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

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**	--	1I+2P	03	80	20	100	2
8	15CSL38	**Data Structures Laboratory**	--	1I+2P	03	80	20	100	2
		TOTAL	**24**	**6**	**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

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	I.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 Concepts**	04	--	03	80	20	100	4
6	15CS46	**Data Communication**	04	--	03	80	20	100	4
7	15CSL47	**Design and Analysis of Algorithm Laboratory**	--	1I+2P	03	80	20	100	2
8	15CSL48	**Microprocessors Laboratory**	--	1I+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

B.E. Computer Science & Engineering

V SEMESTER

Sl. No	Subject Code	Title	Teaching Hours /Week Theory	Teaching Hours /Week Practical/ Drawing	Examination Duration	Examination Theory/ Practical Marks	Examination I.A. Marks	Examination Total Marks	Credits
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)**

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
CHOICE BASED CREDIT SYSTEM (CBCS)
SCHEME OF TEACHING AND EXAMINATION 2015-2016
B.E. Computer Science & 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	**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	--	1I+2P	03	80	20	100	2
8	**15CSL68**	Computer Graphics Laboratory with mini project	--	1I+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 choosen specialization / branch**
2. **Open Elective: Electives from other technical and/or emerging subject areas (Announced separately)**

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

B.E. Computer Science & Engineering

VII SEMESTER

Sl. No	Subject Code	Title	Teaching Hours /Week Theory	Teaching Hours /Week Practical/ Drawing	Examination Duration	Examination I.A. Marks	Examination Theory/ Practical Marks	Examination Total Marks	Credits
1	15CS71	Web Technology and its applications	04	--	03	20	80	100	4
2	15CS72	Advanced Computer Architectures	04	--	03	20	80	100	4
3	15CS73	Machine Learning	04	--	03	20	80	100	4
4	15CS74x	Professional Elective 3	03	--	03	20	80	100	3
5	15CS75x	Professional Elective 4	03	--	03	20	80	100	3
6	15CSL76	Machine Learning Laboratory	--	1I+2P	03	20	80	100	2
7	15CSL77	Web Technology Laboratory with mini project	--	1I+2P	03	20	80	100	2
8	15CSP78	Project Phase 1 + Seminar	--	--	--	100	--	100	2
		TOTAL	18	6	21	240	560	800	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 choosen 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	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	15CS83x	Professional Elective 5	3	--	3	20	80	100	3
4	15CS84	Internship / Professional Practice	Industry Oriented		3	50	50	100	2
5	15CSP85	Project work phase II	--	6	3	100	100	200	5
6	15CSS86	Seminar	--	4	--	100	--	100	2
		TOTAL	11	10	15	310	390	700	20

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

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

B.E. CIVIL ENGINEERING

(Common to _____)

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	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		1I+2P	03	80	20	100	2
8	15CVL38	Basic Surveying Practice		1I+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*

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

B.E. CIVIL ENGINEERING

(Common to _____)

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	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		1I+2P	03	80	20	100	2
8	15CVL48	Engineering Geology Laboratory		1I+2P	03	80	20	100	2
		TOTAL	**24**	**06**	**24**	**640**	**160**	**800**	**28**

Note:

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

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

B.E. CIVIL 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	15CV51	Design of RC Structural Elements	04		03	80	20	100	4
2	15CV52	Analysis of Indeterminate Structures	04		03	80	20	100	4
3	15CV53	Applied Geotechnical Engineering	04		03	80	20	100	4
4	15CV54	Computer Aided Building Planning and Drawing	01	3D	03	80	20	100	4
5	15CV55X	Professional Elective-1	03		03	80	20	100	3
6	15CV56X	Open Elective-1	03		03	80	20	100	3
7	15CVL57	Geotechnical Engineering Laboratory		1I+2P	03	80	20	100	2
8	15CVL58	Concrete and Highway Materials Laboratory		1I+2P	03	80	20	100	2
		TOTAL	**19**	**09**	**24**	**640**	**160**	**800**	**26**

