

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELGAUM
SCHEME OF TEACHING AND EXAMINATION

I SEMESTER B.E./B.Tech.

PHYSICS GROUP

Sl. No.	Subject Code	Subject	Teaching Department	Board	Theory /Lab/ Drawing (Hrs/ Week)	Examination Marks		
						Th./Pr.	I.A.	Total
1	14MAT11	Engineering Maths-I	Maths	Basic Sc.	4 (T)	100	25	125
2	14PHY12	Engineering Physics	Physics	Basic Sc.	4 (T)	100	25	125
3	14CIV13	Elements of Civil Engg. & Engineering Mechanics	Civil Engg.	Civil Engg.	4 (T)	100	25	125
4	14EME14	Elements of Mechanical Engg.	Mech. Engg.	Mech. Engg.	4 (T)	100	25	125
5	14ELE15	Basic Electrical Engg.	E & E	E & E	4 (T)	100	25	125
6	14WSL16	Workshop Practice	Mech., Auto. IP, IEM, Mfg. Engg.	Mech. Engg.	3 (L)	50	25	75
7	14PHYL17	Engg. Physics Lab	Physics	Basic Sc.	3 (L)	50	25	75
8	14CIP18	*Constitution of India & Professional Ethics	Any Department		2 (T)	50	25	75
9		Language (Kan.)	Humanities		2 (T)	---	---	---
Total					30	**600	**175	775

II SEMESTER B.E./B.Tech.

PHYSICS GROUP

Sl. No.	Subject Code	Subject	Teaching Department	Board	Theory /Lab/ Drawing (Hrs/ Week)	Examination Marks		
						Th./Pr.	I.A.	Total
1	14MAT21	Engineering Maths-II	Maths	Basic Sc.	4 (T)	100	25	125
2	14PHY22	Engineering Physics	Physics	Basic Sc.	4 (T)	100	25	125
3	14CIV23	Elements of Civil Engg. & Engineering Mechanics	Civil Engg.	Civil Engg.	4 (T)	100	25	125
4	14EME24	Elements of Mechanical Engg.	Mech. Engg.	Mech. Engg.	4 (T)	100	25	125
5	14ELE25	Basic Electrical Engg.	E & E	E & E	4 (T)	100	25	125
6	14WSL26	Workshop Practice	Mech./IP/Auto/ Mfg. Engg. / IEM	Mech. Engg.	3 (L)	50	25	75
7	14PHYL27	Engg. Physics Lab	Physics	Basic Sc.	3 (L)	50	25	75
8	14CIP28	*Constitution of India & Professional Ethics	Any Department	Civil	2 (T)	50	25	75
9		Language (Kan.)	Humanities		2 (T)	---	---	---
Total					30	**600	**175	775

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I SEMESTER B.E./B.Tech.

CHEMISTRY GROUP

Sl. No.	Subject Code	Subject	Teaching Department	Board	Theory /Lab/ Drawing (Hrs/ Week)	Examination Marks		
						Th./Pr.	L.A.	Total
1	14MAT11	Engineering Maths-I	Maths	Basic Sc.	4 (T)	100	25	125
2	14CHE12	Engineering Chemistry	Chemistry	Basic Sc.	4 (T)	100	25	125
3	14PCD13	Programming in C & Data Structures	Any Engineering Department	CSE	4 (T)	100	25	125
4	14CED14	Computer Aided Engineering Drawing	Mech./IP/Auto/ Mfg.Engg./ IEM	Mech. Engg.	6 (2T + 4L)	100	25	125
5	14ELN15	Basic Electronics	E & C / E & E / TC / IT	E & C	4 (T)	100	25	125
6	14CPL16	Computer Programming Lab	Any Engineering Department	CSE	3 (L)	50	25	75
7	14CHE17	Engg. Chemistry Lab	Chemistry	Basic Sc.	3 (L)	50	25	75
8	14CIV18	*Environmental Studies	Civil / Environmental	Civil	2 (T)	50	25	75
9		Language (Eng.)	Humanities		2 (T)	---	---	---
Total					32	**600	**175	775

II SEMESTER B.E./B.Tech.

CHEMISTRY GROUP

Sl. No.	Subject Code	Subject	Teaching Department	Board	Theory /Lab/ Drawing (Hrs/ Week)	Examination Marks		
						Th./Pr.	L.A.	Total
1	14MAT21	Engineering Maths-II	Maths	Basic Sc.	4 (T)	100	25	125
2	14CHE22	Engineering Chemistry	Chemistry	Basic Sc.	4 (T)	100	25	125
3	14PCD23	Programming in C & Data Structures	Any Engineering Department	CSE	4 (T)	100	25	125
4	14CED24	Computer Aided Engineering Drawing	Mech./IP/Auto/ Mfg.Engg./ IEM	Mech. Engg.	6 (2T + 4L)	100	25	125
5	14ELN25	Basic Electronics	E & C / E & E / TC / IT	E & C	4 (T)	100	25	125
6	14CPL26	Computer Programming Lab	Any Engineering Department	CSE	3 (L)	50	25	75
7	14CHE27	Engg. Chemistry Lab	Chemistry	Basic Sc.	3 (L)	50	25	75
8	14CIV28	*Environmental Studies	Civil / Environmental	Civil	2 (T)	50	25	75
9		Language (Eng.)	Humanities		2 (T)	---	---	---
Total					32	**600	**175	775

* CIP/Env.Engg. : Question Papers will be of Objective Type. Students have to pass the subject compulsorily, however marks will not be considered for awarding class / rank.

**Excluding Environmental Studies/Constitution of India & Professional Ethics

Language (Kan./Eng.) – Audit Course

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VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELGAUM
CHOICE BASED CREDIT SYSTEM (CBCS)
SCHEME OF TEACHING AND EXAMINATION 2015-2016

1 SEMESTER B.E./B.TECH.

Sl. No.	Subject Code	Subject		Teaching Department	Board	Theory /Lab/ Drawing (Hrs/ Week)	Examination Marks			Credits
							Th/P/L	LA	Total	
1	15MAT11	Engineering Maths-I	BS	Maths	Basic Sc.	4 (T)	80	20	100	4
2	15PHY12	Engineering Physics	BS	Physics	Basic Sc.	4 (T)	80	20	100	4
3	15CIV13	Elements of Civil Engg. & Mechanics	ES	Civil Engg.	Civil Engg.	4 (T)	80	20	100	4
4	15EME14	Elements of Mechanical Engg.	ES	Mech. Engg.	Mech. Engg.	4 (T)	80	20	100	4
5	15ELE15	Basic Electrical Engg.	ES	E & E	E & E	4 (T)	80	20	100	4
6	15WSL16	Workshop Practice	ES	Mech., Auto, IP, IEM, Mfg. Engg.	Mech. Engg.	3(2 hrs lab+ 1 hr instruction)	80	20	100	2
7	15PHYL17	Engg. Physics Lab	BS	Physics	Basic Sc.	3(2 hrs lab+ 1 hr instruction)	80	20	100	2
8	15CPH18	Constitution of India, Professional Ethics and Human Rights (CPH)	MNC	Humanities		2 (Tutorial)	80	10	50	--
9		Language (Kan.)	Mandatory Learning	Humanities		1 (T)	-	-	-	--
						29	800	150	750	24

Note: The Subjects Kannada and English are Audit Courses

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Karnataka

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELGAUM
CHOICE BASED CREDIT SYSTEM (CBCS)
SCHEME OF TEACHING AND EXAMINATION 2015-2016

II SEMESTER B.E./B.TECH.

Sl. No.	Subject Code	Subject		Teaching Department	Board	Theory Lab/ Drawing (Hrs/ Week)	Examination Marks			Credits
							Th./Pr	LA.	Total	
1	15MAT21	Engineering Maths-II	BS	Maths	Basic Sc.	4 (T)	80	20	100	4
2	15PHY22	Engineering Physics	BS	Physics	Basic Sc.	4 (T)	80	20	100	4
3	15CIV23	Elements of Civil Engg. & Mechanics	ES	Civil Engg.	Civil Engg.	4 (T)	80	20	100	4
4	15EME24	Elements of Mechanical Engg.	ES	Mech. Engg.	Mech. Engg.	4 (T)	80	20	100	4
5	15ELE25	Basic Electrical Engg.	ES	E & E	E & E	4 (T)	80	20	100	4
6	15WSL26	Workshop Practice	ES	Mech., Auto, IP, IEM, Mfg. Engg.	Mech. Engg.	3(2 hrs lab+ 1 hr instruction)	80	20	100	2
7	15PHYL27	Engg. Physics Lab	BS	Physics	Basic Sc.	3(2 hrs lab+ 1 hr instruction)	80	20	100	2
8	15CPH28	Constitution of India, Professional Ethics and Human Rights	MNC	Humanities		2 (Tutorial)	40	10	50	--
9		Language (Kan.)	Mandatory Learning	Humanities		(T)	-	-	-	--
						29	600	150	750	24

Note: The Subjects Kannada and English are Audit Courses



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SCHEME OF TEACHING AND EXAMINATION 2015-2016

I SEMESTER B.E./B.TECH.

