1.3.2.1 Number of courses that include experiential learning through project work/field work/internship year – wise during last five years

The data shown below is the list of courses that include experiential learning through project work/field work/internship during the year 2020-2021.

Sl.No	Program code	Program Name	Course code	Course Name
1	EC	Electronics And Communication Engineering	17ECP78	Project Work
2	EC	Electronics And Communication Engineering	17EC84	Internship
3	EC	Electronics And Communication Engineering	17ECP85	Project Work
4	ME	Mechanical Engineering	17MEP78	Project Work
5	ME	Mechanical Engineering	17ME84	Internship / Professional Practice
6	ME	Mechanical Engineering	17ME85	Project Work
7	AE	Aeronautical Engineering	17AEP78	Project Work
8	AE	Aeronautical Engineering	17AE84	Internship Professional
9	AE	Aeronautical Engineering	17AEP85	Project Work
10	CV	Civil Engineering	17CVP78	Project Work
11	CV	Civil Engineering	17CV84	Internship/ Professional Practice
12	CV	Civil Engineering	17CVP85	Project Work
13	BM	Biomedical Engineering	18BMP68	Mini Project
14	BM	Biomedical Engineering	17BMP78	Project Work
15	BM	Biomedical Engineering	17BM84	Internship
16	BM	Biomedical Engineering	17BMP85	Project Work
17	CS	Computer Science & Engineering	18CSL67	Computer Graphics Laboratory With Mini Project
18	CS	Computer Science & Engineering	17CSP78	Project Work
19	CS	Computer Science & Engineering	17CS84	Internship/ Professional Practice
20	CS	Computer Science & Engineering	17CSP85	Project Work
21	AS	Aerospace	18ASMP68	MINI-PROJECT
22	AS	Aerospace	17ASP78	Project Work
23	AS	Aerospace	17AS84	INTERNSHIP
24	AS	Aerospace	17ASP85	Project Work
25	CSE	Mtech Structural Engineering	18CSE34	Project Work
26	CSE	Mtech Structural Engineering	18CSEI35	Internship
27	CSE	Mtech Structural Engineering	18CSE41	Project Work
28	MPD	Product Design & Manufacturing	18MPD34	Project Work
29	MPD	Product Design & Manufacturing	18MPDI35	Internship

SL.NO	Program code	Program Name	Course code	Course Name
30	MPD	Product Design & Manufacturing	18MPD41	Project Work Phase -2
31	MAE	M.Tech Aeronautical Engineering	18MAE34	Evaluation Of Project Phase I
32	MAE	M.Tech Aeronautical Engineering	18MAE41	Project Work Phase II

PRINCIPAL

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

Aeronautical Engineering

VII Semester

S. No	Subject Code	Title	Teaching Hours /Week		Examination				Credits
			Theory	Practical/Drawing	Duration	Theory/ Practical Marks	I.A. Marks	Total Marks	
1	17AE71	CONTROL ENGINEERING	04		03	60	40	100	4
2	17AE72	COMPUTATIONAL FLUID DYNAMICS	04		03	60	40	100	4
3	17AE73	AIRCRAFT STABILITY AND CONTROL	04		03	60	40	100	4
4	17AE74X	PROFESSIONAL ELECTIVE	03		03	60	40	100	3
5	17AE75X	PROFESSIONAL ELECTIVE	03		03	60	40	100	3
6	17AEL76	FLIGHT SIMULATION LAB		1I+2P	03	60	40	100	2
7	17AEL77	MODELING AND ANALYSIS LAB		1I+2P	03	60	40	100	2
8	17AEP78	Project Phase –I + Project Seminar	-	03	-	-	100	100	2
TOTAL			18	9	21	420	380	800	24

Professional Elective (17AE74X)		Professional Elective (17AE75X)	
17AE741	FATIGUE AND FRACTURE MECHANICS	17AE751	OPERATIONS RESEARCH
17AE742	HIGH PERFORMANCE COMPUTING	17AE752	WIND TUNNEL TECHNIQUES
17AE743	HELICOPTER DYNAMICS	17AE753	NUMERICAL METHODS
17AE744	AERO-ELASTICITY	17AE754	GUIDANCE, NAVIGATION & CONTROL

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 + Project 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 2017-2018

Aeronautical Engineering

VIII SEMESTER

Sl. No	Subject Code	Title	Teaching Hours /Week		Examination				Credit
			Theory	Practical/Drawing	Duration	Theory/ Practical Marks	I.A. Marks	Total Marks	
1	17AE81	AVIONICS	4	-	3	60	40	100	4
2	17AE82	FLIGHT VEHICLE DESIGN	4	-	3	60	40	100	4
3	17AE83X	Professional Elective	3	-	3	60	40	100	3
4	17AE84	Internship / Professional Practice	Industry Oriented		3	50	50	100	2
5	17AEP85	Project Work Phase -II	-	6	3	100	100	200	6
6	17AES86	Seminar	-	4	-	-	100	100	1
TOTAL			11	10	15	330	370	700	20

Professional Elective	
17AE831	FLIGHT TESTING
17AE832	BOUNDARY LAYER THEORY
17AE833	OPTIMIZATION TECHNIQUES
17AE834	CRYOGENICS

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 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 2017-2018

B.E. AEROSPACE ENGINEERING

VII SEMESTER

Sl. No	Subject Code	Title	Teaching Dept.	Teaching Hours /Week		Examination				Credits
				Theory	Practical/ Drawing	Duration	Theory/ Practical Marks	I.A. Marks	Total Marks	
1	17AS71	AVIONICS SYSTEMS	AS	04		03	60	40	100	4
2	17AS72/17AE72	COMPUTATIONAL FLUID DYNAMICS	AS	04		03	60	40	100	4
3	17AS73/	SPACE VEHICLE DESIGN	AS	04		03	60	40	100	4
4	17AS74X	**PROFESSIONAL ELECTIVE**	AS	03		03	60	40	100	3
5	17AS75X	**PROFESSIONAL ELECTIVE**	AS	03		03	60	40	100	3
6	17ASL77	COMPUTATIONAL FLUID DYNAMICS LAB	AS		1I+2P	03	60	40	100	2
7	17ASL78	SPACE SIMULATION LAB	AS		1I+2P	03	60	40	100	2
8	17ASP78	PROJECT PHASE I + PROJECT SEMINAR	AS		03	-	-	100	100	2
		TOTAL		**18**	**9**	**21**	**420**	**380**	**800**	**24**

Foundation Elective		Elective	
17AS741/ 17AE741	FATIGUE AND FRACTURE MECHANICS	17AS751	OPTIMIZATION TECHNIQUES
17AS742	TOTAL QUALITY MANAGEMENT	17AS752/ 17AE752	WIND TUNNEL TECHNIQUES.
17AS743	THEORY OF ELASTICITY & PLASTICITY	17AS753	SMART MATERIALS & CONTROLS
17AS744/ 17AE744	AERO-ELASTICITY	17AS754/ 17AE754	GUIDANCE, NAVIGATION & CONTROL

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 + Project 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 2017-2018

B.E. AEROSPACE ENGINEERING

VIII SEMESTER

Sl. No	Subject Code	Title	Teaching Dept.	Teaching Hours /Week		Examination				Credits
				Theory	Practical/Drawing	Duration	Theory / Practical Marks	I.A. Marks	Total Marks	
1	17AS81	SATELLITE DESIGN	AS	4	-	3	60	40	100	4
2	17AS82	MISSILE DESIGN	AS	4	-	3	60	40	100	4
3	17AS83X	**Professional Elective**	AS	3	-	3	60	40	100	3
4	17AS84	Internship	AS	Industry Oriented		3	50	50	100	2
5	17ASP85	Project Work Phase II	AS	-	6	3	100	100	200	6
6	17ASS86	Seminar	AS	-	4	-	-	100	100	1
TOTAL				**11**	**10**	**15**	**330**	**370**	**700**	**20**

Elective-I	
17AS831	ARTIFICIAL INTELLIGENCE
17AS832	CRYOGENICS
17AS833	ROBOTICS
17AS834	SPACE CRAFT SYSTEMS

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 6th and 7th semester vacation or 7th and 8th semester vacation period.

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

B.E. Biomedical Engineering

VII SEMESTER

Sl. No	Subject Code	Title	Teaching Department	Teaching Hours /Week		Examination				Credits
				Theory	Practical/ Drawing	Duration (in Hrs)	SEE Marks	CIE Marks	Total Marks	
1	17BM71	Biomedical Digital Signal Processing	BM	04	-	03	60	40	100	4
2	17BM72	Computer Communication Networks in Healthcare	BM	04	-	03	60	40	100	4
3	17BM73	ARM Processor	BM	04	-	03	60	40	100	4
4	17BM74X	Professional Elective-III	BM	03	-	03	60	40	100	3
5	17BM75X	Professional Elective-IV	BM	03	-	03	60	40	100	3
6	17BML76	Biomedical DSP Lab	BM	-	1Hr-Instruction 2Hr-Practical	03	60	40	100	2
7	17BML77	ARM Processor Lab	BM	-	1Hr-Instruction 2Hr-Practical	03	60	40	100	2
8	17BMP78	Project Work Phase-I + Project Seminar	BM	-	03	--	--	100	100	2
TOTAL				**18**	**9**	**21**	**420**	**380**	**800**	**24**

Professional Elective-III		Professional Elective-IV	
17BM741	Database Management System in Healthcare	17BM751	Biostatistics
17BM742	Medical Informatics and Expert Systems	17BM752	Lasers and Optical Fibers in Medicine
17BM743	Hardware-Software Co-design	17BM753	Ergonomics
17BM744	Biometric Systems	17BM754	Big-data and Cloud Computing

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

TENTATIVE

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

B.E. Biomedical Engineering

VIII SEMESTER

Sl. No	Subject Code	Title	Teaching Department	Teaching Hours /Week		Examination				Credit
				Theory	Practical/ Drawing	Duration (in Hrs)	SEE Marks	CIE Marks	Total Marks	
1	17BM81	Medical Imaging Systems	BM	4	-	3	60	40	100	4
2	17BM82	Biomaterials and Artificial Organs	BM	4	-	3	60	40	100	4
3	17BM83X	Professional Elective-V	BM	3	-	3	60	40	100	3
4	17BM84	Internship / Professional Practice	BM	Industry Oriented		3	50	50	100	2
5	17BMP85	Project Work Phase-II	BM	-	6	3	100	100	200	6
6	17BMS86	Seminar	BM	-	4	-	-	100	100	1
TOTAL				**11**	**10**	**15**	**330**	**370**	**700**	**20**

Professional Elective-V	
17BM831	Bio-MEMS
17BM832	Medical Device Regulations
17BM833	Picture Archiving and Communication Systems
17BM834	Neural Networks and AI in Biomedical Engg.

