

Visvesvaraya Technological University, Belagavi
Regulations Governing the Degree of Bachelor of Engineering/ Technology (B.E/B.Tech)
Under Choice Based Credit System (CBCS)
(w.e.f. the academic year 2017 – 18)

Annexure -1

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
Scheme of Teaching and Examination 2017-2018
Choice Based Credit System (CBCS)

I SEMESTER B.E./B.Tech. (PHYSICS GROUP)

Sl. No	Course Code	Course Title	Teaching Department	Board	Teaching Hours /Week		Examination				Credits
					Theory	Practical/ Drawing	Duration in hours	SEE Marks	CIE Marks	Total Marks	
1	17MAT11	Engineering Mathematics -I	Mathematics	Basic Science	04	--	03	60	40	100	4
2	17PHY12	Engineering Physics	Physics	Basic Science	04	--	03	60	40	100	4
3	17CIV13	Elements of Civil Engineering and Mechanics	Civil Engineering	Civil Engineering	04	--	03	60	40	100	4
4	17EME14	Elements of Mechanical Engineering	Mechanical Engineering	Mechanical Engineering	04	--	03	60	40	100	4
5	17ELE17	Basic Electrical Engineering	E and E Engineering	E and E Engineering	04	--	03	60	40	100	4
6	17WSL16	Workshop Practice	ME, Auto, IP, IEM, Mfg Engineering	Mechanical Engineering	01Hour Instruction 02Hour Practical		03	60	40	100	2
7	17PHYL17	Engineering Physics Laboratory	Physics	Basic Science	01Hour Instruction 02Hour Practical		03	60	40	100	2
8	17ENG18	Language – English (Audit Course)	Humanities	--	01		--	--	--	--	--
TOTAL					Theory:21 hours Practical: 06 hours		21	420	280	700	24

II SEMESTER B.E./B.Tech. (CHEMISTRY GROUP)

1	17MAT21	Engineering Mathematics -II	Mathematics	Basic Science	04	--	03	60	40	100	4
2	17CHE22	Engineering Chemistry	Chemistry	Basic Science	04	--	03	60	40	100	4
3	17PCD23	Programming in C and Data Structures	Any Engineering Department	Computer Science and Engineering	04	--	03	60	40	100	4
4	17CED24	Computer Aided Engineering Drawing	ME, Auto, IP, IEM, Mfg Engineering	Mechanical Engineering	02Hour Instruction 04-Hour Practice		03	60	40	100	4
5	17ELN25	Basic Electronics	ECE/EEE/TC/E and I.	E and C Engineering	04	--	03	60	40	100	4
6	17CPL26	Computer Programming Laboratory	Any Engineering Department	Computer Science and Engineering	01Hour Tutorial 02Hour Practical		03	60	40	100	2
7	17CHEL27	Engineering Chemistry Laboratory	Chemistry	Basic Science	01Hour Tutorial 02Hour Practical		03	60	40	100	2
8	17CIV28	Environmental Studies (Audit Course)	Civil/ Environmental Engineering	Civil Engineering	01Tutorial		--	30	20	50	--
TOTAL					Theory:21 hours Practical: 08 hours		21	450	300	750	24

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Regulations Governing the Degree of Bachelor of Engineering/ Technology (B.E./B.Tech.)
Under Choice Based Credit System (CBCS)
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VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI												
Scheme of Teaching and Examination 2017-2018												
Choice Based Credit System (CBCS)												
I SEMESTER B.E./B.Tech (CHEMISTRY GROUP)												
Sl. No	Course Code	Course Title	Teaching Department	Board	Teaching Hours /Week		Examination				Credits	
					Theory	Practical/ Drawing	Duration in hours	SEE Marks	CIE Marks	Total Marks		
1	17MAT11	Engineering Mathematics -I	Mathematics	Basic Science	04	--	03	60	40	100	4	
2	17PHY12	Engineering Chemistry	Chemistry	Basic Science	04	--	03	60	40	100	4	
3	17PCD13	Programming in C and Data Structures	Any Engineering Department	Computer Science and Engineering	04	--	03	60	40	100	4	
4	17CED14	Computer Aided Engineering Drawing	ME, Auto, IP, IEM, Mfg Engineering	Mechanical Engineering	02Hour Instruction 04Hour Practice		03	60	40	100	4	
5	17ELN17	Basic Electronics	ECE/EEE/TC/E and I.	E and C Engineering	04	--	03	60	40	100	4	
6	17CPL16	Computer Programming Laboratory	Any Engineering Department	Computer Science and Engineering	01Hour Tutorial 02Hour Practical		03	60	40	100	2	
7	17CHEL17	Engineering Chemistry Laboratory	Chemistry	Basic Science	01Hour Tutorial 02Hour Practical		03	60	40	100	2	
8	17CIV18	Environmental Studies (Audit Course)	Civil/ Environmental Engineering	Civil Engineering	01HourTutorial		--	30	20	50	--	
TOTAL					Theory:21 hours Practical: 08 hours		21	450	300	750	24	
II SEMESTER B.E./B.Tech (PHYSICS GROUP)												
1	17MAT21	Engineering Mathematics -II	Mathematics	Basic Science	04	--	03	60	40	100	4	
2	17PHY22	Engineering Physics	Physics	Basic Science	04	--	03	60	40	100	4	
3	17CIV23	Elements of Civil Engineering and Mechanics	Civil Engineering	Civil Engineering	04	--	03	60	40	100	4	
4	17EME24	Elements of Mechanical Engineering	Mechanical Engineering	Mechanical Engineering	04	--	03	60	40	100	4	
5	17ELE25	Basic Electrical Engineering	E and E Engineering	E and E Engineering	04	--	03	60	40	100	4	
6	17WSL26	Workshop Practice	ME, Auto, IP, IEM, Mfg Engineering	Mechanical Engineering	01-Hour Instruction 02-Hour Practical		03	60	40	100	2	
7	17PHYL27	Engineering Physics Laboratory	Physics	Basic Science	01-Hour Instruction 02-Hour Practical		03	60	40	100	2	
8	17ENG28	Language – English (Audit Course)	Humanities	--	01		--	--	--	--	--	
TOTAL					Theory:21 hours Practical: 06 hours		21	420	280	700	24	

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, 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		Examination			Credits	
			Theory	Practical/ Drawing	Duration	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)

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

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	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.