CHEMISTRY GROUP

Sl. No.	Subject Code	Subject		Teaching Department	Board	Theory /Lab/ Drawing (Hrs/ Week)	Examination Marks			Credits
							Th./Pr.	L.A.	Total	
1	15MAT11	Engineering Maths-I	B5	Maths	Basic Sc.	4 (T)	80	20	100	4
2	15CHE12	Engineering Chemistry	B5	Chemistry	Basic Sc.	4 (T)	80	20	100	4
3	15PCD13	Programming in C & Data Structures	E5	Any Engineering Department	CSE	4 (T)	80	20	100	4
4	15CED14	Computer Aided Engineering Drawing	E5	Mech./IP/Auto/ Mfg Engg./ IEM	Mech. Engg.	6 (2I+4P)	80	20	100	4
5	15ELN15	Basic Electronics	E5	E & C / E & E / TC / IT	E & C	4 (T)	80	20	100	4
6	15CPL16	Computer Programming Lab	E5	Any Engineering Department	CSE	3(2 hrs lab+ 1 hr Tutorial)	80	20	100	2
7	15CHE17	Engg. Chemistry Lab	E5	Chemistry	Basic Sci.	3(2 hrs lab+ 1 hr Tutorial)	80	20	100	2
8	15CIV18	Environmental Studies	NMC	Civil / Environmental	Civil	2 (Tutorial)	40	10	50	--
9		Language (Eng.)	Mandatory Learning	Humanities		1 (T)	-	-	-	--
Total						31	600	150	750	24

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SCHEME OF TEACHING AND EXAMINATION 2015-2016

II SEMESTER B.E./B.TECH.

CHEMISTRY GROUP

Sl. No.	Subject Code	Subject		Teaching Department	Board	Theory /Lab/ Drawing (Hrs/ Week)	Examination Marks			Credits
							Th./Pr.	L/A	Total	
1	15MAT21	Engineering Maths-II	BS	Maths	Basic Sc.	4 (T)	80	20	100	4
2	15CHE22	Engineering Chemistry	BS	Chemistry	Basic Sc.	4 (T)	80	20	100	4
3	15PCD23	Programming in C & Data Structures	ES	Any Engineering Department	CSE	4 (T)	80	20	100	4
4	15CED24	Computer Aided Engineering Drawing	ES	Mech./ P/Auto/ Mfg Er gg / IEM	Mech. Engg.	6 (2I+ 4P)	80	20	100	4
5	15ELN25	Basic Electronics	ES	E & C / E & E / TC / IT	E & C	4 (T)	80	20	100	4
6	15CPL26	Computer Programming Lab	ES	Any Engineering Department	CSE	3(2 hrs lab+ 1 hr Tutorial)	80	20	100	2
7	15CHEL27	Engg. Chemistry Lab	ES	Chemistry	Basic Sc.	3(2 hrs lab+ 1 hr Tutorial)	80	20	100	2
8	15CIV28	Environmental Studies	MNC	Civil / Environmental	Civil	2 (Tutorial)	40	10	50	--
9		Language (Eng.)	Mandatory Learning	Humanities		1 (T)	-	-	-	--
Total						31	600	100	750	24

Note: The Subjects Kannada and English are Audit Courses


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VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELGAUM
CHOICE BASED CREDIT SYSTEM (CBCS)
SCHEME OF TEACHING AND EXAMINATION 2015-2016

B.E.-BIOTECHNOLOGY

III SEMESTER

Sl No.	Subject Code	Title	Teaching Dept.	Teaching Hours/Week		Duration	Examination			Credits
				Theory	Practical/ Drawing		I.A. Marks	Theory/ Practical Marks	Total Marks	
1	15MAT-31	Mathematics-III	Mathematics	04		03	20	80	100	4
2	15BT-32	Unit Operations	BT/CHE	04		03	20	80	100	4
3	15BT-33	Biochemistry	BT	04		03	20	80	100	4
4	15BT-34	Microbiology	BT	04		03	20	80	100	4
5	15BT-35	Cell Biology and Genetics	BT	04		03	20	80	100	4
6	15BT-36	Basics of Computer Applications	BT/CSE/ISE/ MCA	04		03	20	80	100	4
7	15BTL-37	Unit Operations Lab	BT/CHE/ME		2L+1I	03	20	80	100	2
8	15BTL-38	Microbiology Lab	BT		2L+1I	03	20	80	100	2
TOTAL				24	06	24	160	640	800	28


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SCHEME OF TEACHING AND EXAMINATION 2015-2016

B.E.-BIOTECHNOLOGY

IV SEMESTER

Sl No.	Subject Code	Title	Teaching Dept.	Teaching Hours/Week		Duration	Examination			Credits
				Theory	Practical/ Drawing		I.A. Marks	Theory/ Practical Marks	Total Marks	
1	15BT-41	Biostatistics and Biomodeling	Mathematics/ BT	04		03	20	80	100	4
2	15BT-42	Biochemical Thermodynamics	BT/CHE/ME	04		03	20	80	100	4
3	15BT-43	Molecular Biology	BT	04		03	20	80	100	4
4	15BT-44	Bioprocess Principles and Calculations	BT/CHE	04		03	20	80	100	4
5	15BT-45	Structural Biology	BT	04		03	20	80	100	4
6	15BT-46	Clinical Biochemistry	BT	04		03	20	80	100	4
7	15BTL-47	Cell and Molecular Biology Lab	BT		2L+1I	03	20	80	100	2
8	15BTL-48	Clinical Biochemistry Lab	BT		2L+1I	03	20	80	100	2
TOTAL				24	06	24	160	640	800	28


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VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
CHOICE BASED CREDIT SYSTEM (CBCS)
SCHEME OF TEACHING AND EXAMINATION 2015-16

B.E. Biotechnology

V Semester

Sl No.	Subject Code	Title	Teaching Hours/Week			Examination				Credits
			Lecture	Tutorial	Practical /Drawing	Duration	I.A. Marks	Theory /Practical Marks	Total Marks	
1	15BT51	Bio-Kinetics and Bio-reaction Engineering	4	0	0	3	20	80	100	4
2	15BT52	Genetic Engineering and Applications	4	0	0	3	20	80	100	4
3	15BT53	Immunotechnology	4	0	0	3	20	80	100	4
4	15BT54	Bioinformatics	4	0	0	3	20	80	100	4
5	15BT55X	Professional Elective - 1	3	0	0	3	20	80	100	3
6	15BT56X	Open Elective - 1	3	0	0	3	20	80	100	3
7	15BTL57	Genetic Engg. And Immunotechnology Lab	0	0	3	3	20	80	100	2
8	15BTL58	Bioinformatics Lab	0	0	3	3	20	80	100	2
TOTAL			22	0	6	-	160	640	800	26

Professional Elective - 1		Open Elective - 1	
15BT551	Microbial BT	15BT561	Biology for Engineers
15BT552	Transport Phenomena	15BT562	Biomaterials
15BT553	Animal BT	15BT563	BT for Sustainable Environment
15BT554	Bio-molecular Engineering		

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CHOICE BASED CREDIT SYSTEM (CBCS)
SCHEME OF TEACHING AND EXAMINATION 2015-16
B.E. Biotechnology

VI Semester

Sl No.	Subject Code	Title	Teaching Hours/Week			Examination			
			Lecture	Tutorial	Practical /Drawing	Duration	I.A. Marks	Theory /Practical Marks	Total Marks
1	15BT61	Bio-business and Entrepreneurship	4	0	0	3	20	80	100
2	15BT62	Bioprocess Control and Automation	4	0	0	3	20	80	100
3	15BT63	Enzyme Technology and Biotransformation	4	0	0	3	20	80	100
4	15BT64	Bioprocess Equipment Design & CAED	4	0	0	3	20	80	100
5	15BT65X	Professional Elective - 2	3	0	0	3	20	80	100
6	15BT66X	Open Elective - 2	3	0	0	3	20	80	100
7	15BTL67	Bioprocess Control and Automation Lab	0	0	3	3	20	80	100
8	15BTL68	Biokinetics and Enzyme Technology Lab	0	0	3	3	20	80	100
TOTAL			22	0	6	-	160	640	800
							26		

Professional Elective - 2		Open Elective - 2	
15BT651	Bio-Perl, Bio-Python	15BT661	Biological Data Management
15BT652	Cellular Microbiology	15BT662	GMP
15BT653	Cell Culture Techniques	15BT663	Nano BT
15BT654	Economics and Plant Design		

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VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
CHOICE BASED CREDIT SYSTEM (CBCS)
SCHEME OF TEACHING AND EXAMINATION 2015-16
B.E. Biotechnology

VII Semester

Sl No.	Subject Code	Title	Teaching Hours/Week			Examination			
			Lecture	Tutorial	Practical /Drawing	Duration	I.A. Marks	Theory /Practical Marks	Total Marks
1	15BT71	Fermentation Technology	4	0	0	3	20	80	100
2	15BT72	Genomics and Proteomics	4	0	0	3	20	80	100
3	15BT73	Agri and Food BT	4	0	0	3	20	80	100
4	15BT74X	Professional Elective - 3	3	0	0	3	20	80	100
5	15BT75X	Professional Elective - 4	3	0	0	3	20	80	100
6	15BTL76	Fermentation Technology Lab	0	0	3	3	20	80	100
7	15BTL77	Agri & Pharma BT lab	0	0	3	3	20	80	100
8	15BT78	Project Phase -1 + Seminar	-	-	-	3	100	-	100
TOTAL			18	0	6	-	240	560	800
									24