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

TENTATIVE

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

B.E: Computer Science and Engineering

V SEMESTER

Sl. No	Course Code	Title	Teaching Department	Teaching Hours /Week		Examination				Credits
				Theory	Practical/ Drawing	Duration in hours	SEE Marks	CIE Marks	Total Marks	
1	17CS51	Management and Entrepreneurship for IT Industry	CS/IS	04		03	60	40	100	4
2	17CS52	Computer Networks	CS/IS	04		03	60	40	100	4
3	17CS53	Database Management System	CS/IS	04		03	60	40	100	4
4	17CS54	Automata theory and Computability	CS/IS	04		03	60	40	100	4
5	17CS55x	Professional Elective-1	CS/IS	03		03	60	40	100	3
6	17CS56x	Open Elective-1	CS/IS	03		03	60	40	100	3
7	17CSL57	Computer Network Laboratory	CS/IS	01-Hour Instruction 02-Hour Practical		03	60	40	100	2
8	17CSL58	DBMS Laboratory with mini project	CS/IS	01-Hour Instruction 02-Hour Practical		03	60	40	100	2
			TOTAL	**Theory: 22hours Practical: 06 hours**		**24**	**480**	**320**	**800**	**26**

Professional Elective-1			**Open Elective – 1*** (List offered by CSE Board only)**	
17CS551	Object Oriented Modeling and Design		17CS561	Programming in JAVA *(Not for CSE/ISE students)*
17CS552	Introduction to Software Testing		17CS562	Artificial Intelligence
17CS553	Advanced JAVA and J2EE		17CS563	Embedded Systems
17CS554	Advanced Algorithms		17CS564	Dot Net framework for application development;
			17CS565	Cloud Computing *(Not for CSE/ISE students)*

***Students can select any one of the open electives offered by any Department (Please refer to consolidated list of VTU for open electives).
Selection of an open elective is not allowed, if:
· The candidate has no pre – requisite knowledge.
· The candidate has studied similar content course during previous semesters.
· The syllabus content of the selected open elective is similar to that of Departmental core course(s) or to be studied Professional elective(s).
Registration to open electives shall be documented under the guidance of Programme Coordinator and Adviser.

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

B.E: Computer Science and Engineering

VI SEMESTER

Sl. No	Course Code	Title	Teaching Department	Teaching Hours /Week		Examination				Credits
				Theory	Practical/ Drawing	Duration in hours	SEE Marks	CIE Marks	Total Marks	
1	17CS61	Cryptography, Network Security and Cyber Law	CS/IS	04		03	60	40	100	4
2	17CS62	Computer Graphics and Visualization	CS/IS	04		03	60	40	100	4
3	17CS63	System Software and Compiler Design	CS/IS	04		03	60	40	100	4
4	17CS64	Operating Systems	CS/IS	04		03	60	40	100	4
5	17CS65x	Professional Elective-2	CS/IS	03		03	60	40	100	3
6	17CS66x	Open Elective-2	CS/IS	03		03	60	40	100	3
7	17CSL67	System Software and Operating System Laboratory	CS/IS	01-Hour Instruction 02-Hour Practical		03	60	40	100	2
8	17CSL68	Computer Graphics Laboratory with mini project	CS/IS	01-Hour Instruction 02-Hour Practical		03	60	40	100	2
			TOTAL	**Theory:22hours Practical: 06 hours**		**24**	**480**	**320**	**800**	**26**

Professional Elective-2			**Open Elective – 2*** (List offered by CSE Board only)**	
17CS651	Data Mining and Data Warehousing		17CS661	Mobile Application Development
17CS652	Software Architecture and Design Patterns		17CS662	Big Data Analytics *(Not for CSE/ISE students)*
17CS653	Operations research		17CS663	Wireless Networks and Mobile computing
17CS654	Distributed Computing system		17CS664	Python Application Programming
			17CS665	Service Oriented Architecture
			17CS666	Multicore Architecture and Programming

***Students can select any one of the open electives offered by any Department (Please refer to consolidated list of VTU for open electives).
Selection of an open elective is not allowed, if:
· The candidate has no pre – requisite knowledge.
· The candidate has studied similar content course during previous semesters.
· The syllabus content of the selected open elective is similar to that of Departmental core course(s) or to be studied Professional elective(s).
Registration to open electives shall be documented under the guidance of Programme Coordinator and Adviser.

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

B.E: Computer Science and Engineering

VII SEMESTER

Sl. No	Course Code	Title	Teaching Department	Teaching Hours /Week		Examination				Credits
				Theory	Practical/ Drawing	Duration in hours	SEE Marks	CIE Marks	Total Marks	
1	17CS71	Web Technology and its applications	CS/IS	04		03	60	40	100	4
2	17CS72	Advanced Computer Architectures	CS/IS	04		03	60	40	100	4
3	17CS73	Machine Learning	CS/IS	04		03	60	40	100	4
4	17CS74x	Professional Elective 3	CS/IS	03		03	60	40	100	3
5	17CS75x	Professional Elective 4	CS/IS	03		03	60	40	100	3
6	17CSL76	Machine Learning Laboratory	CS/IS	01-Hour Instruction 02-Hour Practical		03	60	40	100	2
7	17CSL77	Web Technology Laboratory with mini project	CS/IS	01-Hour Instruction 02-Hour Practical		03	60	40	100	2
8	17CSP78	Project Work Phase–I + Project work Seminar	CS/IS		03	--	--	100	100	2
TOTAL				**Theory:18 hours Practical and Project: 09 hours**		**21**	**420**	**380**	**800**	**24**

Professional Elective-3		**Professional Elective-4**	
17CS741	Natural Language Processing	17CS751	Soft and Evolutionary Computing
17CS742	Cloud Computing and its Applications	17CS752	Computer Vision and Robotics
17CS743	Information and Network Security	17CS753	Digital Image Processing
17CS744	Unix System Programming	17CS754	Storage Area Networks

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

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

B.E: Computer Science and Engineering

VIII SEMESTER

Sl. No	Course Code	Title	Teaching Department	Teaching Hours /Week		Examination				Credits
				Theory	Practical/ Drawing	Duration in hours	SEE Marks	CIE Marks	Total Marks	
1	17CS81	Internet of Things and Applications	CS/IS	4	-	3	60	40	100	4
2	17CS82	Big Data Analytics	CS/IS	4	-	3	60	40	100	4
3	17CS83X	Professional Elective-5	CS/IS	3	-	3	60	40	100	3
4	17CS84	Internship/ Professional Practice	CS/IS	Industry Oriented		3	50	50	100	2
5	17CSP85	Project Work-II	CS/IS	-	6	3	100	100	200	6
6	17CSS86	Seminar	CS/IS	-	4	-	-	100	100	1
TOTAL				**Theory: 11 hours Project and Seminar: 10 hours**		**15**	**330**	**370**	**700**	**20**

Professional Elective -5	
17CS831	High Performance Computing
17CS832	User Interface Design
17CS833	Network management
17CS834	System Modeling and Simulation

1. Internship/ Professional Practice: 4 Weeks internship to be completed between the (VI and VII semester vacation) and/or (VII and VIII semester vacation) period.

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

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

B.E: CIVIL ENGINEERING

VII SEMESTER

Sl. No.	Course Code	Title	Teaching Department	Teaching Hours /Week		Examination				Credits
				Theory	Practical/ Drawing	Duration in hours	SEE Marks	CIE Marks	Total Marks	
1	17CV71	Municipal and Industrial Waste Water Engineering	Civil Engg.	04		03	60	40	100	4
2	17CV72	Design of RCC and Steel Structures	Civil Engg.	04		03	60	40	100	4
3	17CV73	Hydrology and Irrigation Engineering	Civil Engg.	04		03	60	40	100	4
4	17CV74X	Professional Elective-3	Civil Engg.	03		03	60	40	100	3
5	17CV75X	Professional Elective-4	Civil Engg.	03		03	60	40	100	3
6	17CVL76	Environmental Engineering Laboratory	Civil Engg.	01-Hour Instruction 02-Hour Practical		03	60	40	100	2
7	17CVL77	Computer Aided Detailing of Structures	Civil Engg.	01-Hour Instruction 02-Hour Practical		03	60	40	100	2
8	17CVP78	Project Work Phase–I + Project work Seminar	Civil Engg.		03	--	--	100	100	2
TOTAL				**Theory:18 hours Practical and Project: 09 hours**		**21**	**420**	**380**	**800**	**24**

Professional Elective-3		**Professional Elective-4**	
17CV741	Design of Bridges	17CV751	Urban Transportation and Planning
17CV742	Ground Water & Hydraulics	17CV752	Prefabricated Structures
17CV743	Design Concept of Building Services	17CV753	Rehabilitation and Retrofitting of Structures
17CV744	Structural Dynamics	17CV754	Reinforced Earth Structures

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

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

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

B.E: CIVIL ENGINEERING

VIII SEMESTER

Sl. No.	Course Code	Title	Teaching Department	Teaching Hours /Week		Examination				Credits
				Theory	Practical/ Drawing	Duration in hours	SEE Marks	CIE Marks	Total Marks	
1	17CV81	Quantity Surveying and Contracts Management	Civil Engg.	4	-	3	60	40	100	4
2	17CV82	Design of Pre Stressed Concrete Elements	Civil Engg.	4	-	3	60	40	100	4
3	17CV83X	Professional Elective-5	Civil Engg.	3	-	3	60	40	100	3
4	17CV84	Internship/ Professional Practice	Civil Engg.	Industry Oriented		3	50	50	100	2
5	17CVP85	Project Work-II	Civil Engg.	-	6	3	100	100	200	6
6	17CVS86	Seminar on current trends in Engineering and Technology	Civil Engg.	-	4	-	-	100	100	1
TOTAL				**Theory: 11 hours Project and Seminar: 10 hours**		**15**	**330**	**370**	**700**	**20**

Professional Elective -5	
17CV831	Earthquake Engineering
17CV832	Hydraulic Structures
17CV833	Pavement Design
17CV834	Advanced Foundation Design

1. Internship/ Professional Practice: 4 Weeks internship to be completed between the (VI and VII semester vacation) and/or (VII and VIII semester vacation) period

B.E.: Electronics & Communication Engineering

VIII SEMESTER

Sl. No	Course Code	Title	Teaching Department	Teaching Hours /Week		Examination				Credits
				Theory	Practical/ Drawing	Duration in hours	SEE Marks	CIE Marks	Total Marks	
1	17EC81	Wireless Cellular and LTE 4G Broadband	EC	4	-	3	60	40	100	4
2	17EC82	Fiber Optics & Networks	EC	4	-	3	60	40	100	4
3	17EC83X	Professional Elective-5	EC	3	-	3	60	40	100	3
4	17EC84	Internship/Professional Practice	EC	Industry Oriented		3	50	50	100	2
5	17ECP85	Project Work	EC	-	6	3	100	100	200	6
6	17ECS86	Seminar	EC	-	4	-	-	100	100	1
TOTAL				**Theory: 11 hours Project and Seminar: 10 hours**		**15**	**330**	**370**	**700**	**20**

Professional Elective -5	
17EC831	Micro Electro Mechanical Systems
17EC832	Speech Processing
17EC833	Radar Engineering
17EC834	Machine learning
17EC835	Network and Cyber Security

1. Internship/ Professional Practice: 4 Weeks internship to be completed between the (VI and VII semester vacation) and/or (VII and VIII semester vacation) period.