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		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

VI 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	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.

**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.

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
CHOICE BASED CREDIT SYSTEM (CBCS)
SCHEME OF TEACHING AND EXAMINATION 2015-2016
 B.E. Information Science & 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	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 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
15IS552	Social Network Analysis
15CS553	Advanced JAVA and J2EE
15IS554	Programming Languages

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. Information 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	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	--	1I+2P	03	80	20	100	2
8	15ISL68	File Structures Laboratory with mini project	--	1I+2P	03	80	20	100	2
TOTAL			22	06	24	640	160	800	26

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)**

**SCHEME OF TEACHING AND EXAMINATION
MASTER OF BUSINESS ADMINISTRATION**

I SEMESTER

Subject Code	Title of the Subject	Category	Teaching hours / week			Duration of Exam (Hours)	Marks for		Total Marks	Credits
			Lecture	Practical / Field Work / Assignment *	Total		IA	Exam		
16MBA11	Management & Organizational Behaviour	Core Course	3	2	5	3	20	80	100	4
16MBA12	Managerial Economics	Core Course	3	2	5	3	20	80	100	4
16MBA13	Accounting for Managers	Core Course	3	2	5	3	20	80	100	4
16MBA14	Quantitative Methods	Core Course	3	2	5	3	20	80	100	4
16MBA15	Marketing Management	Core Course	3	2	5	3	20	80	100	4
16MBA16	Managerial Communications	Core Course	3	2	5	3	20	80	100	4
	Total		18	12	30		120	480	600	24

*** Practical /Field Work / Assignment is a part of contact hours for the faculty and must be considered in the workload.**

II SEMESTER

Subject Code	Title of the Subject	Category	Teaching hours / week			Duration of Exam (Hours)	Marks for		Total Marks	Credits
			Lecture	Practical / Field Work / Assignment *	Total		IA	Exam		
16MBA21	Human Resource Management	Core Course	3	2	5	3	20	80	100	4
16MBA22	Financial Management	Core Course	3	2	5	3	20	80	100	4
16MBA23	Research Methods	Core Course	3	2	5	3	20	80	100	4
16MBA24	Business Law and Policy	Core Course	3	2	5	3	20	80	100	4
16MBA25	Strategic Management	Core Course	3	2	5	3	20	80	100	4
16MBA26	Entrepreneurship Development	Core Course	3	2	5	3	20	80	100	4
Total			18	12	30		120	480	600	24

* Practical /Field Work / Assignment is a part of contact hours for the faculty and must be considered in the workload.

**III SEMESTER
(Core Specialisation)**

Subject Code			Category	Teaching hours / week			Duration of Exam (Hours)	Marks for		Total Marks	Credits
				Lecture	Practical / Field Work / Assignment **	Total		IA	Exam		
Marketing	Finance	Human Resource									
16MBAMM301	16MBAFM301	16MBAHR301	Foundation Course	3	2	5	3	20	80	100	3
16MBAMM302	16MBAFM302	16MBAHR302	Foundation Elective	3	2	5	3	20	80	100	3
16MBAMM303	16MBAFM303	16MBAHR303	Elective	3	2	5	3	20	80	100	3
16MBAMM304	16MBAFM304	16MBAHR304	Foundation Course	3	2	5	3	20	80	100	3
16MBAMM305	16MBAFM305	16MBAHR305	Foundation Elective	3	2	5	3	20	80	100	3
16MBAMM306	16MBAFM306	16MBAHR306	Elective	3	2	5	3	20	80	100	3
16MBAIN307			Internship *	0	8	8	-	50	50	100	4
			Industrial Visit	0	0	0	0	0	00	00	0
				18	12	30		120	480	700	22

* Internship will be carried out by students after second semester during vacation and the report submitted by the students will be assessed internally during the third semester. Total number of teaching hours per week is excluding internship workload.

** Practical /Field Work / Assignment is a part of contact hours for the faculty and must be considered in the workload.
Industrial visit is a mandatory activity with zero credits

**III SEMESTER
(Core Specialisation Subjects)**

Marketing Specialisation		Finance Specialisation		Human Resource Specialisation	
Subject Code	Title of the Subject	Subject Code	Title of the Subject	Subject Code	Title of the Subject
16MBAMM301	Consumer Behavior	16MBAFM301	Principles & Practices of Banking	16MBAHR301	Industrial Relations & Legislations
16MBAMM302	Retail Management	16MBAFM302	Investment Banking & Financial Services	16MBAHR302	Recruitment & Selection
16MBAMM303	Services Marketing	16MBAFM303	Investment Management	16MBAHR303	Compensation & Benefits
16MBAMM304	Marketing Research	16MBAFM304	Advanced Financial Management	16MBAHR304	Learning & Development
16MBAMM305	Business Marketing	16MBAFM305	Cost Management	16MBAHR305	Knowledge Management
16MBAMM306	Supply Chain Management	16MBAFM306	Strategic Credit Management	16MBAHR306	Conflict & Negotiation Management