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

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELGAUM
CHOICE BASED CREDIT SYSTEM (CBCS)
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	4
2	15CV62	Design of Steel Structural Elements	04		03	80	20	100	4
3	15CV63	Highway Engineering	04		03	80	20	100	4
4	15CV64	Water Supply and Treatment Engineering	04		03	80	20	100	4
5	15CV65X	Professional Elective 2	03		03	80	20	100	3
6	15CV66X	Open Elective 2	03		03	80	20	100	3
7	15CVL67	Software Application Lab		1I+2P	03	80	20	100	2
8	15CVP68	Extensive Survey Project /Camp		1I+2P	03	80	20	100	2
		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

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELGAUM
CHOICE BASED CREDIT SYSTEM (CBCS)
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	4
2	15CV72	Design of RCC and Steel Structures	04		03	20	80	100	4
3	15CV73	Hydrology and Irrigation Engineering	04		03	20	80	100	4
4	15CV74X	Professional Elective 3	03		03	20	80	100	3
5	15CV75X	Professional Elective 4	03		03	20	80	100	3
6	15CVL76	Environmental Engineering Laboratory		1I+2P	03	20	80	100	2
7	15CVL77	Computer Aided Detailing of Structures		1I+2D	03	20	80	100	2
8	15CVP78	Project Phase I +Project Seminar		3		100		100	2
		TOTAL	**18**	**9**	**21**	**240**	**560**	**800**	**24**

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

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELGAUM
CHOICE BASED CREDIT SYSTEM (CBCS)
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	I.A. Marks	Theory/ Practical Marks	Total Marks	
1	15CV81	Quantity Surveying and Contracts Management	4	-	3	20	80	100	4
2	15CV82	Design of Pre Stressed Concrete Elements	4	-	3	20	80	100	4
3	15CV83X	Professional Elective 5	3	-	3	20	80	100	3
4	15CV84	Internship/Professional Practice	Industry Oriented		3	50	50	100	2
5	15CVP85	Project Work	-	6	3	100	100	200	6
6	15CVS86	Seminar on current trends in Engineering and Technology	-	4	-	100	-	100	1
		TOTAL	**11**	**10**	**15**	**310**	**390**	**700**	**20**

Professional Elective 5	
15CV831	Earthquake Engineering
15CV832	Hydraulic Structures
15CV833	Pavement Design
15CV834	Advanced Foundation Design

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		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	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		1I+2P	03	80	20	100	2
8	15ECL38	Digital Electronics Lab		1I+2P	03	80	20	100	2
		TOTAL	**24**	**6**	**24**	**640**	**160**	**800**	**28**

*Additional course for Lateral entry students only:

| 1 | 15MATDIP31 | Additional Mathematics - I | 03 | | 03 | 80 | -- | 80 | -- |

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		1I+2P	03	80	20	100	2
8	15ECL48	Linear ICs and Communication Lab		1I+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 | -- |

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		1I+2P	03	80	20	100	2
8	15ECL58	HDL Lab		1I+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		1I+2P	03	80	20	100	2
8	15ECL68	Computer Networks Lab		1I+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.

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

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	4
2	15EC72	Digital Image Processing	04		03	20	80	100	4
3	15EC73	Power Electronics	04		03	20	80	100	4
4	15XX74X	Professional Elective-3	03		03	20	80	100	3
5	15EC75X	Professional Elective-4	03		03	20	80	100	3
6	15ECL76	Advanced Communication Lab		1I+2P	03	20	80	100	2
7	15ECL77	VLSI Lab		1I+2P	03	20	80	100	2
8	15ECP78	Project Work Phase–I + Project work Seminar		03		100	-	100	2
		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.

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	I.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 -1	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**	**160**	**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. FoundationCourse: The courses based upon the content that leads to Knowledge enhancement.

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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				Credits
					Theory	Practical/ Drawing	Duration in hours	I.A. Marks	Theory/ Practical Marks	Total Marks	
1	15MAT41	Core Subject	Engineering Mathematics-IV	Maths	04	--	03	20	80	100	4
2	15EE42	Core Subject	Power Generation and Economics	EEE	04	--	03	20	80	100	4
3	15EE43	Core Subject	Transmission and Distribution	EEE	04	--	03	20	80	100	4
4	15EE44	Core Subject	Electric Motors	EEE	04	--	03	20	80	100	4
5	15EE45	Core Subject	Electromagnetic Field Theory	EEE	04	--	03	20	80	100	4
6	15EE46	Foundation Course	Operational Amplifiers and Linear ICs	EEE	04	--	03	20	80	100	4
7	15EEL47	Laboratory	Electrical Machines Laboratory -2	EEE	01-Hour Instruction 02-Hour Practical		03	20	80	100	2
8	15EEL48	Laboratory	Op- amp and Linear ICs Laboratory	EEE	01-Hour Instruction 02-Hour Practical		03	20	80	100	2
				TOTAL	Theory:24 hours Practical: 06 hours		24	160	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.