Scanned by CamScanner

B.E.: Electronics & Communication Engineering

VII SEMESTER

Sl. No	Course Code	Title	Teaching Department	Teaching Hours /Week		Examination				Credits
				Theory	Practical/ Drawing	Duration in hours	SEE Marks	CIE Marks	Total Marks	
1	17EC71	Microwave and Antennas	EC	04		03	60	40	100	4
2	17EC72	Digital Image Processing	EC	04		03	60	40	100	4
3	17EC73	Power Electronics	EC	04		03	60	40	100	4
4	17EC74X	Professional Elective-3	EC	03		03	60	40	100	3
5	17EC75X	Professional Elective-4	EC	03		03	60	40	100	3
6	17ECL76	Advanced Communication Lab	EC	01-Hour Instruction 02-Hour Practical		03	60	40	100	2
7	17ECL77	VLSI Lab	EC	01-Hour Instruction 02-Hour Practical		03	60	40	100	2
8	17ECP78	Project Work Phase–I + Project work Seminar	EC		03		-	100	100	2
TOTAL				**Theory:18 hours Practical and Project: 09 hours**		**21**	**420**	**380**	**800**	**24**

Professional Elective-3		Professional Elective-4	
17EC741	Multimedia Communication	17EC751	DSP Algorithms and Architecture
17EC742	Biomedical Signal Processing	17EC752	IOT and Wireless Sensor Networks
17EC743	Real Time Systems	17EC753	Pattern Recognition
17EC744	Cryptography	17EC754	Advanced Computer Architecture
17EC745	CAD for VLSI	17EC755	Satellite Communication

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

Scanned by CamScanner

2017 Scheme

Visvesvaraya Technological University, Belagavi
B.E. in Mechanical Engineering
2017- Scheme of Teaching and Examination
Choice Based Credit System (CBCS)

VII Semester

Sl. No	Subject Code	Title	Teaching Hours /Week			Examination				Credits
			Lecture	Tutorial	Practical	Duration (Hours)	SEE Marks	CIE Marks	Total Marks	
1	17ME71	Energy Engineering	3	2	0	03	60	40	100	4
2	17ME72	Fluid Power Systems	4	0	0	03	60	40	100	4
3	17ME73	Control Engineering	3	2	0	03	60	40	100	4
4	17ME74X	Professional Elective - III	3	0	0	03	60	40	100	3
5	17ME75X	Professional Elective-IV	3	0	0	03	60	40	100	3
6	17MEL76	Design Lab	1	0	2	03	60	40	100	2
7	17MEL77	CIM Lab	1	0	2	03	60	40	100	2
8	17MEP78	Project Phase – I	-	-	-	-		100	100	2
TOTAL			**18**	**04**	**04**	**21**	**420**	**380**	**800**	**24**

Professional Elective-III		Professional Elective-IV	
17ME741	Design of Thermal Equipment's	17ME751	Automotive Electronics
17ME742	Tribology	17ME752	Fracture Mechanics
17ME743	Financial Management	**17ME753**	**Mechatronics**
17ME744	Design for Manufacturing	**17ME754**	**Advanced Vibrations**
17ME745	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 aprogramme in a said discipline of study.
2. **Professional Elective:** Elective relevant to chosen specialization/ branch

---

Visvesvaraya Technological University, Belagavi
B.E. in Mechanical Engineering
2017- Scheme of Teaching and Examination
Choice Based Credit System (CBCS)

VIII Semester

Sl. No	Subject Code	Title	Teaching Hours /Week			Examination				Credits
			L	T	P	Duration (Hours)	SEE Marks	CIE Marks	Total Marks	
1	17ME81	Operations Research	3	2	0	03	60	40	100	4
2	17ME82	Additive Manufacturing	4	0	0	03	60	40	100	4
3	17ME83X	Professional Elective - V	3	0	0	03	60	40	100	3
4	17ME84	Internship / Professional Practice	Industry Oriented			03	50	50	100	2
5	17ME85	Project Phase – II	-		6	03	100	100	200	6
6	17MES86	Seminar	-		4	-		100	100	1
TOTAL			**10**	**02**	**10**	**15**	**330**	**370**	**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 aprogramme 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, BELAGAVI
Scheme of Teaching and Examination 2018 – 19
Outcome Based Education(OBE) and Choice Based Credit System (CBCS)

B.E. in AERONAUTICAL ENGINEERING

(Effective from the academic year 2018 – 19)

VII SEMESTER

Sl. No	Course and Course code		Course Title	Teaching Department	Teaching Hours /Week			Examination				Credits
					Theory Lecture	Tutorial	Practical/ Drawing	Duration in hours	CIE Marks	SEE Marks	Total Marks	
					L	T	P					
1	PCC	18AE71	Aircraft Stability & Control		3	--	--	03	40	60	100	3
2	PCC	18 AE 72	Computational Fluid Dynamics		3	--	--	03	40	60	100	3
3	PEC	18 AE 73X	**Professional Elective - 2**		3	--	--	03	40	60	100	3
4	PEC	18 AE 74X	**Professional Electives - 3**		3	--	--	03	40	60	100	3
5	OEC	18 AE 75X	**Open Elective -B**		3	--	--	03	40	60	100	3
6	PCC	18 AE L76	Modelling & Analysis Lab		--	2	2	03	40	60	100	2
	PCC	18 AE L77	Flight Simulation Lab		--	2	2	03	40	60	100	2
7	Project	18 AE P78	Project Work Phase - 1		--	--	2	--	100	--	100	1
8	Internship	--	Internship	(If not completed during the vacation of VI and VII semesters, it shall be carried out during the vacation of VII and VIII semesters)								
				TOTAL	**15**	**04**	**06**	**18**	**340**	**360**	**700**	**20**

Note: PCC: Professional core, PEC: Professional Elective.

Professional Elective - 2		**Professional Electives - 3**	
Course code under 18XX73X	**Course Title**	**Course code under 18XX74X**	**Course Title**
18AE731	Fatigue And Fracture Mechanics	18AE741	High Performance Computing
18AE732	Control Engineering	18AE742/18AS742	Wind Tunnel Techniques
18AE733	Hydraulics and Pneumatics	18AE743/ 18AS743	Guidance, Navigation & Control
18AE734/18AS734	Heat and Mass Transfer	18AE744	Operations Research

Open Elective -B

Students can select any one of the open electives offered by other Departments expect those that are offered by the parent Department (Please refer to the list of open electives under 18XX75X).

Selection of an open elective shall not be allowed if,

- The candidate has studied the same course during the previous semesters of the programme.
- The syllabus content of open elective is similar to that of the Departmental core courses or professional electives.
- A similar course, under any category, is prescribed in the higher semesters of the programme.

Registration to electives shall be documented under the guidance of Programme Coordinator/ Advisor/Mentor.

Project work:

Based on the ability/abilities of the student/s and recommendations of the mentor, a single discipline or a multidisciplinaryproject can be assigned to an individual student or to a group having not more than 4 students. In extraordinary cases, like the funded projects requiring students from different disciplines, the project student strength can be 5 or 6.

CIE procedure for Project Work Phase - 1:

(i) Single discipline: The CIE marks shall be awarded by a committee consisting of the Head of the concerned Department and two senior faculty members of the Department, one of whom shall be the Guide.

The CIE marks awarded for the project work phase -1, shall be based on the evaluation of the project work phase -1 Report (covering Literature Survey, Problem identification, Objectives and Methodology), project presentation skill and question and answer session in the ratio 50:25:25.The marks awarded for the Project report shall be the same for all the batch mates.

(ii) Interdisciplinary: Continuous Internal Evaluation shall be group wise at the college level with the participation of all guides of the college. Participation of external guide/s, if any, is desirable.

The CIE marks awarded for the project work phase -1, shall be based on the evaluation of project work phase -1 Report(covering Literature Survey, Problem identification, Objectives and Methodology), project presentation skill and question and answer session in the ratio 50:25:25.The marks awarded for the project report shall be the same for all the batch mates.

Internship: All the students admitted to III year of BE/B. Tech shall have to undergo mandatory internship of 4 weeks during the vacation of VI and VII semesters and /or VII and VIII semesters. A University examination shall be conducted during VIII semester and the prescribed credit shall be included in VIII semester. Internship shall be considered as a head of passing and shall be considered for the award of degree. Those, who do not take-up/complete the internship shall be declared fail and shall have to complete during subsequent University examination after satisfying the internship requirements.

AICTE activity Points: In case students fail to earn the prescribed activity Points, Eighth semester Grade Card shall be issued only after earning the required activity Points. Students shall be admitted for the award of degree only after the release of the Eighth semester Grade Card.

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
Scheme of Teaching and Examination 2018 – 19
Outcome Based Education(OBE) and Choice Based Credit System (CBCS)

B.E.In AERONAUTICAL ENGINEERING

(Effective from the academic year 2018 – 19)

VIII SEMESTER

Sl. No.	Course and Course code		Course Title	Teaching Department	Teaching Hours /Week			Examination				Credits
					Theory Lecture	Tutorial	Practical/ Drawing	Duration in hours	CIE Marks	SEE Marks	Total Marks	
					L	T	P					
1	PCC	18AE81	Flight Vehicle Design		3	--	--	03	40	60	100	3
2	PEC	18AE82X	Professional Elective - 4		3	--	--	03	40	60	100	3
3	Project	18AEP83	Project Work Phase - 2		--	--	2	03	40	60	100	8
4	Seminar	18 AE S84	Technical Seminar		--	--	2	03	100	--	100	1
5	Internship	18AEI8S	Internship	Completed during the vacation/s of VI and VII semesters and /or VII and VIII semesters.)				03	40	60	100	3
				Total	06	--	04	15	260	240	500	18

Note: PCC: Professional Core, PEC: Professional Elective.