III SEMESTER (Dual Specialisation)

Subject Code			Category	Teaching hours / week			Duration of Exam (Hours)	Marks for		Total Marks	Credits
				Lecture	Practical / Field Work / Assignment **	Total		IA	Exam		
Marketing & Finance	Finance & HR	HR & Marketing									
16MBAMM301	16MBAFM301	16MBAHR301	Foundation Course	3	2	5	3	20	80	100	3
16MBAMM302	16MBAFM302	16MBAHR302	Foundation Elective	3	2	5	3	20	80	100	3
16MBAMM303	16MBAFM303	16MBAHR303	Elective	3	2	5	3	20	80	100	3
16MBAFM301	16MBAHR301	16MBAMM301	Foundation Course	3	2	5	3	20	80	100	3
16MBAFM302	16MBAHR302	16MBAMM302	Foundation Elective	3	2	5	3	20	80	100	3
16MBAFM303	16MBAHR303	16MBAMM303	Elective	3	2	5	3	20	80	100	3
16MBAIN307			Internship *	0	8	8	---	50	50	100	4
			Industrial Visit	0	0	0	0	00	00	00	0
				18	12	30		120	480	700	22

* Internship will be carried out by students after second semester during vacation and the report submitted by the students will be assessed internally during the third semester. Total number of teaching hours per week is excluding internship workload.

** Practical / Field Work / Assignment is a part of contact hours for the faculty and must be considered in the workload.
Industrial visit is a mandatory activity with zero credits

**IV SEMESTER
(Core Specialisation)**

Subject Code			Category	Teaching hours / week			Duration of Exam (Hours)	Marks for		Total Marks	Credits
				Lecture	Practical / Field Work / Assignment **	Total		IA	Exam		
Marketing	Finance	Human Resource									
16MBAMM401	16MBAFM401	16MBAHR401	Foundation Course	3	2	5	3	20	80	100	3
16MBAMM402	16MBAFM402	16MBAHR402	Foundation Elective	3	2	5	3	20	80	100	3
16MBAMM403	16MBAFM403	16MBAHR403	Elective	3	2	5	3	20	80	100	3
16MBAMM404	16MBAFM404	16MBAHR404	Foundation Course	3	2	5	3	20	80	100	3
16MBAMM405	16MBAFM405	16MBAHR405	Foundation Elective	3	2	5	3	20	80	100	3
16MBAMM406	16MBAFM406	16MBAHR406	Elective	3	2	5	3	20	80	100	3
16MBAPR407			Project Work *	0	8	8	---	50	150	200	12
										800	30

* Project work will be carried out after third semester and shall be evaluated during fourth semester. The internal assessment will be made for 50 marks. In the examination, the total marks of 150 shall be allotted as follows: 50 marks each for report evaluation by internal and external examiners respectively and remaining 50 marks for the viva voce examination, jointly assessed by internal and external examiners.

**** Practical /Field Work / Assignment is a part of contact hours for the faculty and must be considered in the workload.**

**IV SEMESTER
(Core Specialisation Subjects)**

Marketing Specialisation		Financial Specialisation		Human Resource Specialisation	
Subject Code	Title of the Subject	Subject Code	Title of the Subject	Subject Code	Title of the Subject
16MBAMM401	Sales Management	16MBAFM401	Mergers, Acquisitions & Corporate Restructuring	16MBAHR401	Public relations
16MBAMM402	Integrated Marketing Communication	16MBAFM402	Risk Management and Insurance	16MBAHR402	Workplace Ethics & Value Systems
16MBAMM403	E-Marketing	16MBAFM403	Tax Management	16MBAHR403	International Human Resource Management
16MBAMM404	Strategic Brand Management	16MBAFM404	International Financial Management	16MBAHR404	Organisation Change and Development
16MBAMM405	Rural Marketing	16MBAFM405	Financial Derivatives	16MBAHR405	Strategic Talent Management
16MBAMM406	International Marketing Management	16MBAFM406	Corporate Valuation	16MBAHR406	Personal Growth & Interpersonal Effectiveness

**IV SEMESTER
(Dual Specialisation)**

Subject Code			Category	Teaching hours / week			Duration of Exam (Hours)	Marks for		Total Marks	Credits
				Lecture	Practical / Field Work / Assignment **	Total		IA	Exam		
Marketing & Finance	Finance & HR	HR & Marketing									
16MBAMM401	16MBAFM401	16MBAHR401	Foundation Course	3	2	5	3	20	80	100	3
16MBAMM402	16MBAFM402	16MBAHR402	Foundation Elective	3	2	5	3	20	80	100	3
16MBAMM403	16MBAFM403	16MBAHR403	Elective	3	2	5	3	20	80	100	3
16MBAFM401	16MBAHR401	16MBAMM401	Foundation Course	3	2	5	3	20	80	100	3
16MBAFM402	16MBAHR402	16MBAMM402	Foundation Elective	3	2	5	3	20	80	100	3
16MBAFM403	16MBAHR403	16MBAMM403	Elective	3	2	5	3	20	80	100	3
16MBAPR407			Project Work *	0	8	8	---	50	150	200	12
										800	30

- Project work will be carried out after third semester and shall be evaluated during fourth semester. The internal assessment will be made for 50 marks. In the examination, the total marks of 150 shall be allotted as follows: 50 marks each for report evaluation by internal and external examiners respectively and remaining 50 marks for the viva voce examination, jointly assessed by internal and external examiners.