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				
					Theory	Practical/ Drawing	Duration in hours	Theory/ Practical Marks	I.A. Marks	Total Marks	Credits
1	15EE51	Core Subject	Management and Entrepreneurship	EEE	04	--	03	80	20	100	4
2	15EE52	Core Subject	Microcontroller	EEE	04	--	03	80	20	100	4
3	15EE53	Core Subject	Power Electronics	EEE	04	--	03	80	20	100	4
4	15EE54	Core Subject	Signals and Systems	EEE	04	--	03	80	20	100	4
5	15EE55X	Professional Elective	Professional Elective – I	EEE	03	--	03	80	20	100	3
6	15EE56Y	Open Elective	Open Elective - I	EEE	03	--	03	80	20	100	3
7	15EEL57	Laboratory	Microcontroller Laboratory	EEE	01-Hour Instruction 02-Hour Practical		03	80	20	100	2
8	15EEL58	Laboratory	Power Electronics Laboratory	EEE	01-Hour Instruction 02-Hour Practical		03	80	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.

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 – 1	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 [***] Offered by the Department of Electrical and Electronics Engineering	
Courses under Code 15EE65X	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 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.

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

VII SEMESTER

Sl. No	Course Code	Subject (Course)	Title	Teaching Department	Teaching Hours/Week Theory	Teaching Hours/Week Practical/ Drawing	Duration in hours	I.A. Marks	Theory/ Practical Marks	Total Marks	Credits
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 VIIsemester 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	Theory	Practical/ Drawing	Duration in hours	I.A. Marks	Theory/ Practical Marks	Total Marks	Credits
					Teaching Hours /Week		**Examination**				
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	--	03	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 VIIsemester vacation or VII and VIII semester vacation period.

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			03	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
6	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
8	15MEL48A / 15MEL48B	Foundry and Forging Lab Machine Shop/	1		2	03	80	20	100	02
		TOTAL	19/21	06	08/04		640	160	800	27

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	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		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 Managemet

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. OpenElective: Electives from other technical and/or emerging subject areas.

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	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. OpenElective: Electives from other technical and/or emerging subject areas.

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	Lecture	Tutorial	Practical	Duration (Hours)	Theory/ Practical Marks	I.A. Marks	Total Marks	Credits
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 a said discipline of study.

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

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

B.E. Mechanical Engineering

VIII 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	15ME81	Operations Research	3	2	0	03	80	20	100	4
2	15ME82	Additive Manufacturing	4	0	0	03	80	20	100	4
3	15ME83X	Professional Elective - V	3	0	0	03	80	20	100	3
4	15ME84	Internship / Professional Practice	Industry Oriented			03	50	50	100	2
5	15ME85	Project Phase – II	-	6	-	03	100	100	200	6
6	15MES86	Seminar	-	4	-	-	-	100	100	1
		TOTAL	10	12	-		390	310	700	20

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.

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELGAVI
CREDIT BASED CREDIT SYSTEM (CBCS)
SCHEME OF TEACHING AND EXAMINATION
B. E. MINING ENGINEERING

III Semester

Sl. No.	Sub Code	Subject Title	Teaching Dept.	Hrs/week		Examination				Credits
				Theory	Pract.	Duration (Hrs)	IA Max. Marks	Theory/ Pract.	Total Marks	
1	15MAT31	Engg. Mathematics-III	Mathematics	04		03	20	80	100	4
2	15MN32	Mining Electrical Engg.	EEE	04		03	20	80	100	4
3	15MN33	Mining Geology-I	Geology	04		03	20	80	100	4
4	15MN34	Mechanics of Materials	ME/MN	04		03	20	80	100	4
5	15MN35	Elements of Mining Engg.	MN	04		03	20	80	100	4
6	15MN36	Computer Aided Machine Drawing	MN/IP/AU/ ME/MA	02	4	03	20	80	100	4
7	15MNL37	Mining Geology Laboratory-I	Geology		2P + 1I	03	20	80	100	2
8	15MNL38	Mine Electrical Engg. Lab	EEE		2P + 1I	03	20	80	100	2
		Total		**22**	**10**	**24**	**160**	**640**	**800**	**28**