Professional Elective - 3		Professional Elective - 4	
15BT741	Health Information	15BT751	Diary BT
15BT742	Bioreactor Design Concepts	15BT752	Forensic Sciences
15BT743	Lab to Industrial Scaling	15BT753	Molecular Diagnostics
15BT744	Biomedical Instrumentation	15BT754	Big Data Management

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CHOICE BASED CREDIT SYSTEM (CBCS)
SCHEME OF TEACHING AND EXAMINATION 2015-16
B.E. Biotechnology

VIII Semester

Sl No.	Subject Code	Title	Teaching Hours/Week			Examination				Credits
			Lecture	Tutorial	Practical /Drawing	Duration	I.A. Marks	Theory /Practical Marks	Total Marks	
1	15BT81	Clinical and Pharmaceutical Biotechnology	4	0	0	3	20	80	100	4
2	15BT82	Regulatory affairs in BT industry	3	0	0	3	20	80	100	4
3	15BT83X	Professional Elective - 5	3	0	0	3	20	80	100	3
4	15BT84	Internship/Professional Practice	-	-	-	3	50	50	100	2
5	15BT85X	Project Work Phase 2	-	-	-	3	100	100	200	6
6	15BTLS6	Seminar	-	-	-	3	100	-	100	1
TOTAL			10	0	0	-	310	390	700	20

Professional Elective - 5	
15BT831	Nanomaterials and toxicology
15BT832	Protein Engineering and In-Silico Drug Design
15BT833	Metabolic Engineering
15BT834	Environmental BT


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SCHEME OF TEACHING AND EXAMINATION 2015-2016

B.E. CIVIL ENGINEERING

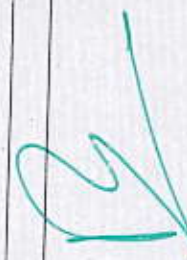
III SEMESTER

(Common to _____)

Sl. No	Subject Code	Title	Teaching Hours / Week			Duration	Examination			Credits
			Theory	Practical/ Drawing			Theory/ Practical Marks	L.A. Marks	Total Marks	
1	15CV31	Engineering Mathematics – III	04			03	80	20	100	4
2	15CV32	Strength of Materials	04			03	80	20	100	4
3	15CV33	Fluid Mechanics	04			03	80	20	100	4
4	15CV34	Basic Surveying	04			03	80	20	100	4
5	15CV35	Engineering Geology	04			03	80	20	100	4
6	15CV36	Building Materials and Construction	04			03	80	20	100	4
7	15CVL37	Building Materials Testing Laboratory		11+2P		03	80	20	100	4
8	15CVL38	Basic Surveying Practice		11+2P		03	80	20	100	2
TOTAL			24	6		24	640	160	800	28

Note:

Core Subjects:	15CV31, 15CV32, 15CV33, 15CV34, 15CV35, 15CV36
Laboratory & Practice:	15CVL37, 15CVL38


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SCHEME OF TEACHING AND EXAMINATION 2015-2016

B.E. CIVIL ENGINEERING

(Common to _____)

IV SEMESTER

Sl. No	Subject Code	Title	Teaching Hours / Week			Examination			
			Theory	Practical / Drawing	Duration	Theory/ Practical Marks	I.A. Marks	Total Marks	Credits
1	15CV 41	Engineering Mathematics – IV	04		03	80	20	100	4
2	15CV42	Analysis of Determinate Structures	04		03	80	20	100	4
3	15CV43	Applied Hydraulics	04		03	80	20	100	4
4	15CV 44	Concrete Technology	04		03	80	20	100	4
5	15CV45	Basic Geotechnical Engineering	04		03	80	20	100	4
6	15CV46	Advanced Surveying	04		03	80	20	100	4
7	15CVL47	Fluid Mechanics and Hydraulic Machines Laboratory		11+2P	03	80	20	100	4
8	15CVL48	Engineering Geology Laboratory		11+2P	03	80	20	100	2
TOTAL			24	06	24	040	100	800	28

Note:

Core Subjects: 15CV 41, 15CV42, 15CV43, 15CV 44, 15CV45, 15CV46
 Laboratory & Practice: 15CVL47, 15CVL48



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B.E. CIVIL ENGINEERING

V SEMESTER

Sl. No.	Subject Code	Title	Teaching Hours /Week		Examination			Credits
			Theory	Practical/ Drawing	Duration	Theory/ Practical Marks	L.A. Marks	Total Marks
1	15CV51	Design of RC Structural Elements	04		03	80	20	100
2	15CV52	Analysis of Indeterminate Structures	04		03	80	20	100
3	15CV53	Applied Geotechnical Engineering	04		03	80	20	100
4	15CV54	Computer Aided Building Planning and Drawing	01	3D	03	80	20	100
5	15CV55X	Professional Elective-1	03		03	80	20	100
6	15CV56X	Open Elective-1	03		03	80	20	100
7	15CVL57	Geotechnical Engineering Laboratory		11+2P	03	80	20	100
8	15CVL58	Concrete and Highway Materials Laboratory		11+2P	03	80	20	100
TOTAL			19	09	24	640	160	800

Professional Elective 1		Open Elective 1	
15CV551	Air pollution and Control	15CV561	Traffic Engineering
15CV552	Railways, Harbours, tunneling and Airports	15CV562	Sustainability Concepts in Engineering
15CV553	Masonry Structures	15CV563	Remote Sensing and GIS
15CV554	Theory of Elasticity	15CV564	Occupational Health and Safety
		15NC565	NCC

1. Professional Elective: Elective relevant to chosen specialization/ branch
2. Open Elective: Electives from other technical and/or emerging subject areas


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SCHEME OF TEACHING AND EXAMINATION 2015-2016

B.E. CIVIL ENGINEERING

VI SEMESTER

Sl. No.	Subject Code	Title	Teaching Hours/Week		Examination			Credits
			Theory	Practical/ Drawing	Duration	Theory/ Practical Marks	I.A. Marks	Total Marks
1	15CV61	Construction Management and Entrepreneurship	04		03	80	20	100
2	15CV62	Design of Steel Structural Elements	04		03	80	20	100
3	15CV63	Highway Engineering	04		03	80	20	100
4	15CV64	Water Supply and Treatment Engineering	04		03	80	20	100
5	15CV65X	Professional Elective 2	03		03	80	20	100
6	15CV66X	Open Elective 2	03		03	80	20	100
7	15CVL67	Software Application Lab		11+2P	03	80	20	100
8	15CVP68	Extensive Survey Project /Camp		11+2P	03	80	20	100
TOTAL			22	6	24	640	160	800
								26

Professional Elective-2		Open Elective-2	
15CV651	Solid Waste Management	15CV661	Water Resource Management
15CV652	Matrix Method of Structural Analysis	15CV662	Environmental Protection and Management
15CV653	Alternative Building Materials	15CV663	Numerical Methods and applications
15CV654	Ground Improvement Techniques	15CV664	Finite Element Analysis


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SCHEME OF TEACHING AND EXAMINATION 2015-2016

B.E. CIVIL ENGINEERING

VII SEMESTER

Sl. No.	Subject Code	Title	Teaching Hours /Week		Examination			Credits
			Theory	Practical/ Drawing	Duration	I.A. Marks	Theory/ Practical Marks	Total Marks
1	15CV71	Municipal and Industrial Waste Water Engineering	04		03	20	80	100
2	15CV72	Design of RCC and Steel Structures	04		03	20	80	100
3	15CV73	Hydrology and Irrigation Engineering	04		03	20	80	100
4	15CV74X	Professional Elective 3	03		03	20	80	100
5	15CV75X	Professional Elective 4	03		03	20	80	100
6	15CVL76	Environmental Engineering Laboratory		11+2P	03	20	80	100
7	15CVL77	Computer Aided Detailing of Structures		11+2D	03	20	80	100
8	15CVP78	Project Phase I + Project Seminar		3		100		100
TOTAL			18	9	21	240	560	800

Professional Elective 3		Professional Elective 4	
15CV741	Design of Bridges	15CV751	Urban Transportation and Planning
15CV742	Ground Water & Hydraulics	15CV752	Prefabricated Structures
15CV743	Design Concept of Building Services	15CV753	Rehabilitation and Retrofitting of Structures
15CV744	Structural Dynamics	15CV754	Reinforced Earth Structures

1. Project Phase-I + Seminar: Literature Survey, Problem Identification, objectives and Methodology, Submission of synopsis and seminar

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SCHEME OF TEACHING AND EXAMINATION 2015-2016
B.E. CIVIL ENGINEERING

VIII SEMESTER

Sl. No.	Subject Code	Title	Teaching Hours /Week		Examination			Credits
			Theory	Practical/ Drawing	Duration	L.A. Marks	Theory/ Practical Marks	Total Marks
1	15CV81	Quantity Surveying and Contracts Management	4	-	3	20	80	100
2	15CV82	Design of Pre Stressed Concrete Elements	4	-	3	20	80	100
3	15CV83X	Professional Elective 5	3	-	3	20	80	100
4	15CV84	Internship/Professional Practice	Industry Oriented		3	50	50	100
5	15CVP85	Project Work	-	6	3	100	100	200
6	15CVS86	Seminar on current trends in Engineering and Technology	-	4	-	100	-	100
TOTAL			11	10	15	310	390	700
								20