**** Practical /Field Work / Assignment is a part of contact hours for the faculty and must be considered in the workload.**

**IV SEMESTER
(Dual Specialisation Subjects)**

Marketing & Finance Specialisation		Marketing & Human Resources Specialisation		Finance & Human Resource Specialisation	
Subject Code	Title of the Subject	Subject Code	Title of the Subject	Subject Code	Title of the Subject
16MBAMM401	Sales Management	16MBAMM401	Sales Management	16MBAFM401	Mergers, Acquisitions & Corporate Restructuring
16MBAMM402	Integrated Marketing Communication	16MBAMM402	Integrated Marketing Communication	16MBAFM402	Risk Management and Insurance
16MBAMM403	E-Marketing	16MBAMM403	E-Marketing	16MBAFM403	Tax Management
16MBAFM401	Mergers, Acquisitions & Corporate Restructuring	16MBAHR401	Public relations	16MBAHR401	Public relations
16MBAFM402	Risk Management and Insurance	16MBAHR402	Workplace Ethics & Value Systems	16MBAHR402	Workplace Ethics & Value Systems
16MBAFM403	Tax Management	16MBAHR403	International Human Resource Management	16MBAHR403	International Human Resource Management

Plan of action (proposed)

1. Implementation of CBCS for MBA Programme will be effective from next academic year, i.e., 2016-17
2. Review of Scheme of Teaching and Examinations being finalized
3. Award of Credits for various components of MBA Programme
4. Allotment of marks for the subjects/papers, seminar and summer project.
80:20 patterns of marks for external examination and internal (IA) marks respectively is to be adopted for all the subjects, except Internship, for which the pattern will be 50:50 basis for internal and external assessments respectively.

Question paper for theory examination shall consist of Part A and B as under:

- Part A shall consist of 5 questions subdivided into a, b, c in 3+7+10 mixed pattern
- Part B shall be a *compulsory* question on Case study/ Practical problem for 20 marks (may contain a maximum of 4 sub-questions).

IA Pattern: 20 marks in each subject, comprising of 10 marks for tests and 10 marks for assignments/seminars/practical exercises/quiz/oral exams

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELGAUM
CHOICE BASED CREDIT SYSTEM (CBCS)
SCHEME OF TEACHING AND EXAMINATION 2016-2017

M.Tech.- Structural Engineering

I SEMESTER

Sl. No.	Subject Code	Title	Teaching Hours /Week		Examination				Credit
			Theory	Practical/ Field Work/ Assignment	Duration	I.A. Marks	Theory/ Practical Marks	Total Marks	
1	16CSE11	Computational Structural Mechanics	4	-	3	20	80	100	4
2	16CSE12	Advanced Design of RC Structures	4	-	3	20	80	100	4
3	16CSE13	Mechanics of Deformable Bodies	4	-	3	20	80	100	4
4	16CSE14	Structural Dynamics	4	-	3	20	80	100	4
5	16 CSE15X	Elective-I	3	-	3	20	80	100	3
6	16CSEL16	Structural Engineering Lab-1		3	3	20	80	100	2
7	16CSE17	Seminar	-	3	-	100	-	100	1
TOTAL			19	6	18	220	480	700	22

Elective -I	
16CSE151	Advanced Design of Pre-Stressed Concrete Structures
16CSE152	Special Concrete
16CSE153	Design of Precast & Composite Structures
16CSE154	Reliability Analysis of Structures

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELGAUM
CHOICE BASED CREDIT SYSTEM (CBCS)
SCHEME OF TEACHING AND EXAMINATION 2016-2017

M.Tech.- Structural Engineering

I I SEMESTER

Sl. No.	Subject Code	Title	Teaching Hours /Week		Examination			Credit	
			Theory	Practical/ Field Work/ Assignment	Duration	I.A. Marks	Theory/ Practical Marks		Total Marks
1	16CSE21	Advanced Design of Steel Structures	4	-	3	20	80	100	4
2	16CSE22	Earthquake Resistance Structures	4	-	3	20	80	100	4
3	16CSE23	Finite Elements Method of Analysis	4	-	3	20	80	100	4
4	16CSE24	Design Concepts of Substructures	4	-	3	20	80	100	4
5	16CSE25X	Elective-II	3	-	3	20	80	100	3
6	16CSEL26	Structural Engineering Lab-2		3	3	20	80	100	2
7	16CSE27	Seminar	-	3	-	100	-	100	1
TOTAL			19	6	18	220	480	700	22

Elective -II	
16CSE251	Design of Tall structures
16CSE252	Repair and Rehabilitation of Structures
16CSE253	Stability of Structures
16CSE254	Theory of Plates and Shells

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELGAUM
CHOICE BASED CREDIT SYSTEM (CBCS)
SCHEME OF TEACHING AND EXAMINATION 2016-2017

M.Tech.- Structural Engineering

III SEMESTER: Internship

Sl. No.	Subject Code	Title	Teaching Hours /Week		Examination			Credit	
			Theory	Practical/Field Work/ Assignment	Duration	I.A. Marks	Theory/ Practical Marks		Total Marks
1	16CSE31	Seminar / Presentation on Internship (After 8 weeks from the date of commencement)	-	-	-	25	-	25	20
2	16CSE32	Report on Internship	-	-	-	25	-	25	
3	16CSE33	Evaluation and Viva-Voce of Internship	-	-	-	-	50	50	
4	16CSE34	Project Phase -1	-	-	-	50	-	50	1
TOTAL			-	-	-	100	50	150	21