IV SEMESTER

Sl. No.	Sub Code	Subject Title	Teaching Hours/week			Examination				Credits
			Lecture	Tutorial	Practical	Duration (Hours)	Theory/ Practical Marks	I.A. Marks	Total Marks	
1	15MAT41	Engg. Mathematics-IV	04			03	80	20	100	4
2	15MN42	Thermodynamics & Fluid Mechanics	03	02		03	80	20	100	4
3	15MN43	Mining Geology –II	04			03	80	20	100	4
4	15MN44	Mine Mechanization-I	03	02		03	80	20	100	4
5	15MN45	Mine Surveying-I	03	02		03	80	20	100	4
6	15MN46	Drilling & Blasting Engg.	04			03	80	20	100	4
7	15MNL47	Mining Geology Laboratory-II	01		02	03	80	20	100	2
8	15MNL48	Mine Surveying Laboratory-I	01		02	03	80	20	100	2
		Total	**23**	**06**	**04**	**24**	**640**	**160**	**800**	**28**

Internship/ Professional Practice: Students should undergo the following during the <u>vacation</u> (4th to 7th Semester) and detailed REPORT should be submitted in 8th Semester for Internal Assessment).

1. One Week Geology (after 4th sem) and Survey (after 5th sem) Camps.

2. Industrial Visits (Two Underground & Two Opencast Mines) or 15 Days Underground and 15 days Opencast Mines training or 15 Days in-Campus Technical Skill Development Certified Course.

V Semester

| Sl. No. | Sub Code | Subject Title | Hrs/week | | Examination | | | | Credits |
			Theory	Pract.	Duration(Hrs)	Theory/Practical Marks	I.A. Marks	Total Marks	
1	15MN51	Mine Environment and Ventilation Engineering	04	-	03	80	20	100	4
2	15MN52	Mine Mechanization-II	04	-	03	80	20	100	4
3	15MN53	Mine Surveying-II	04	-	03	80	20	100	4
4	15MN54	Underground Coal Mining	04	-	03	80	20	100	4
5	15MN55X	Professional Elective-I	03	-	03	80	20	100	3
6	15MN56X	Open Elective-I	03	-	03	80	20	100	3
7	15MNL57	Mine Mechanization Lab	-	1L+2P	03	80	20	100	2
8	15MNL58	Mine Surveying Lab-II	-	1L+2P	03	80	20	100	2
		Total	**20**	**06**	**24**	**640**	**160**	**800**	**26**

Professional Elective-I		Open Elective-I	
15MN551	**Mineral Economics**	**15MN561**	**Industrial Safety Engineering**
15MN552	**Maintenance Management in Mines**	**15MN562**	**Industrial Management & Entrepreneurship**

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

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELGAVI
CREDIT BASED CREDIT SYSTEM (CBCS)
SCHEME OF TEACHING AND EXAMINATION
B. E. MINING ENGINEERING

VI Semester

Sl. No.	Sub Code	Subject Title	Teaching Dept.	Hrs/week		Examination					Credits
				Theory	Pract.	Duration (Hrs)	IA Max. Marks	Theory/ Pract.	Total Marks		
1	15MN61	Surface Mining	MN	04	-	03	20	80	100		4
2	15MN62	Mineral Processing & Fuel Technology	MN	04	-	03	20	80	100		4
3	15MN63	Underground Metal Mining	MN	04	-	03	20	80	100		4
4	15MN64	Rock Mechanics	MN	04	-	03	20	80	100		4
5	15MN65X	**Professional Elective -II**	MN	03	-	03	20	80	100		3
6	15MN66X	**Open Elective – II**	MN	03	-	03	20	80	100		3
7	15MNL67	Rock Mechanics Lab	MN	-	1I+2P	03	20	80	100		2
8	15MNL68	Mine Environment and Ventilation Lab	MN	-	1I+2P	03	20	80	100		2
		Total		**22**	**06**	**24**	**160**	**640**	**800**		**26**