Professional Electives - 4

Course code under 18XX82X	Course Title
18AE821	Avionics
18AE822	Boundary Layer Theory
18AE823	Helicopter Dynamics
18AE824	Flight Testing

Project Work

CIE procedure for Project Work Phase - 2:

(i) Single discipline: The CIE marks shall be awarded by a committee consisting of the Head of the concerned Department and two senior faculty members of the Department, one of whom shall be the Guide.

The CIE marks awarded for the project work phase -2, shall be based on the evaluation of project work phase -2 Report, project presentation skill and question and answer session in the ratio 50:25:25.The marks awarded for the project report shall be the same for all the batch mates.

(ii) Interdisciplinary: Continuous Internal Evaluation shall be group wise at the college level with the participation of all guides of the college. Participation of external guide/s, if any, is desirable.

The CIE marks awarded for the project work phase -2, shall be based on the evaluation of project work phase -2 Report, project presentation skill and question and answer session in the ratio 50:25:25.The marks awarded for the project report shall be the same for all the batch mates.

SEE for Project Work Phase - 2:

(i) Single discipline: Contribution to the project and the performance of each group member shall be assessed individually in semester end examination (SEE) conducted at the department.

(ii) Interdisciplinary: Contribution to the project and the performance of each group member shall be assessed individually in semester end examination (SEE) conducted separately at the departments to which the student/s belong to.

Internship: Those, who have not pursued /completed the internship shall be declared as fail and have to complete during subsequent University examination after satisfying the internship requirements.

AICTE activity Points: In case students fail to earn the prescribed activity Points, Eighth semester Grade Card shall be issued only after earning the required activity Points. Students shall be admitted for the award of degree only after the release of the Eighth semester Grade Card.

Activity points of the students who have earned the prescribed AICTE activity Points shall be sent the University along with the CIE marks of 8th semester. In case of students who have not satisfied the AICTE activity Points at the end of eighth semester, the column under activity Points shall be marked NSAP (Not Satisfied Activity Points).

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
Scheme of Teaching and Examination – 2018-19
M.Tech Aeronautical Engineering
Outcome Based Education(OBE) and Choice Based Credit System (CBCS)

III SEMESTER

Sl. No	Course	Course Code	Course Title	Teaching Hours /Week		Examination				Credits
				Theory	Practical/ Field work/ Assignment	Duration in hours	CIE Marks	SEE Marks	Total Marks	
1	PCC	18MAE31	Aircraft Flight Dynamics and Automatic Flight Control	04	--	03	40	60	100	4
2	PEC	18MAE32X	Professional Elective 3	04	--	03	40	60	100	4
3	PEC	18MAE33X	Professional Elective 4	04	--	03	40	60	100	4
4	Project	18MAE34	Evaluation of Project phase -1	--	02	--	100	--	100	2
5	Internship	18MAEI35	Internship	(Completed during the intervening vacation of I and II semesters and /or II and III semesters.)		03	40	60	100	6
TOTAL				12	02	12	260	240	500	20

Note: PCC: Professional Core Course, PEC: Professional Elective Course

Professional Elective 3		Professional Elective 4	
Course Code under 18MAE32X	Course title	Course Code under 18MAE33X	Course title
18MAE321	Flight Vehicle Design	18MAE331	Fatigue and Fracture Mechanics
18MAE322	Theory of Aeroelasticity	18MAE332	Aero Engine Testing and Performance Evaluation
18MAE323	Hypersonic Aerodynamics	18MAE333	Theory of Combustion

Note:

1. Project Phase-I: Students in consultation with the guide/co-guide if any, shall pursue literature survey and complete the preliminary requirements of selected Project work. Each student shall prepare relevant introductory project document, and present a seminar.

CIE marks shall be awarded by a committee comprising of HoD as Chairman, Guide and a senior faculty of the department. The CIE marks awarded for project work phase -1, shall be based on the evaluation of Project Report, Project Presentation skill and Question and Answer session in the ratio 50:25:25.

SEE (University examination) shall be as per the University norms.

2. Internship: Those, who have not pursued /completed the internship, shall be declared as failed and have to complete during subsequent University examinations after satisfy the internship requirements.

Internship SEE (University examination) shall be as per the University norms.

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
Scheme of Teaching and Examination 2018 – 19
Outcome Based Education(OBE) and Choice Based Credit System (CBCS)
B.E. AEROSPACE ENGINEERING
(Effective from the academic year 2018 – 19)

VI SEMESTER

Sl. No.	Course and Course code		Course Title	Teaching Department	Teaching Hours /Week			Examination				Credits
					Theory Lecture	Tutorial	Practical/ Drawing	Duration in hours	CIE Marks	SEE Marks	Total Marks	
					L	T	P					
1	PCC	18AS61	Missiles And Launch Vehicles	AS	3	2	--	03	40	60	100	4
2	PCC	18AS62	Computational Fluid Dynamics	AS	3	0	--	03	40	60	100	3
3	PCC	18AS63/ 18AE63	Finite Element Method	AS	3	0	--	03	40	60	100	3
4	PEC	18AS64X	Professional Elective -1	AS	3	--	--	03	40	60	100	3
5	OEC	18AS65X	Open Elective -A	AS	3	--	--	03	40	60	100	3
6	PCC	18ASL66	Design, Modelling & Analysis Lab	AS	--	2	2	03	40	60	100	2
7	PCC	18ASL67	Aerospace Structures Lab	AS	--	2	2	03	40	60	100	2
8	MP	18ASMP68	Mini-project	AS	--	--	2	03	40	60	100	2
9	Internship	--	Internship	To be carried out during the vacation/s of VI and VII semesters and /or VII and VIII semesters.								
			TOTAL		**15**	**6**	**6**	**24**	**320**	**480**	**800**	**22**

Note: PCC: Professional core, PEC: Professional Elective, OE: Open Elective, MP: Mini-project.

Professional Elective -1

Course code under18XX64X	Course Title
18AS641	Hypersonics
18 AS 642	Theory of Vibrations
18 AS 643	Introduction To Astrophysics And Space Environment
18 AS 644	Radar and Microwave Engineering

Open Elective -A

Students can select any one of the open electives offered by other Departments expect those that are offered by the parent Department (Please refer to the list of open electives under 18XX65X).Selection of an open elective shall not be allowed if,

- The candidate has studied the same course during the previous semesters of the programme.
- The syllabus content of open elective is similar to that of the Departmental core courses or professional electives.
- A similar course, under any category, is prescribed in the higher semesters of the programme.
- Registration to electives shall be documented under the guidance of Programme Coordinator/ Advisor/Mentor.

Mini-project work:
Based on the ability/abilities of the student/s and recommendations of the mentor, a single discipline or a multidisciplinary Mini-project can be assigned to an individual student or to a group having not more than 4 students.

CIE procedure for Mini-project:
(i) Single discipline: The CIE marks shall be awarded by a committee consisting of the Head of the concerned Department and two senior faculty members of the Department, one of whom shall be the Guide.
The CIE marks awarded for the Mini-project work shall be based on the evaluation of project report, project presentation skill and question and answer session in the ratio 50:25:25.The marks awarded for the project report shall be the same for all the batch mates.
(ii) Interdisciplinary: Continuous Internal Evaluation shall be group wise at the college level with the participation of all the guides of the college.
The CIE marks awarded for the Mini-project, shall be based on the evaluation of project report, project presentation skill and question and answer session in the ratio 50:25:25.The marks awarded for the project report shall be the same for all the batch mates.
SEE for Mini-project: (i) Single discipline: Contribution to the Mini-project and the performance of each group member shall be assessed individually in the semester end examination (SEE) conducted at the department. **(ii) Interdisciplinary:** Contribution to the Mini-project and the performance of each group member shall be assessed individually in semester end examination (SEE) conducted separately at the departments to which the student/s belong to.
Internship: All the students admitted to III year of BE/B. Tech shall have to undergo mandatory internship of 4 weeks during the vacation of VI and VII semesters and /or VII and VIII semesters. A University examination shall be conducted during VIII semester and the prescribed credit shall be included in VIII semester. Internship shall be considered as a head of passing and shall be considered for the award of degree. Those, who do not take-up/complete the internship shall be declared fail and shall have to complete during subsequent University examination after satisfying the internship requirements.

AICTE activity Points: In case students fail to earn the prescribed activity Points, Eighth semester Grade Card shall be issued only after earning the required activity Points. Students shall be admitted for the award of degree only after the release of the Eighth semester Grade Card.

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
Scheme of Teaching and Examination 2018 – 19
Outcome Based Education(OBE) and Choice Based Credit System (CBCS)
B.E. AEROSPACE ENGINEERING
(Effective from the academic year 2018 – 19)

VII SEMESTER

Sl. No	Course and Course code		Course Title	Teaching Department	Teaching Hours /Week			Examination				Credits
					Theory Lecture	Tutorial	Practical/ Drawing	Duration in hours	CIE Marks	SEE Marks	Total Marks	
					L	T	P					
1	PCC	18AS71	Space Mechanics	AS	3	--	--	03	40	60	100	3
2	PCC	18AS72	Control Engineering	AS	3	--	--	03	40	60	100	3
3	PEC	18AS73X	Professional Elective - 2	AS	3	--	--	03	40	60	100	3
4	PEC	18AS74X	Professional Elective - 3	AS	3	--	--	03	40	60	100	3
5	OEC	18AS75X	Open Elective -B	AS	3	--	--	03	40	60	100	3
6	PCC	18ASL76	Space Simulation Lab	AS	--	2	2	03	40	60	100	2
	PCC	18ASL77	Avionics & Instrumentation Lab	AS	--	2	2	03	40	60	100	2
7	Project	18XXP78	Project Work Phase - 1	AS	--	--	2	--	100	--	100	2
8	Internship	--	Internship	(If not completed during the vacation of VI and VII semesters, it shall be carried out during the vacation of VII and VIII semesters)								
	TOTAL				**15**	**4**	**4**	**18**	**340**	**360**	**700**	**21**

Note: PCC: Professional core, PEC: Professional Elective.