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELGAUM
CHOICE BASED CREDIT SYSTEM (CBCS)
SCHEME OF TEACHING AND EXAMINATION 2016-2017

M.Tech.- Structural Engineering

IV SEMESTER

Sl. No.	Subject Code	Title	Teaching Hours /Week		Examination				Credit
			Theory	Practical/ Field Work/ Assignment	Duration	I.A. Marks	Theory/ Practical Marks	Total Marks	
1	16CSE41	Design of Concrete Bridges	4	-	3	20	80	100	4
2	16CSE42X	Elective-3	3	-	3	20	80	100	3
3	16CSE43	Project phase -2	-	-	-	50	-	50	3
4	16CSE44	Evaluation of Project and Viva-Voce	-	-	3	-	100+100	200	10
TOTAL			-	-	6	90	360	450	20

Elective-III	
16CSE421	Optimization Techniques
16CSE422	Design of Industrial Structures
16CSE423	Theory of Plasticity and Fracture Mechanics
16CSE424	Design of Masonry Structures

Note:

- 1. Project Phase-1:** 6-week duration shall be carried out between 2nd and 3rd Semester vacation. Candidates in consultation with the guide shall carry out literature survey/ visit industries to finalize the topic of Project.
- 2. Project Phase-2:** 16-week duration during 4th semester. Evaluation shall be done by the committee constituted comprising of HoD as Chairman, Guide and Senior faculty of the department.
- 3. Project Evaluation:** Evaluation shall be taken up at the end of 4th semester. Project work evaluation and Viva-Voce examination shall conducted
- 4. Project evaluation:**
 - a. Internal Examiner shall carry out the evaluation for 100 marks.
 - b. External Examiner shall carry out the evaluation for 100 marks.
 - c. The average of marks allotted by the internal and external examiner shall be the final marks of the project evaluation.
 - d. Viva-Voce examination of Project work shall be conducted jointly by Internal and External examiner for 100 marks.

**Common to Design Engineering (MDE), Engineering Analysis & Design
(MEA),Machine Design (MMD)**

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELGAUM

SCHEME OF TEACHING AND EXAMINATION FOR
M.TECH. Machine Design

I SEMESTER

CREDIT BASED

Subject Code	Name of the Subject	Teaching hours/week		Duration of Exam in Hours	Marks for		Total Marks	CREDITS
		Lecture	Practical / Field Work / Assignment/ Tutorials		I.A.	Exam		
16 MDE11	Applied Mathematics	4	2	3	20	80	100	4
16 MDE12	Finite Element Method	4	2	3	20	80	100	4
16CAE13	Continuum Mechanics	4	2	3	20	80	100	4
16CAE16	Experimental Mechanics	4	2	3	20	80	100	4
	Elective – I	4	2	3	20	80	100	4
16MDE16	Design Engineering Lab I	--	3	3	20	80	100	2
16MMD17	SEMINAR	--	-	--	100	--	100	1
Total		20	13	18	220	480	700	23

ELECTIVE-I

16MDE 151	Computer Graphics	16 MDE 153	Mechatronics System Design
16MDE 152	Computer Applications in Design	16MDE 154	Design for Manufacture
16MEA155	Advanced Fluid Dynamics		

Common to Design Engineering (MDE), Engineering Analysis & Design (MEA),
Machine Design (MMD), Computer Aided Engineering (CAE)

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELGAUM

**SCHEME OF TEACHING AND EXAMINATION FOR
M.TECH. Machine Design**

II SEMESTER

CREDIT BASED

Subject Code	Name of the Subject	Teaching hours/week		Duration of Exam in Hours	Marks for		Total Marks	CREDITS
		Lecture	Practical / Field Work / Assignment/ Tutorials		I.A.	Exam		
16MST 21	Composite Materials Technology	4	2	3	20	80	100	4
16MDE 22	Advanced Machine Design	4	2	3	20	80	100	4
16MDE 23	Dynamics & Mechanism Design	4	2	3	20	80	100	4
16MDE 24	Advanced Theory of Vibrations	4	2	3	20	80	100	4
16XXXXXX	Elective – II	4	2	3	20	80	100	4
16MDE 26	Design Engineering Lab II	--	3	3	20	80	100	2
16MMD 27	SEMINAR	--	--	--	100	--	100	1
	**PROJECT WORK PHASE-I COMMENCEMENT (6 WEEKS DURATION)	--	--	--	--	--	--	-
Total		20	13	18	220	480	700	23

ELECTIVE-II

16CAE 251	Design Optimization	16CAE 253	Advanced Manufacturing Process Simulation
16MDE252	Theory of Plasticity	16MDE 254	Rotor Dynamics
16MEA255	Automobile System Design		

**** Between the II Semester and III Semester, after availing a vacation of 2 weeks.**

Common to Design Engineering (MDE), Engineering Analysis & Design (MEA),
Machine Design (MMD), Computer Aided Engineering (CAE)

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELGAUM

**SCHEME OF TEACHING AND EXAMINATION FOR
M.TECH. Machine Design**

III SEMESTER

CREDIT BASED

Subject Code	Name of the Subject	Teaching hours/week		Duration of Exam in Hours	Marks for		Total Marks	CREDITS
		Lecture	Practical / Field Work / Assignment/ Tutorials		I.A.	Exam		
16MMD31	Seminar / Presentation on Internship (After 8 weeks from the date of commencement)				25	-	25	20
16MMD32	Report on Internship				25	-	25	
16MMD33	Evaluation and Viva-Voce of Internship				-	50	50	
16MMD34	Evaluation of Project phase -1				50	-	50	1
Total					100	50	150	21

Number of credits completed at the end of III semester: 22+ 22 + 21 = 65

Note: Internship of 16 weeks shall be carried out during III semester. Major part of the Project work shall also be carried out during the III semester in consultation with the Guide/s.