Professional Elective –II		Open Elective - II	
15MN651	**Mine Disasters and Rescue**	**15MN661**	**Tunneling Engineering**
15MN652	**Mine Safety Engineering**	**15MN662**	**Underground Space Technology**

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELGAVI
CREDIT BASED CREDIT SYSTEM (CBCS)
SCHEME OF TEACHING & EXAMINATION
B.E.MINING ENGINEERING

VII SEMESTER

Sl. No.	Sub Code	Subject Title	Teaching Dept.	Hrs/week		Examination				Credits
				Theory	Pract.	Duration (Hrs)	IA Max. Marks	Theory/ Pract.	Total Marks	
1	15MN71	Underground Mine Planning & Design	MN	04	-	03	20	80	100	4
2	15MN72	Ground Control	MN	04	-	03	20	80	100	4
3	15MN73	Computer Application in Mining	MN	04	-	03	20	80	100	4
4	15MN74X	**Professional Elective -III**	MN	03	-	03	20	80	100	3
5	15MN75X	**Professional Elective -IV**	MN/ME	03	-	03	20	80	100	3
6	15MNL76	Mineral Processing Lab	MN	-	1I+2P	03	20	80	100	2
7	15MNL77	Computer Application in Mining Lab	MN	-	1I+2P	03	20	80	100	2
8	15MNP78	Project Phase-I + Project Seminar	MN	-	3		100		100	2
		Total		**18**	**09**	**21**	**240**	**560**	**800**	**24**

Professional Elective –III			Professional Elective -IV		
Sl. No.	Subject Code	Subject Title	Sl. No.	Subject Code	Subject Title
1	**15MN741**	**Open Pit Slope Analysis and Design**	1	**15MN751**	**Mine System Engineering**
2	**15MN742**	**Occupational Health & General Safety**	2	**15MN752**	**Numerical Modeling and Instrumentation in Rock Mechanics**
3	**15MN743**	**Surface Mine Planning and Design**	3	**15MN753**	**Small Scale and Marine Mining**

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

VIII SEMESTER

Sl. No.	Sub Code	Subject Title	Hrs/week		Examination				Credits
			Theory	Pract.	Duration (Hrs)	IA Max. Marks	Theory/ Pract.	Total Marks	
1	15MN81	Mine Legislation	04	-	03	20	80	100	4
2	15MN82	Mine Management	04	-	03	20	80	100	4
3	15MN83X	**Professional Elective-V**	03	-	03	20	80	100	3
4	15MN84	Internship/Professional Practice	Industry Oriented		03	50	50	100	2
5	15MNP85	Project Work, Phase-II	-	06	03	100	100	200	6
6	15MNS86	Seminar on current trends in Engineering and Technology	-	04	-	100	-	100	1
		TOTAL	**11**	**10**	**15**	**310**	**390**	**700**	**20**

Professional Elective-V		
Sl. No.	**Subject Code**	**Subject Title**
1	**15MN831**	**Environmental Impacts of Mining**
2	**15MN832**	**Dimensional Stone Mining**
3	**15MN833**	**Coal Bed Methane**
4	**15MN834**	**Mining Geo-statistics**

***Internship/ Professional Practice:** Students should undergo the following during the <u>vacation</u> (4th to 7th Semester) and detailed REPORT should be submitted in 8th Semester for Internal Assessment).

1. One Week Geology camp (after 4th sem) and Survey camp (after 5th sem).

2. Industrial Visits (Two Underground & Two Opencast Mines) or 15 Days Underground and 15 days Opencast Mines training or 15 Days in-Campus Technical Skill Development Certified Course.

Internship/ Professional Practice

Course	Code	Credits	L-T-P	Assessment		Exam Duration
				SEE	CIA	
Internship/ Professional Practice	15MN84	2	Industry Oriented	50	50	3 Hrs

Project Work, Phase-II

Course	Code	Credits	L-T-P	Assessment		Exam Duration
				SEE	CIA	
Project Work, Phase-II	15MNP85	6	0-6-0	100	100	3 Hrs

Seminar

Course	Code	Credits	L-T-P	Assessment		Exam Duration
				SEE	CIA	
Seminar on current trends in Engineering and Technology	15MNS86	1	0-4-0	-	100	-