Professional Elective - 2

Course code under 18XX73X	Course Title
18AS731	Avionics Systems
18 AS 732	Space Vehicle Design
18 AS 733	Air and Missile Defense Systems
18 AS734/18AE734	Heat & Mass Transfer

Professional Electives - 3

Course code under 18XX74X	Course Title
18AS741	Satellite Communication
18AS742/18AE742	Wind Tunnel Techniques
18AS743/18AE743	Guidance, Navigation & Control
18AS744	Global Navigation Satellite Systems

Open Elective -B

Students can select any one of the open electives offered by other Departments expect those that are offered by the parent Department (Please refer to the list of open electives under 18XX75X).

Selection of an open elective shall not be allowed if,

- The candidate has studied the same course during the previous semesters of the programme.
- The syllabus content of open elective is similar to that of the Departmental core courses or professional electives.
- A similar course, under any category, is prescribed in the higher semesters of the programme.
- Registration to electives shall be documented under the guidance of Programme Coordinator/ Advisor/Mentor.

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
Scheme of Teaching and Examination 2018 – 19
Outcome Based Education(OBE) and Choice Based Credit System (CBCS)
B.E. AEROSPACE ENGINEERING
(Effective from the academic year 2018 – 19)

VIII SEMESTER

Sl. No	Course and Course code		Course Title	Teaching Department	Teaching Hours /Week			Examination				Credits
					Theory Lecture	Tutorial	Practical/ Drawing	Duration in hours	CIE Marks	SEE Marks	Total Marks	
					L	T	P					
1	PCC	18AS81	Spacecraft Systems	AS	3	--	--	03	40	60	100	3
2	PEC	18 AS82X	Professional Elective - 4	AS	3	--	--	03	40	60	100	3
3	Project	18 ASP83	Project Work Phase - 2	AS	--	--	2	03	40	60	100	8
4	Seminar	18 ASS84	Technical Seminar	AS	--	--	2	03	100	--	100	1
5	Internship	18 ASI85	Internship	Completed during the vacation/s of VI and VII semesters and /or VII and VIII semesters.)				03	40	60	100	3
			TOTAL		06	--	4	15	260	240	500	18

Note: PCC: Professional Core, PEC: Professional Elective.

Professional Electives – 4

Course code under 18XX82X	Course Title
18AS821	Satellite Navigation Systems
18AS822	Cryogenics
18AS823	Robotics
18AS824	Optimization Techniques

Project Work

CIE procedure for Project Work Phase - 2:

(i) Single discipline: The CIE marks shall be awarded by a committee consisting of the Head of the concerned Department and two senior faculty members of the Department, one of whom shall be the Guide.

The CIE marks awarded for the project work phase -2, shall be based on the evaluation of project work phase -2 Report, project presentation skill and question and answer session in the ratio 50:25:25.The marks awarded for the project report shall be the same for all the batch mates.

(ii) Interdisciplinary: Continuous Internal Evaluation shall be group wise at the college level with the participation of all guides of the college. Participation of external guide/s, if any, is desirable.

The CIE marks awarded for the project work phase -2, shall be based on the evaluation of project work phase -2 Report, project presentation skill and question and answer session in the ratio 50:25:25.The marks awarded for the project report shall be the same for all the batch mates.

SEE for Project Work Phase - 2:

(i) Single discipline: Contribution to the project and the performance of each group member shall be assessed individually in semester end examination (SEE) conducted at the department.

(ii) Interdisciplinary: Contribution to the project and the performance of each group member shall be assessed individually in semester end examination (SEE) conducted separately at the departments to which the student/s belong to.

Internship: Those, who have not pursued /completed the internship shall be declared as fail and have to complete during subsequent University examination after satisfying the internship requirements.

AICTE activity Points: In case students fail to earn the prescribed activity Points, Eighth semester Grade Card shall be issued only after earning the required activity Points. Students shall be admitted for the award of degree only after the release of the Eighth semester Grade Card.

Activity points of the students who have earned the prescribed AICTE activity Points shall be sent the University along with the CIE marks of 8th semester. In case of students who have not satisfied the AICTE activity Points at the end of eighth semester, the column under activity Points shall be marked NSAP (Not Satisfied Activity Points).

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
Scheme of Teaching and Examination 2018 – 19
Outcome Based Education(OBE) and Choice Based Credit System (CBCS)
(Effective from the academic year 2018 – 19)

Programme: BIOMEDICAL ENGINEERING

VI SEMESTER

Sl. No	Course and Course code		Course Title	Teaching Department	Teaching Hours /Week			Examination				Credits
					Theory Lecture	Tutorial	Practical/ Drawing	Duration in hours	CIE Marks	SEE Marks	Total Marks	
					L	T	P					
1	PCC	18BM61	Analog and Digital Communication Systems	BM	4	--	--	03	40	60	100	4
2	PCC	18BM62	Medical Image Processing	BM	4	--	--	03	40	60	100	4
3	PCC	18BM63	Java Programming	BM	4	--	--	03	40	60	100	4
4	PEC	18BM64X	Professional Elective -1	BM	2	2	--	03	40	60	100	3
5	OEC	18BM65X	Open Elective -A	BM	2	2	--	03	40	60	100	3
6	PCC	18BML66	Medical Image Processing Lab	BM	--	2	2	03	40	60	100	2
7	PCC	18BML67	Java Programming Lab	BM	--	2	2	03	40	60	100	2
8	MP	18BMMP68	Mini-project	BM	--	--	2	03	40	60	100	2
9	Internship	--	Internship	To be carried out during the vacation/s of VI and VII semesters and /or VII and VIII semesters.								
				TOTAL	16	08	06	24	320	480	800	24

Note: PCC: Professional core, PEC: Professional Elective, OEC: Open Elective, MP: Mini-project.

Professional Elective -1

Course code under18BM64X	Course Title
18BM641	Advanced Clinical Instrumentation
18BM642	Hospital Design, Planning and Management
18BM643	Medical Device Regulations and Safety
18BM644	Virtual Bio-Instrumentation

Open Elective -A

Students can select any one of the open electives offered by other Departments expect those that are offered by the parent Department (Please refer to the list of open electives under 18XX65X).

Selection of an open elective shall not be allowed if,

- The candidate has studied the same course during the previous semesters of the programme.
- The syllabus content of open elective is similar to that of the Departmental core courses or professional electives.
- A similar course, under any category, is prescribed in the higher semesters of the programme.

Registration to electives shall be documented under the guidance of Programme Coordinator/ Advisor/Mentor.

Mini-project work:

Based on the ability/abilities of the student/s and recommendations of the mentor, a single discipline or a multidisciplinary Mini-project can be assigned to an individual student or to a group having not more than 4 students.

CIE procedure for Mini-project:

(i) Single discipline: The CIE marks shall be awarded by a committee consisting of the Head of the concerned Department and two senior faculty members of the Department, one of whom shall be the Guide.

The CIE marks awarded for the Mini-project work shall be based on the evaluation of project report, project presentation skill and question and answer session in the ratio 50:25:25.The marks awarded for the project report shall be the same for all the batch mates.

(ii) Interdisciplinary: Continuous Internal Evaluation shall be group wise at the college level with the participation of all the guides of the college.

The CIE marks awarded for the Mini-project shall be based on the evaluation of project report, project presentation skill and question and answer session in the ratio 50:25:25.The marks awarded for the project report shall be the same for all the batch mates.

SEE for Mini-project:

(i) Single discipline: Contribution to the Mini-project and the performance of each group member shall be assessed individually in the semester end examination (SEE) conducted at the department.

(ii) Interdisciplinary: Contribution to the Mini-project and the performance of each group member shall be assessed individually in semester end examination (SEE) conducted separately at the departments to which the student/s belongs to.

Internship: All the students admitted to III year of BE/B.Tech shall have to undergo mandatory internship of 4 weeks during the vacation of VI and VII semesters and /or VII and VIII semesters. A University examination shall be conducted during VIII semester and the prescribed credit shall be included in VIII semester. Internship shall be considered as a head of passing and shall be considered for the award of degree. Those, who do not take-up/complete the internship shall be declared fail and shall have to complete during subsequent University examination after satisfying the internship requirements.

AICTE activity Points: In case students fail to earn the prescribed activity Points, Eighth semester Grade Card shall be issued only after earning the required activity Points. Students shall be admitted for the award of degree only after the release of the Eighth semester Grade Card.

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
Scheme of Teaching and Examination 2018 – 19
Outcome Based Education(OBE) and Choice Based Credit System (CBCS)
(Effective from the academic year 2018 – 19)

Programme: BIOMEDICAL ENGINEERING

VII SEMESTER

Sl. No	Course and Course code		Course Title	Teaching Department	Teaching Hours /Week			Examination				Credits
					Theory Lecture	Tutorial	Practical/ Drawing	Duration in hours	CIE Marks	SEE Marks	Total Marks	
					L	T	P					
1	PCC	18BM71	Biomedical Digital Signal Processing	BM	2	2	--	03	40	60	100	3
2	PCC	18BM72	ARM Processor	BM	2	2	--	03	40	60	100	3
3	PEC	18BM73X	Professional Elective - 2	BM	2	2	--	03	40	60	100	3
4	PEC	18BM74X	Professional Elective - 3	BM	2	2	--	03	40	60	100	3
5	OEC	18BM75X	Open Elective -B	BM	2	2	--	03	40	60	100	3
6	PCC	18BML76	Biomedical DSP Lab	BM	--	2	2	03	40	60	100	2
7	PCC	18BML77	ARM Processor Lab	BM	--	2	2	03	40	60	100	2
8	Project	18BMP78	Project Work Phase - 1	BM	--	--	2	--	100	--	100	1
9	Internship	--	Internship	(If not completed during the vacation of VI and VII semesters, it shall be carried out during the vacation of VII and VIII semesters)								
				TOTAL	10	14	06	21	380	420	800	20

Note: PCC: Professional core, PEC: Professional Elective, OEC: Open Elective

Professional Elective - 2

Course code under 18BM73X	Course Title
18BM731	Database Management System in Healthcare
18BM732	Ergonomics
18BM733	Biomechanics and Biodynamics
18BM734	Biometric Systems

Professional Electives - 3

Course code under 18BM74X	Course Title
18BM741	Biostatistics
18BM742	Lasers and Optical Fibers in Medicine
18BM743	Medical Informatics and Expert Systems
18BM744	Internet of Things

Open Elective -B

Students can select any one of the open electives offered by other Departments expect those that are offered by the parent Department (Please refer to the list of open electives under 18XX75X).