Professional Elective 5

15CV831	Earthquake Engineering
15CV832	Hydraulic Structures
15CV833	Pavement Design
15CV834	Advanced Foundation Design


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CHOICE BASED CREDIT SYSTEM (CBCS)
SCHEME OF TEACHING AND EXAMINATION 2015-2016

B.E. Computer Science & Engineering/ B.E. Information Science & Engineering

III SEMESTER

SL. No	Subject Code	Title	Teaching Hours /Week		Examination			Credits
			Theory	Practical/ Drawing	Duration	Theory/ Practical Marks	I.A. Marks	Total Marks
1	15MAT31	Engineering Mathematics - III	04	--	03	80	20	100
2	15CS32	Analog and Digital Electronics	04	--	03	80	20	100
3	15CS33	Data Structures and Applications	04	--	03	80	20	100
4	15CS34	Computer Organization	04	--	03	80	20	100
5	15CS35	Unix and Shell Programming	04	--	03	80	20	100
6	15CS36	Discrete Mathematical Structures	04	--	03	80	20	100
7	15CSL37	Analog and Digital Electronics Laboratory	--	11+2P	03	80	20	100
8	15CSL38	Data Structures Laboratory	--	11+2P	03	80	20	100
TOTAL			24	6	24	640	160	800
								28

Note: 'T' Stands for Instruction Hours and 'P' for practical Hours


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VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
CHOICE BASED CREDIT SYSTEM (CBCS)
SCHEME OF TEACHING AND EXAMINATION 2015-2016

B.E. Computer Science & Engineering/ B.E. Information Science & Engineering

IV SEMESTER

Sl. No	Subject Code	Title	Teaching Hours /Week		Duration	Examination		Credits
			Theory	Practical/ Drawing		Theory/ Practical I Marks	I.A. Marks	
1	15MAT41	Engineering Mathematics - IV	04	--	03	80	20	4
2	15CS 42	Software Engineering	04	--	03	80	20	4
3	15CS43	Design and Analysis of Algorithms	04	--	03	80	20	4
4	15CS 44	Microprocessors and Microcontrollers	04	--	03	80	20	4
5	15CS45	Object Oriented Concepts	04	--	03	80	20	4
6	15CS46	Data Communication	04	--	03	80	20	4
7	15CSL47	Design and Analysis of Algorithm Laboratory	--	11+2P	03	80	20	2
8	15CSL48	Microprocessors Laboratory	--	11+2P	03	80	20	2
TOTAL			24	06	24	640	160	28

Note: 'T' Stands for Instruction Hours and 'P' for practical Hours


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VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
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SCHEME OF TEACHING AND EXAMINATION 2015-2016

B.E. Computer Science & Engineering

V SEMESTER

Sl. No	Subject Code	Title	Teaching Hours /Week		Duration	Examination			Credits
			Theory	Practical/ Drawing		Theory/ Practical Marks	I.A. Marks	Total Marks	
1	15CS51	Management and Entrepreneurship for IT Industry	04	--	03	80	20	100	4
2	15CS52	Computer Networks	04	--	03	80	20	100	4
3	15CS53	Database Management System	04	--	03	80	20	100	4
4	15CS54	Automata theory and Computability	04	--	03	80	20	100	4
5	15CS55x	Professional Elective 1	03	--	03	80	20	100	3
6	15CS56x	Open Elective 1	03	--	03	80	20	100	3
7	15CSL57	Computer Network Laboratory	--	1I+2P	03	80	20	100	2
8	15CSL58	DBMS Laboratory with mini project	--	1I+2P	03	80	20	100	2
TOTAL			22	6	24	640	160	800	26

Professional Elective 1	
15CS551	Object Oriented Modeling and Design
15CS552	Introduction to Software Testing
15CS553	Advanced JAVA and J2EE
15CS554	Advanced Algorithms

1. Professional Elective: Electives relevant to chosen specialization / branch
2. Open Elective: Electives from other technical and/or emerging subject areas (Announced separately)


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SCHEME OF TEACHING AND EXAMINATION 2015-2016
B.E. Computer Science & Engineering

VI SEMESTER

Sl. No	Subject Code	Title	Teaching Hours /Week		Duration	Examination			Credits
			Theory	Practical/ Drawing		Theory/ Practical Marks	I.A. Marks	Total Marks	
1	15CS61	Cryptography, Network Security and Cyber Law	04	--	03	80	20	100	4
2	15CS62	Computer Graphics and Visualization	04	--	03	80	20	100	4
3	15CS63	System Software and Compiler Design	04	--	03	80	20	100	4
4	15CS64	Operating Systems	04	--	03	80	20	100	4
5	15CS65x	Professional Elective 2	03	--	03	80	20	100	3
6	15CS66x	Open Elective 2	03	--	03	80	20	100	3
7	15CSL67	System Software and Operating System Laboratory	--	11+2P	03	80	20	100	2
8	15CSL68	Computer Graphics Laboratory with mini project	--	11+2P	03	80	20	100	2
TOTAL,			22	6	24	640	160	800	26

Professional Elective 2	
15CS651	Data Mining and Data Warehousing
15CS652	Software Architecture and Design Patterns
15CS653	Operations research
15CS654	Distributed Computing system

1. Professional Elective: Electives relevant to chosen specialization / branch
2. Open Elective: Electives from other technical and/or emerging subject areas (Announced separately)


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VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
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SCHEME OF TEACHING AND EXAMINATION 2015-2016

B.E. Computer Science & Engineering

VII SEMESTER

Sl. No	Subject Code	Title	Teaching Hours /Week		Duration	Examination		Credits
			Theory	Practical/ Drawing		I.A. Marks	Theory/ Practical Marks	
1	15CS71	Web Technology and its applications	04	--	03	20	80	4
2	15CS72	Advanced Computer Architectures	04	--	03	20	80	4
3	15CS73	Machine Learning	04	--	03	20	80	4
4	15CS74x	Professional Elective 3	03	--	03	20	80	3
5	15CS75x	Professional Elective 4	03	--	03	20	80	3
6	15CSL76	Machine Learning Laboratory	--	1I+2P	03	20	80	2
7	15CSL77	Web Technology Laboratory with mini project	--	1I+2P	03	20	80	2
8	15CSP78	Project Phase 1 + Seminar	--	--	--	100	--	2
TOTAL			18	6	21	240	560	24

Professional Elective 3		Professional Elective 4	
15CS741	Natural Language Processing	15CS751	Soft and Evolutionary Computing
15CS742	Cloud Computing and its Applications	15CS752	Computer Vision and Robotics
15CS743	Information and Network Security	15CS753	Digital Image Processing
15CS744	Unix System Programming	15CS754	Storage Area Networks

1. Professional Elective: Electives relevant to chosen specialization / branch
2. Project Phase 1 + Seminar : Literature Survey, Problem Identification, Objectives and Methodology, Submission of Synopsis and Seminar

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
CHOICE BASED CREDIT SYSTEM (CBCS)
SCHEME OF TEACHING AND EXAMINATION 2015-2016

B.E. Computer Science & Engineering
 VIII SEMESTER

Sl. No	Subject Code	Title	Teaching Hours /Week		Examination			Credits
			Theory	Practical/ Drawing	Duration	L.A. Marks	Theory/ Practical Marks	Total Marks
1	15CS81	Internet of Things and Applications	4	--	3	20	80	100
2	15CS82	Big Data Analytics	4	--	3	20	80	100
3	15CS83x	Professional Elective 5	3	--	3	20	80	100
4	15CS84	Internship / Professional Practice	Industry Oriented		3	50	50	100
5	15CSP85	Project work phase II	--	6	3	100	100	200
6	15CSS86	Seminar	--	4	--	100	--	100
TOTAL			11	10	15	310	390	700

Professional Elective 5	
15CS831	High Performance Computing
15CS832	User Interface Design
15CS833	Network management
15CS834	System Modelling and Simulation

1. Professional Elective: Electives relevant to chosen specialization / branch
2. Internship / Professional Practice: To be carried out between 6th and 7th semester vacation or 7th and 8th semester vacation period


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SCHEME OF TEACHING AND EXAMINATION 2015-2016

B.E. Computer Science & Engineering/ B.E. Information Science & Engineering

III SEMESTER

Sl. No	Subject Code	Title	Teaching Hours /Week		Examination				Credits
			Theory	Practical/ Drawing	Duration	Theory/ Practical Marks	I.A. Marks	Total Marks	
1	15MAT31	Engineering Mathematics - III	04	--	03	80	20	100	4
2	15CS32	Analog and Digital Electronics	04	--	03	80	20	100	4
3	15CS33	Data Structures and Applications	04	--	03	80	20	100	4
4	15CS34	Computer Organization	04	--	03	80	20	100	4
5	15CS35	Unix and Shell Programming	04	--	03	80	20	100	4
6	15CS36	Discrete Mathematical structures	04	--	03	80	20	100	4
7	15CSL37	Analog and Digital Electronics Laboratory	--	11+2P	03	80	20	100	2
8	15CSL38	Data Structures Laboratory	--	11+2P	03	80	20	100	2
TOTAL			24	6	24	640	160	800	28