Common to Design Engineering (MDE), Engineering Analysis & Design (MEA),
Machine Design (MMD), Computer Aided Engineering (CAE)

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELGAUM
SCHEME OF TEACHING AND EXAMINATION FOR
M.TECH. Machine Design

IV SEMESTER

CREDIT BASED

Subject Code	Name of the Subject	Teaching hours/week		Duration of Exam in Hours	Marks for		Total Marks	CREDITS
		Lecture	Practical / Field Work / Assignment/ Tutorials		I.A.	Exam		
16MMD41	Tribology and Bearing Design	04	-	03	20	80	100	4
16MMD42X	Elective - 3	03	-	03	20	80	100	3
16MMD43	Evaluation of Project phase -2	-	-	-	50	-	50	3
16MMD44	Evaluation of Project and Viva-Voce	-	-	-	-	100+100	200	10
Total		07	-	06	90	360	450	20
Number of credits completed at the end of IV semester: 22+ 22 + 21 + 20 = 85								

Elective -3	
Subject Code under 16MMD42X	Title
16CAE421	Fracture Mechanics
16MST422	Smart Materials & Structures
16MDE423	Robust Design
16MEA424	Computational Fluid Dynamics

- Note:** 1. Project Phase-1: 6-week duration shall be carried out between 2nd and 3rd Semester vacation. Candidates in consultation with the guide shall carry out literature survey/ visit industries to finalize the topic of Project.
2. Project Phase-2: 16-week duration during 4th semester. Evaluation shall be done by the committee comprising of HoD as Chairman, Guide and Senior faculty of the department.
3. Project Evaluation: Evaluation shall be taken up at the end of 4th semester. Project work evaluation and Viva-Voce examination shall be conducted.
4. Project evaluation: a. Internal Examiner shall carry out the evaluation for 100 marks. b. External Examiner shall carry out the evaluation for 100 marks. c. The average of marks allotted by the internal and external examiner shall be the final marks of the project evaluation. d. Viva-Voce examination of Project work shall be conducted jointly by Internal and External examiner for 100 marks.

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELGAUM
CHOICE BASED CREDIT SYSTEM (CBCS)
SCHEME OF TEACHING AND EXAMINATION 2016-2017
M. Tech. (Computer Science & Engineering)

I Semester

CREDIT BASED

Subject Code	Name of the Subject	Teaching hours/week		Duration of Exam in Hours	Marks for		Total Marks	CREDITS
		Lecture	Practical / Field Work / Assignment		I.A.	Exam		
16SCS11	Advances in Operating Systems	4	-	3	20	80	100	4
16SCS12	Cloud Computing	4	--	3	20	80	100	4
16SCS13	Advances in Data Base Management System	4	--	3	20	80	100	4
16SCS14	Probability Statistics and Queuing Theory	4	--	3	20	80	100	4
16SCS15x	Course Electives – I	3	--	3	20	80	100	3
16SCS16	Operating Systems and ADBMS Laboratory	--	3(2 Hrs lab+ 1 Hr Instruction)	3	20	80	100	2
16SCS17	Seminar	--	--	--	100	--	100	1
Total		20	3	18	220	480	700	22

Course Electives 1	
16SCS151	Advances in Digital Image Processing
16SCS152	Embedded Computing Systems
16SCS153	Advances in Storage Area Networks
16SCS154	Advances in Computer Graphics

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELGAUM
CHOICE BASED CREDIT SYSTEM (CBCS)
SCHEME OF TEACHING AND EXAMINATION 2016-2017
M. Tech. (Computer Science & Engineering)

II Semester

CREDIT BASED

Subject Code	Name of the Subject	Teaching hours/week		Duration of Exam in Hours	Marks for		Total Marks	CREDITS
		Lecture	Practical / Field Work / Assignment/ Tutorials		I.A.	Exam		
16SCS21	Managing Big Data	4	--	3	20	80	100	4
16SCS22	Advances in Computer Networks	4	--	3	20	80	100	4
16SCS23	Advanced Algorithms	4	--	3	20	80	100	4
16SCS24	Internet of Things	4	--	3	20	80	100	4
16SCS25x	Course Elective - II	4	--	3	20	80	100	3
16SCS26	Mini-project	--	3 hrs lab	3	20	80	100	2
16SCS27	Seminar	--	--	--	100	--	100	1
Total		20	3	18	220	480	700	22

Course Elective II	
16SCS251	Artificial Intelligence and Agent Technology
16SCS252	Pattern Recognition
16SCS253	Information and Network Security
16SCS254	Web Services

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELGAUM
CHOICE BASED CREDIT SYSTEM (CBCS)
SCHEME OF TEACHING AND EXAMINATION 2016-2017
M. Tech. (Computer Science & Engineering)

III SEMESTER: Internship

CREDIT BASED

Sl. No	Subject Code	Title	Teaching Hours /Week		Examination				Credit
			Theory	Practical/Field Work/Assignment	Duration	I.A. Marks	Theory/Practical Marks	Total Marks	
1	16SCS31	Seminar / Presentation on Internship (After 8 weeks from the date of commencement)	-	-	-	25	-	25	20
2	16SCS32	Report on Internship	-	-	-	25	-	25	
3	16SCS33	Evaluation and Viva-Voce of Internship	-	-	-	-	50	50	
4	16SCS34	Evaluation of Project phase -1	-	-	-	50	-	50	1
TOTAL			-	-	-	100	50	150	21