Selection of an open elective shall not be allowed if,

- The candidate has studied the same course during the previous semesters of the programme.
- The syllabus content of open elective is similar to that of the Departmental core courses or professional electives.
- A similar course, under any category, is prescribed in the higher semesters of the programme.

Registration to electives shall be documented under the guidance of Programme Coordinator/ Advisor/Mentor.

Project work:

Based on the ability/abilities of the student/s and recommendations of the mentor, a single discipline or a multidisciplinaryproject can be assigned to an individual student or to a group having not more than 4 students. In extraordinary cases, like the funded projects requiring students from different disciplines, the project student strength can be 5 or 6.

CIE procedure for Project Work Phase - 1:

(i) Single discipline: The CIE marks shall be awarded by a committee consisting of the Head of the concerned Department and two senior faculty members of the Department, one of whom shall be the Guide.

The CIE marks awarded for the project work phase -1, shall be based on the evaluation of the project work phase -1 Report (covering Literature Survey, Problem identification, Objectives and Methodology), project presentation skill and question and answer session in the ratio 50:25:25.The marks awarded for the Project report shall be the same for all the batch mates.

(ii) Interdisciplinary: Continuous Internal Evaluation shall be group wise at the college level with the participation of all guides of the college. Participation of external guide/s, if any, is desirable.

The CIE marks awarded for the project work phase -1, shall be based on the evaluation of project work phase -1 Report(covering Literature Survey, Problem identification, Objectives and Methodology), project presentation skill and question and answer session in the ratio 50:25:25.The marks awarded for the project report shall be the same for all the batch mates.

Internship: All the students admitted to III year of BE/B.Tech shall have to undergo mandatory internship of 4 weeks during the vacation of VI and VII semesters and /or VII and VIII semesters. A University examination shall be conducted during VIII semester and the prescribed credit shall be included in VIII semester. Internship shall be considered as a head of passing and shall be considered for the award of degree. Those, who do not take-up/complete the internship shall be declared fail and shall have to complete during subsequent University examination after satisfying the internship requirements.

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
Scheme of Teaching and Examination 2018 – 19
Outcome Based Education (OBE) and Choice Based Credit System (CBCS)
(Effective from the academic year 2018 – 19)

Programme: BIOMEDICAL ENGINEERING

VIII SEMESTER

Sl. No	Course and Course code		Course Title	Teaching Department	Teaching Hours /Week			Examination				Credits
					Theory Lecture	Tutorial	Practical/ Drawing	Duration in hours	CIE Marks	SEE Marks	Total Marks	
					L	T	P					
1	PCC	18BM81	Medical Imaging Systems	BM	2	2	--	03	40	60	100	3
2	PEC	18BM82X	Professional Elective - 4	BM	2	2	--	03	40	60	100	3
3	Project	18BMP83	Project Work Phase - 2	BM	--	--	2	03	40	60	100	8
4	Seminar	18BMS84	Technical Seminar	BM	--	--	2	03	100	--	100	1
5	Internship	18BMI85	Internship	Completed during the vacation/s of VI and VII semesters and /or VII and VIII semesters.)				03	40	60	100	3
				TOTAL	04	04	4	15	260	240	500	18

Note: PCC: Professional Core, PEC: Professional Elective.

Professional Electives - 4

Course code under 18BM82X	Course Title
18BM821	Bio-MEMS
18BM822	Computer Communication Networks in Healthcare
18BM823	Biomaterials and Artificial Organs
18BM824	Artificial Intelligence and Machine Learning

Project Work

CIE procedure for Project Work Phase - 2:

(i) Single discipline: The CIE marks shall be awarded by a committee consisting of the Head of the concerned Department and two senior faculty members of the Department, one of whom shall be the Guide.

The CIE marks awarded for the project work phase -2, shall be based on the evaluation of project work phase -2 Report, project presentation skill and question and answer session in the ratio 50:25:25.The marks awarded for the project report shall be the same for all the batch mates.

(ii) Interdisciplinary: Continuous Internal Evaluation shall be group wise at the college level with the participation of all guides of the college. Participation of external guide/s, if any, is desirable.

The CIE marks awarded for the project work phase -2, shall be based on the evaluation of project work phase -2 Report, project presentation skill and question and answer session in the ratio 50:25:25.The marks awarded for the project report shall be the same for all the batch mates.

SEE for Project Work Phase - 2:

(i) Single discipline: Contribution to the project and the performance of each group member shall be assessed individually in semester end examination (SEE) conducted at the department.

(ii) Interdisciplinary: Contribution to the project and the performance of each group member shall be assessed individually in semester end examination (SEE) conducted separately at the departments to which the student/s belongs to.

Internship: Those, who have not pursued /completed the internship, shall be declared as fail and have to complete during subsequent University examination after satisfying the internship requirements.

AICTE activity Points: In case students fail to earn the prescribed activity Points, Eighth semester Grade Card shall be issued only after earning the required activity Points. Students shall be admitted for the award of degree only after the release of the Eighth semester Grade Card.

Activity points of the students who have earned the prescribed AICTE activity Points shall be sent the University along with the CIE marks of 8th semester. In case of students who have not satisfied the AICTE activity Points at the end of eighth semester, the column under activity Points shall be marked NSAP (Not Satisfied Activity Points).

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
Scheme of Teaching and Examination 2018 – 19
Choice Based Credit System (CBCS) AND Outcome Based Education (OBE)
(Effective from the academic year 2018 – 19)

V SEMESTER

Sl. No	Course and Course code		Course Title	Teaching Department	Teaching Hours /Week			Examination				Credits
					Theory Lecture	Tutorial	Practical/ Drawing	Duration in hours	CIE Marks	SEE Marks	Total Marks	
					L	T	P					
1	HSMC	18CS51	Management, Entrepreneurship for IT idustry	HSMC	2	2	--	03	40	60	100	3
2	PCC	18CS52	Computer Networks and Security	CS / IS	3	2	--	03	40	60	100	4
3	PCC	18CS53	Database Management System	CS / IS	3	2	--	03	40	60	100	4
4	PCC	18CS54	Automata theory and Computability	CS / IS	3	--	--	03	40	60	100	3
5	PCC	18CS55	Application Development using Python	CS / IS	3	--	--	03	40	60	100	3
6	PCC	18CS56	Unix Programming	CS / IS	3	--	--	03	40	60	100	3
7	PCC	18CSL57	Computer Network Laboratory	CS / IS	--	2	2	03	40	60	100	2
8	PCC	18CSL58	DBMS Laboratory with mini project	CS / IS	--	2	2	03	40	60	100	2
9	HSMC	18CIV59	Environmental Studies	Civil/ Environmental [Paper setting: Civil Engineering Board]	1	--	--	02	40	60	100	1
				TOTAL	**18**	**10**	**04**	**26**	**360**	**540**	**900**	**25**

Note: PCC: Professional Core, HSMC: Humanity and Social Science.

AICTE activity Points: In case students fail to earn the prescribed activity Points, Eighth semester Grade Card shall be issued only after earning the required activity Points. Students shall be admitted for the award of degree only after the release of the Eighth semester Grade Card.

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
Scheme of Teaching and Examination 2018 – 19
Choice Based Credit System (CBCS) AND Outcome Based Education (OBE)
(Effective from the academic year 2018 – 19)

VI SEMESTER

Sl. No	Course and Course code		Course Title	Teaching Department	Teaching Hours /Week			Examination				Credits
					Theory Lecture	Tutorial	Practical/ Drawing	Duration in hours	CIE Marks	SEE Marks	Total Marks	
					L	T	P					
1	PCC	18CS61	System Software and Compilers	CS / IS	3	2	--	03	40	60	100	4
2	PCC	18CS62	Computer Graphics and Visualization	CS / IS	3	2	--	03	40	60	100	4
3	PCC	18CS63	Web Technology and its applications	CS / IS	3	2	--	03	40	60	100	4
4	PEC	18CS64X	Professional Elective -1	CS / IS	3	--	--	03	40	60	100	3
5	OEC	18CS65X	Open Elective –A	CS / IS	3	--	--	03	40	60	100	3
6	PCC	18CSL66	System Software Laboratory	CS / IS	--	2	2	03	40	60	100	2
7	PCC	18CSL67	Computer Graphics Laboratory with mini project	CS / IS	--	2	2	03	40	60	100	2
8	MP	18CSMP68	Mobile Application Development	CS / IS	--	--	2	03	40	60	100	2
9	INT	--	Internship	(To be carried out during the intervening vacations of VI and VII semesters)				--	--	--	--	--
				TOTAL	**15**	**10**	**06**	**24**	**320**	**480**	**800**	**24**

Note: PCC: Professional core, PEC: Professional Elective, OE: Open Elective, MP: Mini-project, INT: Internship.

Professional Elective -1

Course code under18XX64X	Course Title
18CS641	Data Mining and Data Warehousing
18CS642	Object Oriented Modelling and Design
18CS643	Cloud Computing and its Applications
18CS644	Advanced JAVA and J2EE
18CS645	System Modelling and Simulation
Open Elective –A (Not for CSE / ISE Programs)	
18CS651	Mobile Application Development
18CS652	Introduction to Data Structures and Algorithms
18CS653	Programming in JAVA
18CS654	Introduction to Operating System

Students can select any one of the open electives offered by any Department (Please refer to the list of open electives under 18CS65X).
Selection of an open elective is not allowed provided,

- The candidate has studied the same course during the previous semesters 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 of the programme.

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

Mini-project work: Based on the ability/abilities of the student/s and recommendations of the mentor, a single discipline or a multidisciplinary Mini- project can be assigned to an individual student or to a group having not more than 4 students.
CIE procedure for Mini-project:
(i) Single discipline: The CIE marks shall be awarded by a committee consisting of the Head of the concerned Department and two senior faculty members of the Department, one of whom shall be the Guide. The CIE marks awarded for the Mini-project work, shall be based on the evaluation of project report, project presentation skill and question and answer session in the ratio 50:25:25.The marks awarded for the project report shall be the same for all the batch mates.
(ii) Interdisciplinary: Continuous Internal Evaluation shall be group wise at the college level with the participation of all the guides of the college. The CIE marks awarded for the Mini-project, shall be based on the evaluation of project report, project presentation skill and question and answer session in the ratio 50:25:25.The marks awarded for the project report shall be the same for all the batch mates.
SEE for Mini-project:
(i) Single discipline: Contribution to the Mini-project and the performance of each group member shall be assessed individually in the semester end examination (SEE) conducted at the department.
(ii) Interdisciplinary: Contribution to the Mini-project and the performance of each group member shall be assessed individually in semester end examination (SEE) conducted separately at the departments to which the student/s belongs to.
Internship: All the students admitted to III year of BE/B.Tech shall have to undergo mandatory internship of 4 weeks during the vacation of VI and VII semesters and /or VII and VIII semesters. A University examination shall be conducted during VIII semester and the prescribed credit shall be included in VIII semester. Internship shall be considered as a head of passing and shall be considered for the award of degree. Those, who do not takeup/complete the internship shall be declared fail and shall have to complete during subsequent University examination after satisfying the internship requirements

AICTE activity Points: In case students fail to earn the prescribed activity Points, Eighth semester Grade Card shall be issued only after earning the required activity Points. Students shall be admitted for the award of degree only after the release of the Eighth semester Grade Card.