Note : T Stands for Instruction Hours and P for practical Hours


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CREDIT SYSTEM (CS)
SCHEME OF TEACHING AND EXAMINATION 2015-2016

B.E. Computer Science & Engineering/ B.E. Information Science & Engineering

IV SEMESTER

Sl. No	Subject Code	Title	Teaching Hours /Week		Examination				Credits
			Theory	Practical/ Drawing	Duration	Theory/ Practical Marks	L.A. Marks	Total Marks	
1	15MAT41	Engineering Mathematics - IV	04	--	03	80	20	100	4
2	15CS 42	Software Engineering	04	--	03	80	20	100	4
3	15CS43	Design and Analysis of Algorithms	04	--	03	80	20	100	4
4	15CS 44	Microprocessors and microcontrollers	04	--	03	80	20	100	4
5	15CS45	Object Oriented Programming with JAVA	04	--	03	80	20	100	4
6	15CS46	Data communications	04	--	03	80	20	100	4
7	15CSL47	Design and Analysis of Algorithm Laboratory	--	11+2P	03	80	20	100	2
8	15CSL48	Microprocessors Laboratory	--	11+2P	03	80	20	100	2
TOTAL			24	06	24	640	160	800	28

Note : I Stands for Instruction Hours and P for practical Hours

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
CHOICE BASED CREDIT SYSTEM (CBCS)
SCHEME OF TEACHING AND EXAMINATION 2015-2016
3.E. Information Science & Engineering

V SEMESTER

Sl. No	Subject Code	Title	Teaching Hours /Week		Examination				Credits
			Theory	Practical/ Drawing	Duration	Theory/ Practical Marks	IA. Marks	Total Marks	
1	15CS51	Management and Entrepreneurship for IT industry	04	--	03	80	20	100	4
2	15CS52	Computer Networks	04	--	03	80	20	100	4
3	15CS53	Database Management System	04	--	03	80	20	100	4
4	15CS54	Automata theory and Computability	04	--	03	80	20	100	4
5	15CS/IS55x	Professional Elective I	03	--	03	80	20	100	3
6	15CS56x	Open Elective I	03	--	03	80	20	100	3
7	15CSL57	Computer Network Laboratory	--	11+2P	03	80	20	100	2
8	15CSL58	DBMS Laboratory with mini project	--	11+2P	03	80	20	100	2
TOTAL			22	6	24	640	160	800	26

Professional Elective I

15CS551	Object Oriented Modeling and Design
15IS552	Social Network Analysis
15CS553	Advanced JAVA and J2EE
15IS554	Programming Languages

Professional Elective: Electives relevant to chosen specialization / branch

Open Elective: Electives from other technical and/or emerging subject areas (Announced separately)

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 B.E. Information Science & Engineering

VI SEMESTER

Sl. No	Subject Code	Title	Teaching Hours /Week		Duration	Examination			Credits
			Theory	Practical/ Drawing		Theory/ Practical Marks	L.A. Marks	Total Marks	
1	15CS61	Cryptography, Network Security and Cyber Law	04	--	03	80	20	100	4
2	15IS62	File Structures	04	--	03	80	20	100	4
3	15IS63	Software Testing	04	--	03	80	20	100	4
4	15CS64	Operating Systems	04	--	03	80	20	100	4
5	15CS/IS65x	Professional Elective 2	03	--	03	80	20	100	3
6	15CS/IS66x	Open Elective 2	03	--	03	80	20	100	3
7	15ISL67	Software Testing Laboratory	--	11+2P	03	80	20	100	2
8	15ISL68	File Structures Laboratory with mini project	--	11+2P	03	80	20	100	2
TOTAL			22	06	24	640	160	800	25

Professional Elective 2

15CS651	Data Mining and Data Warehousing
15IS652	System Software
15CS653	Operation research
15CS654	Distributed Computing system

1. Professional Elective: Electives relevant to chosen specialization / branch
2. Open Elective: Electives from other technical and/or emerging subject areas (Announced separately)

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VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
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SCHEME OF TEACHING AND EXAMINATION 2015-2016
B.E. Information Science & Engineering

VII SEMESTER

Sl. No	Subject Code	Title	Teaching Hours /Week		Duration	Examination			Credits
			Theory	Practical/ Drawing		I. A. Marks	Theory/ Practical Marks	Total Marks	
1	15CS71	Web Technology and its applications	04	--	03	20	80	100	4
2	15IS72	Software Architecture and Design Patterns	04	--	03	20	80	100	4
3	15CS73	Machine Learning	04	--	03	20	80	100	4
4	15CS/IS74x	Professional Elective 3	03	--	03	20	80	100	3
5	15CS/IS75x	Professional Elective 4	03	--	03	20	80	100	3
6	15CSL76	Machine Learning Laboratory	--	11+2P	03	20	80	100	2
7	15CSL77	Web Technology Laboratory with mini project	--	11+2P	03	20	80	100	2
8	15ISP78	Project Phase II + Seminar	--	--	--	100	--	100	2
TOTAL			18	06	21	240	560	300	24

Professional Elective 3		Professional Elective 4	
15CS741	Natural Language Processing	15CS751	Soft and Evolutionary Computing
15CS742	Cloud Computing and its Applications	15CS752	Computer Vision and Robotics
15CS743	Information and Network Security	15IS753	Information Management System
15CS744	Unix System Programming	15CS754	Storage Area Networks

1. Professional Elective: Electives relevant to chosen specialization / branch

2. Project Phase I + Seminar : Literature Survey, Problem Identification, Objectives and Methodology, Submission of Synopsis and Seminar

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SCHEME OF TEACHING AND EXAMINATION 2015-2016
B.E. Information Science & Engineering

VIII SEMESTER

Sl. No	Subject Code	Title	Teaching Hours /Week		Examination				Credits
			Theory	Practical/ Drawing	Duration	I.A. Marks	Theory/ Practical Marks	Total Marks	
1	15CS81	Internet of things and applications	4	--	3	20	80	100	4
2	15CS82	Big Data Analytics	4	--	3	20	80	100	4
3	15CS/IS83x	Professional Elective 5	3	--	3	20	80	100	3
4	15IS84	Internship / Professional Practice	Industry Oriented		3	50	50	100	2
5	15ISP85	Project work phase II	--	6	3	100	100	100	5
6	15ISS86	Seminar	--	4	--	100	--	100	2
TOTAL			11	10	15	310	290	700	20

Professional Elective 5	
15CS831	High Performance Computing
15CS832	User Interface Design
15IS833	Virtual Reality
15CS834	System Simulation and Modeling

1. Professional Elective: Electives relevant to chosen specialization / branch
2. Internship / Professional Practice: To be carried out between 6th and 7th semester vacation or 7th and 8th semester vacation period


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SCHEME OF TEACHING AND EXAMINATION
B.E Electronics & Communication Engineering / Telecommunication Engineering
(Common to Electronics & Communication and Telecommunication Engineering)

III SEMESTER

SL. No	Subject Code	Title	Teaching Hours /Week		Duration	Examination			Credits
			Theory	Practical/ Drawing		Theory/ Practical Marks	I.A. Marks	Total Marks	
1	15MAT31	Engineering Mathematics -III*	04		03	80	20	100	4
2	15EC32	Analog Electronics	04		03	80	20	100	4
3	15EC33	Digital Electronics	04		03	80	20	100	4
4	15EC34	Network Analysis	04		03	80	20	100	4
5	15EC35	Electronic Instrumentation	04		03	80	20	100	4
6	15EC36	Engineering Electromagnetics	04		03	80	20	100	4
7	15ECL37	Analog Electronics Lab		11+2P	03	80	20	100	2
8	15ECL38	Digital Electronics Lab		11+2P	03	80	20	100	2
TOTAL			24	6	24	640	160	800	28

*Additional course for Lateral entry students only:

1	15MAT31P31	Additional Mathematics - I	03		03	80	80	--
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SCHEME OF TEACHING AND EXAMINATION
B.E Electronics & Communication Engineering / Telecommunication Engineering
(Common to Electronics & Communication and Telecommunication Engineering)

IV SEMESTER

Sl. No	Subject Code	Title	Teaching Hours /Week		Examination				Credits
			Theory	Practical / Drawing	Duration	Theory/ Practical Marks	I.A. Marks	Total Marks	
1	15MAT41	Engineering Mathematics –IV*	04		03	80	20	100	4
2	15EC42	Microprocessor	04		03	80	20	100	4
3	15EC43	Control Systems	04		03	80	20	100	4
4	15EC44	Signals and Systems	04		03	80	20	100	4
5	15EC45	Principles of Communication Systems	04		03	80	20	100	4
6	15EC46	Linear Integrated Circuits	04		03	80	20	100	4
7	15ECL47	Microprocessor Lab		11+2P	03	80	20	100	2
8	15ECL48	Linear ICs and Communication Lab		11+2P	03	80	20	100	2
TOTAL			24	06	24	640	160	800	28