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELGAUM
CHOICE BASED CREDIT SYSTEM (CBCS)
SCHEME OF TEACHING AND EXAMINATION 2016-2017

M. Tech. (Computer Science & Engineering)

IV SEMESTER

CREDIT BASED

Sl. No	Subject Code	Title	Teaching Hours /Week		Examination				Credit
			Theory	Practical/Field Work/Assignment	Duration	I.A. Marks	Theory/Practical Marks	Total Marks	
1	16SCS41	Machine Learning Techniques	4	-	3	20	80	100	4
2	16SCS42x	Course Elective-III	3	-	3	20	80	100	3
3	16SCS43	Evaluation of Project phase -2	-	-	-	50	-	50	3
4	16SCS44	Evaluation of Project and Viva-Voce	-	-	-	-	100+100	200	10
TOTAL			7	-	6	90	360	450	20

Elective	
16SCS421	Computer Vision
16SCS422	Business Intelligence and its Applications
16SCS423	Agile Technologies
16SCS424	Wireless Network and Mobile Computing

Note:

- 1. Project Phase-1:** 6-week duration shall be carried out between 2nd and 3rd Semester vacation. Candidates in consultation with the guide shall carry out literature survey/visit industries to finalize the topic of Project.
- 2. Project Phase-2:** 16-week duration during 4th semester. Evaluation shall be done by the committee constituted comprising of HoD as Chairman, Guide and Senior faculty of the department.
- 3. Project Evaluation:** Evaluation shall be taken up at the end of 4th semester. Project work evaluation and Viva-Voce examination shall conducted
- 4. Project evaluation:**
 - a. Internal Examiner shall carry out the evaluation for 100 marks.
 - b. External Examiner shall carry out the evaluation for 100 marks.
 - c. The average of marks allotted by the internal and external examiner shall be the final marks of the project evaluation.
 - d. Viva-Voce examination of Project work shall be conducted jointly by Internal and External examiner for 100 marks.

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELGAUM
CHOICE BASED CREDIT SYSTEM (CBCS)
SCHEME OF TEACHING AND EXAMINATION 2016-2017

M.Tech. in Communication Systems, Digital Communication & Networking, Digital Communication Engineering, Digital Electronics & Communication Systems, Digital Electronics & Communication
 (Common to all 5 Programmes)

I SEMESTER

Sl. No	Subject Code	Title	Teaching Hours /Week		Examination				Credit
			Theory	Practical/Field Work/Assignment	Duration	I.A. Marks	Theory/Practical Marks	Total Marks	
1	16ELD11	Advanced Engineering Mathematics	4	-	3	20	80	100	4
2	16ECS12	Antenna Theory and Design	4	-	3	20	80	100	4
3	16EVE13	Advanced Embedded System	4	-	3	20	80	100	4
4	16ECS14	Advanced Digital Communications	4	-	3	20	80	100	4
5	16EXX15X	Elective-1	3	-	3	20	80	100	3
6	16ECSL16	Advanced Communication Lab		3	3	20	80	100	2
7	16ECS17	Seminar on advanced topics from refereed journals	-	3	-	100	-	100	1
TOTAL			19	6	18	220	480	700	22

Elective-1	
16ECS151	Advanced Computer Networks
16EVE152	Nanoelectronics
16ECS153	Optical Communication and Networking
16ECS154	Simulation, Modelling and Analysis

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II SEMESTER

Sl. No	Subject Code	Title	Teaching Hours /Week		Examination			Credit	
			Theory	Practical/Field Work/ Assignment	Duration	I.A. Marks	Theory/ Practical Marks		Total Marks
1	16ECS21	Advanced DSP	4	-	3	20	80	100	4
2	16ECS22	Error Control Coding	4	-	3	20	80	100	4
3	16ECS23	Wireless Communication	4	-	3	20	80	100	4
4	16ECS24	RF and Microwave Circuit Design	4	-	3	20	80	100	4
5	16EXX25X	Elective-2	3	-	3	20	80	100	3
6	16ECSL26	Advanced DSP Lab		3	3	20	80	100	2
7	16ECS27	Seminar on advanced topics from refereed journals	-	3	-	100	-	100	1
TOTAL			19	6	18	220	480	700	22

Elective-2	
16ELD251	Automotive Electronics
16ECS252	Multimedia Over Communication links
16ELD253	MEMS
16ECS254	Cryptography and Network Security

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III SEMESTER: Internship

Sl. No	Subject Code	Title	Teaching Hours /Week		Examination			Credit	
			Theory	Practical/Field Work/Assignment	Duration	I.A. Marks	Theory/Practical Marks		Total Marks
1	16ECS31	Seminar / Presentation on Internship (After 8 weeks from the date of commencement)	-	-	-	25	-	25	20
2	16ECS32	Report on Internship	-	-	-	25	-	25	
3	16ECS33	Evaluation and Viva-Voce of Internship	-	-	-	-	50	50	
4	16ECS34	Evaluation of Project phase -1	-	-	-	50	-	50	1
TOTAL			-	-	-	100	50	150	21

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IV SEMESTER

Sl. No	Subject Code	Title	Teaching Hours /Week		Examination			Credit	
			Theory	Practical/Field Work/Assignment	Duration	I.A. Marks	Theory/Practical Marks		Total Marks
1	16ECS41	Wireless Broadband Communications	4	-	3	20	80	100	4
2	16EXX42X	Elective-3	3	-	3	20	80	100	3
3	16ECS43	Evaluation of Project phase -2	-	-	-	50	-	50	3
4	16ECS44	Evaluation of Project and Viva-Voce	-	-	-	-	100+100	200	10
TOTAL			-	-	6	90	360	450	20