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
Scheme of Teaching and Examination 2018 – 19
Choice Based Credit System (CBCS) AND Outcome Based Education (OBE)
(Effective from the academic year 2018 – 19)

VII SEMESTER

Sl. No	Course and Course code		Course Title	Teaching Department	Teaching Hours /Week			Examination				Credits
					Theory Lecture	Tutorial	Practical/ Drawing	Duration in hours	CIE Marks	SEE Marks	Total Marks	
					L	T	P					
1	PCC	18CS71	Artificial Intelligence and Machine Learning	CS / IS	4	--	--	03	40	60	100	4
2	PCC	18CS72	Big Data Analytics	CS / IS	4	--	--	03	40	60	100	4
3	PEC	18CS73X	Professional Elective – 2	CS / IS	3	--	--	03	40	60	100	3
4	PEC	18CS74X	Professional Elective – 3	CS / IS	3	--	--	03	40	60	100	3
5	OEC	18CS75X	Open Elective –B	CS / IS	3	--	--	03	40	60	100	3
6	PCC	18CSL76	Artificial Intelligence and Machine Learning Laboratory	CS / IS	--	--	2	03	40	60	100	2
7	Project	18CSP77	Project Work Phase – 1	CS / IS	--	--	2	--	100	--	100	1
8	INT	--	Internship	(If not completed during the vacation of VI and VII semesters, it has to be carried out during the intervening vacations of VII and VIII semesters								
				TOTAL	**17**	--	**04**	**18**	**340**	**360**	**700**	**20**

Note: PCC: Professional core, PEC: Professional Elective, OEC: Open Elective, INT: Internship.

Professional Elective - 2

Course code under 18CS73X	Course Title
18CS731	Software Architecture and Design Patterns
18CS732	High Performance Computing
18CS733	Advanced Computer Architecture
18CS734	User Interface Design

Professional Electives – 3

Course code under 18CS74X	Course Title
18CS741	Digital Image Processing
18CS742	Network management
18CS743	Natural Language Processing
18CS744	Cryptography
18CS745	Robotic Process Automation Design & Development

Open Elective –B (Not for CSE / ISE Programs)

18CS751	Introduction to Big Data Analytics
18CS752	Python Application Programming
18CS753	Introduction to Artificial Intelligence
18CS754	Introduction to Dot Net framework for Application Development

Students can select any one of the open electives offered by any Department (Please refer to the list of open electives under 18CS75X).
Selection of an open elective is not allowed provided,

- The candidate has studied the same course during the previous semesters 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 of the programme.

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

Project work: Based on the ability/abilities of the student/s and recommendations of the mentor, a single discipline or a multidisciplinary project can be assigned to an individual student or to a group having not more than 4 students. In extraordinary cases, like the funded projects requiring students from different disciplines, the project student strength can be 5 or 6.

CIE procedure for Project Work Phase - 1:

(i) Single discipline: The CIE marks shall be awarded by a committee consisting of the Head of the concerned Department and two senior faculty members of the Department, one of whom shall be the Guide. The CIE marks awarded for the project work phase -1, shall be based on the evaluation of the project work phase -1 Report (covering Literature Survey, Problem identification, Objectives and Methodology), project presentation skill and question and answer session in the ratio 50:25:25.The marks awarded for the Project report shall be the same for all the batch mates.

(ii) Interdisciplinary: Continuous Internal Evaluation shall be group wise at the college level with the participation of all guides of the college. Participation of external guide/s, if any, is desirable. The CIE marks awarded for the project work phase -1, shall be based on the evaluation of project work phase -1 Report, project presentation skill and question and answer session in the ratio 50:25:25.The marks awarded for the project report shall be the same for all the batch mates.

Internship: All the students admitted to III year of BE/B.Tech shall have to undergo mandatory internship of 4 weeks during the vacation of VI and VII semesters and /or VII and VIII semesters. A University examination shall be conducted during VIII semester and the prescribed credit shall be included in VIII semester. Internship shall be considered as a head of passing and shall be considered for the award of degree. Those, who do not takeup/complete the internship shall be declared fail and shall have to complete during subsequent University examination after satisfying the internship requirements

AICTE activity Points: In case students fail to earn the prescribed activity Points, Eighth semester Grade Card shall be issued only after earning the required activity Points. Students shall be admitted for the award of degree only after the release of the Eighth semester Grade Card.

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
Scheme of Teaching and Examination 2018 – 19
Choice Based Credit System (CBCS) AND Outcome Based Education (OBE)
(Effective from the academic year 2018 – 19)

VIII SEMESTER

Sl. No	Course and Course code		Course Title	Teaching Department	Teaching Hours /Week			Examination				Credits
					Theory Lecture	Tutorial	Practical/ Drawing	Duration in hours	CIE Marks	SEE Marks	Total Marks	
					L	T	P					
1	PCC	18CS81	Internet of Things	CS / IS	3	--	--	03	40	60	100	3
2	PEC	18CS82X	Professional Elective – 4	CS / IS	3	--	--	03	40	60	100	3
3	Project	18CSP83	Project Work Phase – 2	CS / IS	--	--	2	03	40	60	100	8
4	Seminar	18CSS84	Technical Seminar	CS / IS	--	--	2	03	100	--	100	1
5	INT	18CSI85	Internship	(Completed during the intervening vacations of VI and VII semesters and /or VII and VIII semesters.)				03	40	60	100	3
				TOTAL	**06**	--	**04**	**15**	**260**	**240**	**500**	**18**

Note: PCC: Professional Core, PEC: Professional Elective, OEC: Open Elective, INT: Internship.

Professional Electives – 4

Course code under 18CS82X	Course Title
18CS821	Mobile Computing
18CS822	Storage Area Networks
18CS823	NoSQL Database
18CS824	Multicore Architecture and Programming

Project Work CIE procedure for Project Work Phase - 2:
(i) Single discipline: The CIE marks shall be awarded by a committee consisting of the Head of the concerned Department and two senior faculty members of the Department, one of whom shall be the Guide. The CIE marks awarded for the project work phase -2, shall be based on the evaluation of project work phase -2 Report, project presentation skill and question and answer session in the ratio 50:25:25.The marks awarded for the project report shall be the same for all the batch mates.
(ii) Interdisciplinary: Continuous Internal Evaluation shall be group wise at the college level with the participation of all guides of the college. Participation of external guide/s, if any, is desirable. The CIE marks awarded for the project work phase -2, shall be based on the evaluation of project work phase -2 Report, project presentation skill and question and answer session in the ratio 50:25:25.The marks awarded for the project report shall be the same for all the batch mates.
SEE for Project Work Phase - 2:
(i) Single discipline: Contribution to the project and the performance of each group member shall be assessed individually in semester end examination (SEE) conducted at the department.
(ii) Interdisciplinary: Contribution to the project and the performance of each group member shall be assessed individually in semester end examination (SEE) conducted separately at the departments to which the student/s belong to.
Internship: Those, who have not pursued /completed the internship shall be declared as fail and have to complete during subsequent University examination after satisfying the internship requirements

AICTE activity Points: In case students fail to earn the prescribed activity Points, Eighth semester Grade Card shall be issued only after earning the required activity Points. Students shall be admitted for the award of degree only after the release of the Eighth semester Grade Card. Activity points of the students who have earned the prescribed AICTE activity Points shall be sent the University along with the CIE marks of 8th semester. In case of students who have not satisfied the AICTE activity Points at the end of eighth semester, the column under activity Points shall be marked NSAP (Not Satisfied Activity Points).

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
Scheme of Teaching and Examination 2018 – 19
Outcome Based Education(OBE) and Choice Based Credit System (CBCS)
(Effective from the academic year 2018 – 19)

Programme: CIVIL ENGINEERING

VII SEMESTER

Sl. No	Course and Course code		Course Title	Teaching Department	Teaching Hours /Week			Examination				Credits
					Theory Lecture	Tutorial	Practical/ Drawing	Duration in hours	CIE Marks	SEE Marks	Total Marks	
					L	T	P					
1	PCC	18CV71	Quality Surveying and Contract Management	Civil Engg.	3	--	--	03	40	60	100	3
2	PCC	18CV72	Design of RCC and Steel Structures	Civil Engg.	3	--	--	03	40	60	100	3
3	PEC	18CV73X	Professional Elective - 2	Civil Engg.	3	--	--	03	40	60	100	3
4	PEC	18CV74X	Professional Elective - 3	Civil Engg.	3	--	--	03	40	60	100	3
5	OEC	18CV75X	Open Elective -B	Civil Engg.	3	--	--	03	40	60	100	3
6	PCC	18CVL76	Computer Aided Detailing of Structures	Civil Engg.	--	2	2	03	40	60	100	2
7	PCC	18CVL77	Geotechnical Engineering Laboratory	Civil Engg.	--	2	2	03	40	60	100	2
8	Project	18CVP78	Project Work Phase - 1		--	--	2	--	100	--	100	1
9	Internship	--	Internship	(If not completed during the vacation of VI and VII semesters, it shall be carried out during the vacation of VII and VIII semesters)								
				TOTAL	**15**	**04**	**06**	**21**	**380**	**420**	**00**	**20**

Note: PCC: Professional core, PEC: Professional Elective.

Professional Elective - 2

Course code under 18CV73X	Course Title
18CV731	Theory of Elasticity
18CV732	Air Pollution and Control
18CV733	Pavement Materials & Construction
18CV734	Ground Water Hydraulics
18CV735	Masonry Structures

Professional Electives - 3

Course code under 18CV74X	Course Title
18CV741	Earthquake Engineering
18CV742	Design Concepts of Building Services
18CV743	Reinforced Earth Structures

18CV744	Design of Hydraulic Structures
18CV745	Urban Transport Planning
Open Elective -B	
Course code under 18CV75X	**Course Title**
18CV751	Finite Element Method
18CV752	Numerical Methods and Applications
18CV753	Environmental Protection and Management

Students can select any one of the open electives offered by other Departments expect those that are offered by the parent Department (Please refer to the list of open electives under 18XX75X).