*Additional course for Lateral entry students only:

1	15MATDIP41	Additional Mathematics - II	03		03	80	--	80	--
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SCHEME OF TEACHING AND EXAMINATION **B.E.: Electronics & Communication Engineering**

V SEMESTER

Sl. No	Subject Code	Title	Teaching Hours /Week		Examination				Credits
			Theory	Practical /Drawing	Duration	Theory/ Practical Marks	I.A. Marks	Total Marks	
1	15ES51	Management and Entrepreneurship Development	04		03	80	20	100	4
2	15EC52	Digital Signal Processing	04		03	80	20	100	4
3	15EC53	Verilog HDL	04		03	80	20	100	4
4	15EC54	Information Theory & Coding	04		03	80	20	100	4
5	15EC55X	Professional Elective-1	03		03	80	20	100	3
6	15EC56X	Open Elective-1	03		03	80	20	100	3
7	15ECL57	DSP Lab		11+2P	03	80	20	100	2
8	15ECL58	HDL Lab		11+2P	03	80	20	100	2
TOTAL			22	06	24	640	160	800	26

Professional Elective-1		Open Elective - 1* (List offered by EC/TC Board only)	
15EC551	Nanoelectronics	15EC561	Automotive Electronics
15EC552	Switching & Finite Automata Theory	15EC562	Object Oriented Programming Using C++
15EC553	Operating System	15EC563	8051 Microcontroller
15EC554	Electrical Engineering Materials		
15EC555	MSP430 Microcontroller		

1. **Professional Elective:** Elective relevant to chosen specialization/ branch.

2. * **Open Elective List:** For other Open Electives offered by other Boards, refer the Scheme of other Boards or Consolidated list in VTU Website.

SCHEME OF TEACHING AND EXAMINATION

B.E.: Electronics & Communication Engineering

VI SEMESTER

Sl. No	Subject Code	Title	Teaching Hours /Week		Examination				Credits
			Theory	Practical/ Drawing	Duration	Theory/ Practical Marks	I.A. Marks	Total Marks	
1	15EC61	Digital Communication	04		03	80	20	100	4
2	15EC62	ARM Microcontroller & Embedded Systems	04		03	80	20	100	4
3	15EC63	VLSI Design	04		03	80	20	100	4
4	15EC64	Computer Communication Networks	04		03	80	20	100	4
5	15EC65X	Professional Elective-2	03		03	80	20	100	3
6	15EC66X	Open Elective-2	03		03	80	20	100	3
7	15ECL67	Embedded Controller Lab		11+2P	03	80	20	100	2
8	15ECL68	Computer Networks Lab		11+2P	03	80	20	100	2
TOTAL			22	6	24	640	160	800	26

Professional Elective-2		Open Elective - 2* (List offered by EC/TC Board only)	
15EC651	Cellular Mobile Communication	15EC661	Data Structures Using C++
15EC652	Adaptive Signal Processing	15EC662	Power Electronics
15EC653	Artificial Neural Networks	15EC663	Digital System Design using Verilog
15EC654	Digital Switching Systems		
15EC655	Microelectronics		

1. **Professional Elective:** Elective relevant to chosen specialization/branch.

2. * **Open Elective List:** For other Open Electives offered by other Boards, refer the Scheme of other Boards or Consolidated list in VTU Website.

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SCHEME OF TEACHING AND EXAMINATION **B.E.: Electronics & Communication Engineering**

VII SEMESTER

Sl. No	Subject Code	Title	Teaching Hours /Week		Examination			15EC
			Theory	Practical/Drawing	Duration	I.A. Marks	Theory/Practical Marks	Total Marks
1	15EC71	Microwave and Antennas	04		03	20	80	100
2	15EC72	Digital Image Processing	04		03	20	80	100
3	15EC73	Power Electronics	04		03	20	80	100
4	15XX74X	Professional Elective-3	03		03	20	80	100
5	15EC75X	Professional Elective-4	03		03	20	80	100
6	15ECL76	Advanced Communication Lab		11+2P	03	20	80	100
7	15ECL77	VLSI Lab		11+2P	03	20	80	100
8	15ECP78	Project Work Phase-I + Project work Seminar		03		100	-	100
TOTAL			18	09	21	240	560	800
								24

Professional Elective-3		Professional Elective-4	
15EC741	Multimedia Communication	15EC751	DSP Algorithms and Architecture
15EC742	Biomedical Signal Processing	15EC752	IoT and Wireless Sensor Networks
15EC743	Real Time Systems	15EC753	Pattern Recognition
15EC744	Cryptography	15EC754	Advanced Computer Architecture
15EC745	CAD for VLSI	15EC755	Satellite Communication

1. Project Phase -I + Project Work Seminar: Literature Survey, Problem Identification, Objectives and Methodology, Submission of Synopsis and Seminar.

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SCHEME OF TEACHING AND EXAMINATION
B.E.: Electronics & Communication Engineering

VIII SEMESTER

Sl. No	Subject Code	Title	Teaching Hours /Week		Examination				Credits
			Theory	Practical/ Drawing	Duration	I.A. Marks	Theory/ Practical Marks	Total Marks	
1	15EC81	Wireless Cellular and LTE 4G Broadband	4	-	3	20	80	100	4
2	15EC82	Fiber Optics & Networks	4	-	3	20	80	100	4
3	15EC83X	Professional Elective-5	3	-	3	20	80	100	3
4	15EC84	Internship/Professional Practice	Industry Oriented		3	50	50	100	2
5	15ECP85	Project Work	-	6	3	100	100	200	6
6	15ECS86	Seminar	-	4	-	100	-	100	1
TOTAL			11	10	15	310	390	700	20

Professional Elective - 5	
15EC831	Micro Electro Mechanical Systems
15EC832	Speech Processing
15EC833	Radar Engineering
15EC834	Machine learning
15EC835	Network and Cyber Security

1. Internship / Professional Practice: To be carried between the (6th and 7th Semester) or (7th and 8th) Semester Vacation period.

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI

SCHEME OF TEACHING AND EXAMINATION - 2015-16
B.E. ELECTRICAL AND ELECTRONICS ENGINEERING
CHOICE BASED CREDIT SYSTEM (CBCS)

III SEMESTER

Sl. No	Subject Code	Subject (Course)	Title	Teaching Dept.	Teaching Hours /Week		Examination				Credits
					Theory	Practical/ Drawing	Duration in hours	L.A. Marks	Theory/ Practical Marks	Total Marks	
1	15MAT31	Core Subject	Engineering Mathematics-III	Mathematics	04	--	03	20	80	100	4
2	15EE32	Core Subject	Electric Circuit Analysis	EEE	04	--	03	20	80	100	4
3	15EE33	Core Subject	Transformers and Generators	EEE	04	--	03	20	80	100	4
4	15EE34	Core Subject	Analog Electronic Circuits	EEE	04	--	03	20	80	100	4
5	15EE35	Core Subject	Digital System Design	EEE	04	--	03	20	80	100	4
6	15EE36	Foundation Course	Electrical and Electronic Measurements	EEE	04	--	03	20	80	100	4
7	15EEL37	Laboratory	Electrical Machines Laboratory -I	EEE	01-Hour Instruction 02-Hour Practical		03	20	80	100	2
8	15EEL38	Laboratory	Electronics Laboratory	EEE	01-Hour Instruction 02-Hour Practical		03	20	80	100	2
TOTAL					Theory: 24 hours Practical: 06 hours		24	150	640	800	28

1. **Core subject:** This is the course, which is to be compulsorily studied by a student as a core requirement to complete the requirement of a programme in a said discipline of study.

2. **Foundation Course:** The courses based upon the content that leads to Knowledge enhancement.

Principal

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VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
SCHEME OF TEACHING AND EXAMINATION - 2015-16
B. E. ELECTRICAL AND ELECTRONICS ENGINEERING
CHOICE BASED CREDIT SYSTEM (CBCS)

IV SEMESTER									
Sl. No	Subject Code	Subject (Course)	Title	Teaching Dept.	Teaching Hours /Week		Examination		
					Theory	Practical/ Drawing	Duration in hours	I.A. Marks	Theory/ Practical Marks
1	15MAT41	Core Subject	Engineering Mathematics-IV	Math - matics	04	--	03	20	80
2	15EE42	Core Subject	Power Generation and Economics	EEE	04	--	03	20	80
3	15EE43	Core Subject	Transmission and Distribution	EEE	04	--	03	20	80
4	15EE44	Core Subject	Electric Motors	EEE	04	--	03	20	80
5	15EE45	Core Subject	Electromagnetic Field Theory	EEE	04	--	03	20	80
6	15EE46	Foundation Course	Operational Amplifiers and Linear ICs	EEE	04	--	03	20	80
7	15EE L47	Laboratory	Electrical Machines Laboratory - 2	EEE	01-Hour Instruction 02-Hour Practical		03	20	80
8	15EEL48	Laboratory	Op- amp and Linear ICs Laboratory	EEE	01-Hour Instruction 02-Hour Practical		03	20	80
TOTAL					Theory: 24 hours Practical: 06 hours		24	160	640
Number of credits completed at the end of IV semester: 24 + 24 + 28 + 28 = 104								800	28

1. **Core subject:** This is the course, which is to be compulsorily studied by a student as a core requirement to complete the requirement of a programme in a said discipline of study.
2. **Foundation Course:** The courses based upon the content that leads to Knowledge enhancement.