Elective-3	
16EVE421	CMOS RF Circuit Design
16ECS422	Advances in Image Processing
16ECS423	Communication System Design using DSP Algorithms
16ECS424	Real Time Systems

Note:

- 1. Project Phase-1:** 6-week duration shall be carried out between 2nd and 3rd Semester vacation. Candidates in consultation with the guide shall carry out literature survey/ visit industries to finalize the topic of Project.
- 2. Project Phase-2:** 16-week duration during 4th semester. Evaluation shall be done by the committee constituted comprising of HoD as Chairman, Guide and Senior faculty of the department.
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 - c. The average of marks allotted by the internal and external examiner shall be the final marks of the project evaluation.
 - d. Viva-Voce examination of Project work shall be conducted jointly by Internal and External examiner for 100 marks.

SCHEME OF TEACHING AND EXAMINATION 2016-17

**M.Tech. in Communication Systems, Digital Communication & Networking, Digital Communication Engineering, Digital Electronics & Communication Systems, Digital Electronics & Communication
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I SEMESTER

Sl. No	Subject Code	Title	Teaching Hours /Week		Examination				Credit
			Theory	Practical/Field Work/Assignment	Duration	I.A. Marks	Theory/Practical Marks	Total Marks	
1	16ELD11	Advanced Engineering Mathematics	4	-	3	20	80	100	4
2	16ECS12	Antenna Theory and Design	4	-	3	20	80	100	4
3	16EVE13	Advanced Embedded System	4	-	3	20	80	100	4
4	16ECS14	Advanced Digital Communication	4	-	3	20	80	100	4
5	16EXX15X	Elective-1	3	-	3	20	80	100	3
6	16ECSL16	Advanced Communication Lab		3	3	20	80	100	2
7	16ECS17	Seminar on advanced topics from refereed journals	-	3	-	100	-	100	1
TOTAL			19	6	18	220	480	700	22

Elective-1	
16ECS151	Advanced Computer Networks
16EVE152	Nanoelectronics
16ECS153	Optical Communication and Networking
16ECS154	Simulation, Modelling and Analysis

**M.Tech. in Communication Systems, Digital Communication & Networking, Digital Communication Engineering, Digital Electronics & Communication Systems, Digital Electronics & Communication
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II SEMESTER

Sl. No	Subject Code	Title	Teaching Hours /Week		Examination				Credit
			Theory	Practical/Field Work/ Assignment	Duration	I.A. Marks	Theory/ Practical Marks	Total Marks	
1	16ECS21	Advanced DSP	4	-	3	20	80	100	4
2	16ECS22	Error Control Coding	4	-	3	20	80	100	4
3	16ECS23	Wireless Communication	4	-	3	20	80	100	4
4	16ECS24	RF and Microwave Circuit Design	4	-	3	20	80	100	4
5	16EXX25X	Elective-2	3	-	3	20	80	100	3
6	16ECSL26	Advanced DSP Lab		3	3	20	80	100	2
7	16ECS27	Seminar on advanced topics from refereed journals	-	3	-	100	-	100	1
TOTAL			19	6	18	220	480	700	22

Elective-2	
16ELD251	Automotive Electronics
16ECS252	Multimedia Over Communication links
16ELD253	Micro Electro Mechanical Systems
16ECS254	Cryptography and Network Security

**M.Tech. in Communication Systems, Digital Communication & Networking, Digital Communication Engineering, Digital Electronics & Communication Systems, Digital Electronics & Communication
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III SEMESTER: Internship

Sl. No	Subject Code	Title	Teaching Hours /Week		Examination			Credit	
			Theory	Practical/Field Work/Assignment	Duration	I.A. Marks	Theory/Practical Marks		Total Marks
1	16ECS31	Seminar / Presentation on Internship (After 8 weeks from the date of commencement)	-	-	-	25	-	25	20
2	16ECS32	Report on Internship	-	-	-	25	-	25	
3	16ECS33	Evaluation and Viva-Voce of Internship	-	-	-	-	50	50	
4	16ECS34	Evaluation of Project phase -1	-	-	-	50	-	50	1
TOTAL			-	-	-	100	50	150	21

**M.Tech. in Communication Systems, Digital Communication & Networking, Digital Communication Engineering, Digital Electronics & Communication Systems, Digital Electronics & Communication
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IV SEMESTER

Sl. No	Subject Code	Title	Teaching Hours /Week		Examination				Credit
			Theory	Practical/Field Work/Assignment	Duration	I.A. Marks	Theory/Practical Marks	Total Marks	
1	16ECS41	Wireless Broadband LTE 4G	4	-	3	20	80	100	4
2	16EXX42X	Elective-3	3	-	3	20	80	100	3
3	16ECS43	Evaluation of Project phase -2	-	-	-	50	-	50	3
4	16ECS44	Evaluation of Project and Viva-Voce	-	-	-	-	100+100	200	10
TOTAL			-	-	6	90	360	450	20

Elective-3	
16EVE421	CMOS RF Circuit Design
16ECS422	Advances in Image Processing
16ECS423	Communication System Design using DSP Algorithms
16ECS424	Real Time Systems

Note:

- 1. Project Phase-1:** 6-week duration shall be carried out between 2nd and 3rd Semester vacation. Candidates in consultation with the guide shall carry out literature survey/ visit industries to finalize the topic of Project.
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