Conditioning Circuits and Data Acquisition Lab.	EI	-	1Hr-Instruction 2Hr-Practical	03	60	40	100	2
8	17EIL58	Digital Signal Processing Lab.	EI	-	1Hr-Instruction 2Hr-Practical	03	60	40	100	2
TOTAL				22	06	24	480	320	800	26

Professional Elective-I		Open Elective-I	
17EI551	VLSI Design	17EI561	Computer Organization
17EI552	Aeronautical Instrumentation	17EI562	Material Science
17EI553	Remote Sensing and Telemetry	17EI563	Operating Systems
17EI554	Product Design Technology & Ergonomics	17EI564	Fundamentals of Nanotechnology
		17NC561	Essentials of NCC (common to all branches)

***Students can select any one of the open electives offered by any Department (Please refer to consolidated list of VTU for open electives).

Selection of an open elective is not allowed, if:

- The candidate has no pre – requisite knowledge.
- The candidate has studied similar content course during previous semesters.
- The syllabus content of the selected open elective is similar to that of Departmental core course(s) or to be studied Professional elective(s).

Registration to open electives shall be documented under the guidance of Programme Coordinator and Adviser.

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VI SEMESTER

Sl. No	Subject Code	Title	Teaching Department	Teaching Hours /Week		Examination				Credits
				Theory	Practical/ Drawing	Duration (in Hrs)	SEE Marks	CIE Marks	Total Marks	
1	17EI61	Analog and Digital Communication Systems	EI	04	-	03	60	40	100	4
2	17EI62	Power and Industrial Electronics	EI	04	-	03	60	40	100	4
3	17EI63	OOPs with C++	EI	04	-	03	60	40	100	4
4	17EI64	Robotics and Automation	EI	04	-	03	60	40	100	4
5	17EI65X	Professional Elective-II	EI	03	-	03	60	40	100	3
6	17EI66X	Open Elective-II	EI	03	-	03	60	40	100	3
7	17EIL67	Power Electronics, Controls and Communication Lab	EI	-	1Hr-Instruction 2Hr-Practical	03	60	40	100	2
8	17EIL68	OOPs with C++ Lab	EI	-	1Hr-Instruction 2Hr-Practical	03	60	40	100	2
TOTAL				22	6	24	480	320	800	26

Professional Elective-II		Open Elective-II	
17EI651	Mechatronics	17EI661	Mobile Communication
17EI652	Power Plant Instrumentation	17EI662	MEMS and NEMS
17EI653	Advanced Control Systems	17EI663	Embedded System Design and Programming
17EI654	Electrical Machines and Drives	17EI664	Statistics and Numerical Methods
		17CS661	Mobile Application Development (common to all branches)

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- The candidate has studied similar content course during previous semesters.
- The syllabus content of the selected open elective is similar to that of Departmental core course(s) or to be studied Professional elective(s).

Registration to open electives shall be documented under the guidance of Programme Coordinator and Adviser.

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Sl. No	Subject Code	Title	Teaching Department	Teaching Hours /Week		Examination				Credits
				Theory	Practical/ Drawing	Duration (in Hrs)	SEE Marks	CIE Marks	Total Marks	
1	17EI71	Automation in Process Control	EI	04	-	03	60	40	100	4
2	17EI72	Digital Image Processing	EI	04	-	03	60	40	100	4
3	17EI73	ARM Processor	EI	04	-	03	60	40	100	4
4	17EI74X	Professional Elective-III	EI	03	-	03	60	40	100	3
5	17EI75X	Professional Elective-IV	EI	03	-	03	60	40	100	3
6	17EIL76	Process Control and Virtual Instrumentation Lab	EI	-	1Hr-Instruction 2Hr-Practical	03	60	40	100	2
7	17EIL77	ARM Processor Lab	EI	-	1Hr-Instruction 2Hr-Practical	03	60	40	100	2
8	17EIP78	Project Work Phase-I + Project Seminar	EI	-	03	--	--	100	100	2
TOTAL				18	9	21	420	380	800	24

Professional Elective-III		Professional Elective-IV	
17EI741	Smart Sensors and Intelligent Instrumentation	17EI751	Distributed Sensor Networks
17EI742	Biomedical Signal Processing	17EI752	Medical Imaging Techniques
17EI743	Computer Communication Networks	17EI753	Virtual Instrumentation
17EI744	Real-time Operating Systems	17EI754	Big Data and Cloud Computing

- **Project Phase – I and Project Seminar:** Comprises of Literature Survey, Problem identification, Objectives and Methodology. CIE marks shall be based on the report covering Literature Survey, Problem identification, Objectives and Methodology and Seminar presentation skill.

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VIII SEMESTER

Sl. No	Subject Code	Title	Teaching Department	Teaching Hours /Week		Examination				Credit
				Theory	Practical/ Drawing	Duration (in Hrs)	SEE Marks	CIE Marks	Total Marks	
1	17EI81	Neural Network and Fuzzy Logic Systems	EI	4	-	3	60	40	100	4
2	17EI82	Lasers and Optical Instrumentation	EI	4	-	3	60	40	100	4
3	17EI83X	Professional Elective-V	EI	3	-	3	60	40	100	3
4	17EI84	Internship / Professional Practice	EI	Industry Oriented		3	50	50	100	2
5	17EIP85	Project Work Phase-II	EI	-	6	3	100	100	200	6
6	17EIS86	Seminar	EI	-	4	-	-	100	100	1
TOTAL				11	10	15	330	370	700	20

Professional Elective-V	
17EI831	Instrumentation Buses and Industrial Data Networks
17EI832	Industrial Process Instrumentation
17EI833	Biosensors and Bio-instrumentation
17EI834	Programmable System on Chip (PSoC)

- **Internship / Professional Practice:** The 4 Weeks internship to be completed between the VI and VII semester vacation, and/or VII and VIII semester vacation period.