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
SCHEME OF TEACHING AND EXAMINATION - 2015-16
B.E. ELECTRICAL AND ELECTRONICS ENGINEERING
CHOICE BASED CREDIT SYSTEM (CBCS)

V SEMESTER												
Sl. No	Subject Code	Subject (Course)	Title	Teaching Department	Teaching Hours /Week		Examination				Credits	
					Theory	Practical/ Drawing	Duration in hours	Theory/ Practical Marks	I.A. Marks	Total Marks		
1	15EE51	Core Subject	Management and Entrepreneurship	EEE	04	--	03	50	20	100	4	
2	15EE52	Core Subject	Microcontroller	EEE	04	--	03	50	20	100	4	
3	15EE53	Core Subject	Power Electronics	EEE	04	--	03	50	20	100	4	
4	15EE54	Core Subject	Signals and Systems	EEE	04	--	03	50	20	100	4	
5	15EE55X	Professional Elective	Professional Elective – I	EEE	03	--	03	50	20	100	3	
6	15EE56Y	Open Elective	Open Elective - I	EEE	03	--	03	50	20	100	3	
7	15EEL57	Laboratory	Microcontroller Laboratory	EEE	01-Hour Instruction 02-Hour Practical		03	50	20	100	2	
8	15EEL58	Laboratory	Power Electronics Laboratory	EEE	01-Hour Instruction 02-Hour Practical		03	50	20	100	2	
TOTAL					Theory:22hours Practical: 06 hours		24	160	640	800	26	
Elective												
Professional Elective				Open Elective*** Offered by the Department of Electrical and Electronics Engineering								
Courses under Code 15EE55X		Title		Courses under Code 15EE55X		Title						
15EE551		Introduction to Nuclear Power		15EE561		Electronic Communication systems						
15EE552		Electrical Engineering Materials		15EE562		Programmable Logic controllers						
15EE553		Estimating and Costing		15EE563		Renewable Energy Systems						
15EE554		Special Electrical Machines		15EE564		Business Communication						
*** 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 provided;												
- The candidate has pre – requisite knowledge. - The candidate has not studied during I and II year of the programme. - The syllabus content of open elective is similar to that of Departmental core courses or professional electives. - A similar course, under any category, is prescribed in the higher semesters.												
Registration to electives shall be documented under the guidance of Programme Coordinator and Adviser.												
1. Core subject: This is the course, which is to be compulsorily studied by a student as a core requirement to complete the requirement of a programme in a said discipline of study.												
2. Professional Elective: Electives relevant to chosen specialization/ branch.												
3. Open Elective: Electives from other technical and/ or emerging subject areas.												


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VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI

SCHEME OF TEACHING AND EXAMINATION - 2015-16
B.E. ELECTRICAL AND ELECTRONICS ENGINEERING
CHOICE BASED CREDIT SYSTEM (CBCS)

VI SEMESTER

Sl. No	Subject Code	Subject (Course)	Title	Teaching Department	Teaching Hours /Week		Examination				Credits
					Theory	Practical/ Drawing	Duration in hours	Theory/ Practical Marks	I.A. Marks	Total Marks	
1	15EE61	Core Subject	Control Systems	EEE	04	--	03	80	20	100	4
2	15EE62	Core Subject	Power System Analysis - I	EEE	04	--	03	80	20	100	4
3	15EE63	Core Subject	Digital Signal Processing	EEE	04	--	03	80	20	100	4
4	15EE64	Core Subject	Electrical Machine Design	EEE	04	--	03	80	20	100	4
5	15EE65X	Professional Elective	Professional Elective - II	EEE	03	--	03	80	20	100	3
6	15EE66Y	Open Elective	Open Elective - II	EEE	03	--	03	80	20	100	3
7	15EEL67	Laboratory	Control System Laboratory	EEE	01-Hour Instruction 02-Hour Practical		03	80	20	100	2
8	15EEL68	Laboratory	Digital Signal Processing Laboratory	EEE	01-Hour Instruction 02-Hour Practical		03	80	20	100	2
TOTAL					Theory: 22 hours Practical: 06 hours		24	160	640	800	26

Elective

Professional Elective		Open Elective ***	
Courses under Code 15EE65X		Offered by the Department of Electrical and Electronics Engineering	
Title		Courses under Code 15EE66Y	Title
15EE651	Computer Aided Electrical Drawing	15EE661	Artificial Neural Networks and Fuzzy logic
15EE652	Advanced Power Electronics	15EE662	Sensors and Transducers
15EE653	Energy Audit and Demand side Management	15EE663	Batteries and Fuel Cells for Commercial, Military and Space Applications
15EE654	Solar and Wind Energy	15EE664	Industrial Servo Control Systems

*** 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 provided;

- The candidate has pre-requisite knowledge.
- The candidate has not studied during I and II year of the programme.
- The syllabus content of open elective is similar to that of Departmental core courses or professional electives.
- A similar course, under any category, is prescribed in the higher semesters.

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

1. **Core subject:** This is the course, which is to be compulsorily studied by a student as a core requirement to complete the requirement of a programme in the said discipline of study.

2. **Professional Elective:** Electives relevant to chosen specialization/ branch.

3. **Open Elective:** Electives from other technical and/ or emerging subject areas.


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SCHEME OF TEACHING AND EXAMINATION - 2015-16
B.E. ELECTRICAL AND ELECTRONICS ENGINEERING
CHOICE BASED CREDIT SYSTEM (CBCS)

VII SEMESTER

V SEMESTER											
Sl. No	Course Code	Subject (Course)	Title	Teaching Department	Teaching Hours/Week		Examination				Credits
					Theory	Practical/ Drawing	Duration in hours	I.A. Marks	Theory/ Practical Marks	Total Marks	
1	15EE71	Core Subject	Power System Analysis - 2	EEE	04	--	03	20	80	100	4
2	15EE72	Core Subject	Power System Protection	EEE	04	--	03	20	80	100	4
3	15EE73	Core Subject	High Voltage Engineering	EEE	04	--	03	20	80	100	4
4	15EE74X	Professional Elective	Professional Elective – III	EEE	04	--	03	20	80	100	3
5	15EE75Y	Professional Elective	Professional Elective – IV	EEE	04	--	03	20	80	100	3
6	15EEL76	Laboratory	Power system Simulation Laboratory	EEE	01-Hour Instruction 02-Hour Practical		03	20	80	100	2
7	15EEL77	Laboratory	Rely and High Voltage Laboratory	EEE	01-Hour Instruction 02-Hour Practical		03	20	80	100	2
8	15EEP78	Project Phase – I + Seminar		EEE	--		--	100	--	100	2
TOTAL					Theory:24 hours Practical: 06 hours		21	240	560	800	24

Elective

Professional Elective - III		Professional Elective - IV	
Courses under Code 15EE74X	Title	Courses under Code 15EE75Y	Title
15EE741	Advanced Control Systems	15EE751	FACTS and HVDC Transmission
15EE742	Utilization of Electrical Power	15EE752	Testing and Commissioning of Power System Apparatus
15EE743	Carbon Capture and Storage	15EE753	Spacecraft Power Technologies
15EE744	Power System Planning	15EE754	Industrial Heating

1. **Core subject:** This is the course, which is to be compulsorily studied by a student as a core requirement to complete the requirement of a programme in a said discipline of study.
2. **Professional Elective:** Elective relevant to chosen specialization/ branch.
3. **Project Phase -I + Seminar:** Literature Survey, Problem Identification, objectives and Methodology. Submission of synopsis and seminar.
4. **Internship / Professional Practice:** To be carried between the VI and VII semester vacation or VII and VIII semester vacation period.



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VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
SCHEME OF TEACHING AND EXAMINATION - 2015-16
B.E. ELECTRICAL AND ELECTRONICS ENGINEERING
CHOICE BASED CREDIT SYSTEM (CBCS)

VIII SEMESTER

SL No	Course Code	Subject (Course)	Title	Teaching Department	Teaching Hours/Week		Examination				Credits
					Theory	Practical/ Drawing	Duration in hours	L.A. Marks	Theory/ Practical Marks	Total Marks	
1	15EE81	Core Subject	Power System Operation and Control	EEE	04	--	03	20	80	100	4
2	15EE82	Core Subject	Industrial Drives and Applications	EEE	04	--	03	20	80	100	4
3	15EE83X	Professional Elective	Professional Elective - V	EEE	03	--	02	20	80	100	3
4	15EE84	Core Subject	Internship / Professional Practice	EEE	Industry Oriented		03	50	50	100	2
5	15EEP85	Core Subject	Project Work Phase -II	EEE	--	06	03	100	100	200	6
6	15EES86	Core Subject	Seminar	EEE	--	04	--	100	--	100	1
TOTAL					Theory:11 hours Practical: 10 hours		15	310	390	700	20

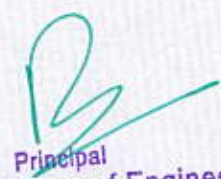
Professional Elective - V

Courses under Code 15EE83X	Title
15EE831	Smart Grid
15EE832	Operation and Maintenance of Solar Electric Systems
15EE833	Integration of Distributed Generation
15EE834	Power System in Emergencies

1. **Core subject:** This is the course, which is to be compulsorily studied by a student as a core requirement to complete the requirement of a programme in a said discipline of study.

2. **Professional Elective:** Elective relevant to chosen specialization/ branch.

3. **Internship / Professional Practice:** To be carried between the VI and VII semester vacation or VII and VIII semester vacation period.


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B.E. Mechanical Engineering

III SEMESTER

Sl. No	Subject Code	Title	Teaching Hours /Week			Examination				Credits
			Lecture	Tutorial	Practical	Duration (Hours)	Theory/ Practical Marks	I.A. Marks	Total Marks	
1	15MAT31	Engineering Mathematics – III	04			03	80	20	100	4
2	15ME32	Materials Science	04			03	80	20	100	4
3	15ME33	Basic Thermodynamics	03	02		03	80	20	100	4
4	15ME34	Mechanics of Materials	03	02		03	80	20	100	4
5	15ME35A/	Metal Casting and Welding	04			03	80	20	100	4
	15ME35B	Machine Tools and Operations								
6	15ME36 A/	Computer Aided Machine Drawing	02		4	03	80	20	100	3
	15ME36B	Mechanical Measurements and Metrology	04							
7	15MEL37A/	Materials Testing Lab/	1		2	03	80	20	100	2
	15MLL37B	Mechanical Measurements and Metrology Lab								
8	15MEL38A/	Foundry and Forging Lab	1		2	03	80	20	100	2
	15MEL38B	Machine Shop/								
TOTAL			22/24	04	08/04		640	160	800	27


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B.E. Mechanical Engineering

IV SEMESTER

Sl. No	Subject Code	Title	Teaching Hours /Week			Examination				Credits
			Lecture	Tutorial	Practical	Duration (Hours)	Theory/ Practical Marks	I.A. Marks	Total Marks	
1	15MAT41	Engineering Mathematics – III	04			04	80	20	100	04
2	15ME42	Kinematics of Machinery	03	02		03	80	20	100	04
3	15ME43	Applied Thermodynamics	03	02		03	80	20	100	04
4	15ME44	Fluid mechanics	03	02		03	80	20	100	04
5	15ME45A/ 15ME45B	Metal Casting and Welding Machine Tools and Operations	04			03	80	20	100	04
	15ME46 A/ 15ME46B	Computer Aided Machine Drawing Mechanical Measurements and Metrology	02 04		4	03	80	20	100	03
7	15MEL47A / 15MEL47B	Materials Testing Lab/ Mechanical Measurements and Metrology Lab	1		2	03	80	20	100	02
	15MEL48A / 15MEL48B	Foundry and Forging Lab Machine Shop/	1		2	03	80	20	100	02
TOTAL			12/21	06	08/04		640	160	800	27

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B.E. Mechanical Engineering

V SEMESTER

Sl. No	Subject Code	Title	Teaching Hours /Week			Examination			Credits	
			Lecture	Tutorial	Practical	Duration (Hours)	Theory/ Practical Marks	I.A. Marks		Total Marks
1	15ME51	Management and Engineering Economics	3	2	0	03	80	20	100	4
2	15ME52	Dynamics of Machinery	3	2	0	03	80	20	100	4
3	15ME53	Turbo Machines	3	2	0	03	80	20	100	4
4	15ME54	Design of Machine Elements - I	3	2	0	03	80	20	100	4
5	15ME55X	Professional Elective-I	3	0	0	03	80	20	100	3
6	15ME56X	Open Elective-I	3	0	0	03	80	20	100	3
7	15MEL57	Fluid Mechanics & Machinery Lab	1	0	2	03	80	20	100	2
8	15MEL58	Energy Lab	1	0	2	03	80	20	100	2
TOTAL			21	06	04		640	160	800	26
Professional Elective-I										

Professional Elective-I		Open Elective-I	
15ME551	Refrigeration and Air-conditioning	15ME561	Optimization Techniques
15ME552	Theory of Elasticity	15ME562	Energy and Environment
15ME553	Human Resource Management	15ME563	Automation and Robotics
15ME554	Non Traditional Machining	15ME564	Project Management

1. Core subject: This is the course, which is to be compulsorily studied by a student as a core requirement to complete the requirement of a programme in a said discipline of study.
2. Professional Elective: Elective relevant to chosen specialization/ branch
3. Open Elective: Electives from other technical and/or emerging subject areas.

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B.E. Mechanical Engineering

VI SEMESTER

Sl. No	Subject Code	Title	Teaching Hours /Week			Duration (Hours)	Examination			Credits
			Lecture	Tutorial	Practical		Theory/ Practical Marks	I.A. Marks	Total Marks	
1	15ME61	Finite Element Analysis	3	2	0	03	80	20	100	4
2	15ME62	Computer integrated Manufacturing	4	0	0	03	80	20	100	4
3	15ME63	Heat Transfer	3	2	0	03	80	20	100	4
4	15ME64	Design of Machine Elements -II	3	2	0	03	80	20	100	4
5	15ME65X	Professional Elective-II	3	0	0	03	80	20	100	3
6	15ME66X	Open Elective-II	3	0	0	03	80	20	100	3
7	15MEL67	Heat Transfer Lab	1	0	2	03	80	20	100	2
8	15MEL68	Modeling and Analysis Lab(FEA)	1	0	2	03	80	20	100	2
TOTAL			21	6	04		640	160	800	26

Professional Elective-II		Open Elective-II	
15ME651	Computational Fluid Dynamics	15ME661	Energy Auditing
15ME652	Mechanics of Composite Materials	15ME662	Industrial Safety
15ME653	Metal Forming	15ME663	Maintenance Engineering
15ME654	Tool Design	15ME664	Total Quality Management
15ME655	Automobile Engineering		

1. Core subject: This is the course, which is to be compulsorily studied by a student as a core requirement to complete the requirement of a programme in a said discipline of study.
2. Professional Elective: Elective relevant to chosen specialization/ branch
3. Open Elective: Electives from other technical and/or emerging subject areas.


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VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
CHOICE BASED CREDIT SYSTEM (CBCS)
SCHEME OF TEACHING AND EXAMINATION 2015-2016

B.E. Mechanical Engineering

VII SEMESTER

Sl. No	Subject Code	Title	Teaching Hours /Week			Examination				Credits
			Lecture	Tutorial	Practical	Duration (Hours)	Theory/ Practical Marks	I.A. Marks	Total Marks	
1	15ME71	Energy Engineering	3	2	0	03	80	20	100	4
2	15ME72	Fluid Power Systems	4	0	0	03	80	20	100	4
3	15ME73	Control Engineering	3	2	0	03	80	20	100	4
4	15ME74X	Professional Elective - III	3	0	0	03	80	20	100	3
5	15ME75X	Professional Elective-IV	3	0	0	03	80	20	100	3
6	15MEL76	Design Lab	1	0	2	03	80	20	100	2
7	15MEL77	CIM Lab	1	0	2	03	80	20	100	2
8	15MEP78	Project Phase - I	-	-	-	-	-	100	100	2
TOTAL			18	4	04		560	240	800	24

Professional Elective-III		Professional Elective-IV	
15ME741	Design of Thermal Equipments	15ME751	Automotive Electronics
15ME742	Tribology	15ME752	Fracture Mechanics
15ME743	Financial Management	15ME753	Mechatronics
15ME744	Design for Manufacturing	15ME754	Advanced Vibrations
15ME745	Smart Materials & MEMS		

1. Core subject: This is the course, which is to be compulsorily studied by a student as a core requirement to complete the requirement of a programme in Engineering.

2. Professional Elective: Elective relevant to chosen specialization/ branch


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VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
CHOICE BASED CREDIT SYSTEM (CBCS)
SCHEME OF TEACHING AND EXAMINATION 2015-2016

VIII SEMESTER

B.E. Mechanical Engineering

Sl. No	Subject Code	Title	Teaching Hours /Week			Examination			Credits
			Lecture	Tutorial	Practical	Duration (Hours)	Theory/ Practical Marks	I.A. Marks	Total Marks
1	15ME81	Operations Research	3	2	0	03	80	20	100
2	15ME82	Additive Manufacturing	4	0	0	03	80	20	100
3	15ME83X	Professional Elective - V	3	0	0	03	80	20	100
4	15ME84	Internship / Professional Practice	Industry Oriented			03	50	50	100
5	15ME85	Project Phase - II	-	6	-	03	100	100	200
6	15ME86	Seminar	-	4	-	-	-	100	100
TOTAL			10	12	-		390	310	700

Professional Elective-V	
15ME831	Cryogenics
15ME832	Experimental Stress Analysis
15ME833	Theory of Plasticity
15ME834	Green Manufacturing
15ME835	Product life cycle management

1. Core subject: This is the course, which is to be compulsorily studied by a student as a core requirement to complete the requirement of a programme in a said discipline of study
2. Professional Elective: Elective relevant to chosen specialization/ branch
3. Internship / Professional Practice: To be carried out between 6th & 7th semester vacation or 7th & 8th semester vacation.


Principal
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