Selection of an open elective shall not be allowed if,

- The candidate has studied the same course during the previous semesters of the programme.
- The syllabus content of open elective is similar to that of the Departmental core courses or professional electives.
- A similar course, under any category, is prescribed in the higher semesters of the programme.

Registration to electives shall be documented under the guidance of Programme Coordinator/ Advisor/Mentor.

Project work:

Based on the ability/abilities of the student/s and recommendations of the mentor, a single discipline or a multidisciplinary project can be assigned to an individual student or to a group having not more than 4 students. In extraordinary cases, like the funded projects requiring students from different disciplines, the project student strength can be 5 or 6.

CIE procedure for Project Work Phase - 1:

(i) Single discipline: The CIE marks shall be awarded by a committee consisting of the Head of the concerned Department and two senior faculty members of the Department, one of whom shall be the Guide.

The CIE marks awarded for the project work phase -1, shall be based on the evaluation of the project work phase -1 Report (covering Literature Survey, Problem identification, Objectives and Methodology), project presentation skill and question and answer session in the ratio 50:25:25.The marks awarded for the Project report shall be the same for all the batch mates.

(ii) Interdisciplinary: Continuous Internal Evaluation shall be group wise at the college level with the participation of all guides of the college. Participation of external guide/s, if any, is desirable.

The CIE marks awarded for the project work phase -1, shall be based on the evaluation of project work phase -1 Report (covering Literature Survey, Problem identification, Objectives and Methodology), project presentation skill and question and answer session in the ratio 50:25:25.The marks awarded for the project report shall be the same for all the batch mates.

Internship: All the students admitted to III year of BE/B. Tech shall have to undergo mandatory internship of 4 weeks during the vacation of VI and VII semesters and /or VII and VIII semesters. A University examination shall be conducted during VIII semester and the prescribed credit shall be included in VIII semester. Internship shall be considered as a head of passing and shall be considered for the award of degree. Those, who do not take-up/complete the internship shall be declared fail and shall have to complete during subsequent University examination after satisfying the internship requirements.

AICTE activity Points: In case students fail to earn the prescribed activity Points, Eighth semester Grade Card shall be issued only after earning the required activity Points. Students shall be admitted for the award of degree only after the release of the Eighth semester Grade Card.

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
Scheme of Teaching and Examination 2018 – 19
Outcome Based Education(OBE) and Choice Based Credit System (CBCS)
(Effective from the academic year 2018 – 19)

Programme: CIVIL ENGINEERING

VIII SEMESTER

Sl. No	Course and Course code		Course Title	Teaching Department	Teaching Hours /Week			Examination				
					Theory Lecture	Tutorial	Practical/ Drawing	Duration in hours	CIE Marks	SEE Marks	Total Marks	Credits
					L	T	P					
1	PCC	18CV81	Design of Pre-stressed Concrete	Civil Engg.	3	--	--	03	40	60	100	3
2	PEC	18CV82X	Professional Elective - 4	Civil Engg.	3	--	--	03	40	60	100	3
3	Project	18CVP83	Project Work Phase - 2	Civil Engg.	--	--	16	03	40	60	100	8
4	Seminar	18CVS84	Technical Seminar	Civil Engg.	--	--	2	03	100	--	100	1
5	Internship	18CVI85	Internship	Completed during the vacation/s of VI and VII semesters and /or VII and VIII semesters.)				03	40	60	100	3
				TOTAL	**06**	**--**	**18**	**15**	**260**	**240**	**500**	**18**

Note: PCC: Professional Core, PEC: Professional Elective.

Professional Electives - 4

Course code under 18CV82X	Course Title
18CV821	Bridge Engineering
18CV822	Prefabricated Structures
18CV823	Advanced Foundation Engineering
18CV824	Rehabilitation & Retrofitting
18CV825	Pavement Design

Project Work

CIE procedure for Project Work Phase - 2:

(i) Single discipline: The CIE marks shall be awarded by a committee consisting of the Head of the concerned Department and two senior faculty members of the Department, one of whom shall be the Guide.

The CIE marks awarded for the project work phase -2, shall be based on the evaluation of project work phase -2 Report, project presentation skill and question and answer session in the ratio 50:25:25.The marks awarded for the project report shall be the same for all the batch mates.

(ii) Interdisciplinary: Continuous Internal Evaluation shall be group wise at the college level with the participation of all guides of the college. Participation of external guide/s, if any, is desirable.

The CIE marks awarded for the project work phase -2, shall be based on the evaluation of project work phase -2 Report, project presentation skill and question and answer session in the ratio 50:25:25.The marks awarded for the project report shall be the same for all the batch mates.

SEE for Project Work Phase - 2:

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
Scheme of Teaching and Examination – 2018-19
M.Tech in Communication Systems/ Digital Communication & Networking/ Digital Communication Engineering/ Digital Electronics & Communication Systems/ Digital Electronics & Communication (ECS)
Choice Based Credit System (CBCS)

IV SEMESTER

Sl. No	Course	Course Code	Course Title	Teaching Hours /Week		Examination				Credits
				Theory	Field work/ Assignment	Duration in hours	CIE Marks	SEE Marks Viva voce	Total Marks	
1	Project	18ECS41	Project work Phase -2	--	04	03	40	60	100	20
			TOTAL	--	**04**	**03**	**40**	**60**	**100**	**20**

Note:

1. Project Phase-2:

CIE marks shall be awarded by a committee comprising of HoD as Chairman, Guide/co-guide, if any, and a Senior faculty of the department. The CIE marks awarded for project work phase -2, shall be based on the evaluation of Project Report subjected to plagiarism check, Project Presentation skill and Question and Answer session in the ratio 50:25:25.

SEE shall be at the end of IV semester. Project work evaluation and Viva-Voce examination (SEE), after satisfying the plagiarism check, shall be as per the University norms.

Scanned by CamScanner

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
Scheme of Teaching and Examination – 2018-19
M.Tech in Communication Systems/ Digital Communication & Networking/ Digital Communication Engineering/ Digital Electronics & Communication Systems/ Digital Electronics & Communication (ECS)
Choice Based Credit System (CBCS)

III SEMESTER

Sl. No	Course	Course Code	Course Title	Teaching Hours /Week		Examination				Credits
				Theory	Practical/ Field work/ Assignment	Duration in hours	CIE Marks	SEE Marks	Total Marks	
1	PCC	18ECS31	LTE 4G Broadband	04	--	03	40	60	100	4
2	PEC	18XXX32X	Professional Elective 3	04	--	03	40	60	100	4
3	PEC	18XXX33X	Professional Elective 4	04	--	03	40	60	100	4
4	Project	18ECS34	Evaluation of Project phase - 1	--	02	--	100	--	100	2
5	Internship	18ECSI35	Internship	(Completed during the intervening vacation of I and II semesters and /or II and III semesters.)		03	40	60	100	6
TOTAL				12	02	12	**260**	**240**	**500**	**20**

Note: PCC: Professional core, PEC: Professional Elective

Professional Elective 3		Professional Elective 4	
Course Code under 18XXX32X	**Course title**	**Course Code under 18XXX33X**	**Course title**
18ECS321	Advances in Image Processing	18ECS331	RF and Microwave Circuit Design
18ESP322	Array Signal Processing	18ESP332	Pattern Recognition & Machine Learning
18ECS323	Real Time Systems	18ECS333	IoT

Note:

1. Project Phase-1: Students in consultation with the guide/co-guide if any, shall pursue literature survey and complete the preliminary requirements of selected Project work. Each student shall prepare relevant introductory project document, and present a seminar.

CIE marks shall be awarded by a committee comprising of HoD as Chairman, Guide/co-guide if any, and a senior faculty of the department. The CIE marks awarded for project work phase -1, shall be based on the evaluation of Project Report, Project Presentation skill and Question and Answer session in the ratio 50:25:25.

SEE (University examination) shall be as per the University norms.

2. Internship: Those, who have not pursued /completed the internship shall be declared as failed and have to complete during subsequent University examinations after satisfying the internship requirements. Internship SEE (University examination) shall be as per the University norms.

Scanned by CamScanner

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
Scheme of Teaching and Examination 2018 – 19
Outcome Based Education(OBE) and Choice Based Credit System (CBCS)
(Effective from the academic year 2018 – 19)

VI SEMESTER

Sl. No	Course and Course code		Course Title	Teaching Department	Teaching Hours /Week			Examination				Credits
					Theory Lecture	Tutorial	Practical/ Drawing	Duration in hours	CIE Marks	SEE Marks	Total Marks	
					L	T	P					
1	PCC	18EC61	Digital Communication		3	2	--	03	40	60	100	4
2	PCC	18EC62	Embedded Systems		3	2	--	03	40	60	100	4
3	PCC	18EC63	Microwave & Antennas		3	2	--	03	40	60	100	4
4	PEC	18XX64X	Professional Elective -1		3	--	--	03	40	60	100	3
5	OEC	18XX65X	Open Elective –A		3	--	--	03	40	60	100	3
6	PCC	18ECL66	Embedded Systems Laboratory		--	2	2	03	40	60	100	2
7	PCC	18ECL67	Communication Laboratory		--	2	2	03	40	60	100	2
8	MP	18ECMP68	Mini-project		--	--	2	03	40	60	100	2
9	Internship	--	Internship	To be carried out during the vacation/s of VI and VII semesters and /or VII and VIII semesters.								
				TOTAL	15	10	6	24	320	480	800	24

Note: PCC: Professional core, PEC: Professional Elective, OE: Open Elective, MP: Mini-project.

Professional Elective -1

Course code under 18XX64X	Course Title
18EC641	Operating System
18EC642	Artificial Neural Networks
18EC643	Object Oriented Programming using C++
18EC644	Digital System Design using Verilog
18EC645	Nanoelectronics

Open Elective –A

(i) 18EC651 Signal Processing (ii) 18EC652 Sensors & Signal Conditioning

Students can select any one of the open electives offered by other Departments except those that are offered by the parent Department (Please refer to the list of open electives under 18XX65X).

Selection of an open elective shall not be allowed if,

- The candidate has studied the same course during the previous semesters of the programme.
- The syllabus content of open elective is similar to that of the Departmental core courses or professional electives.
- A similar course, under any category, is prescribed in the higher semesters of the programme.

Registration to electives shall be documented under the guidance of Programme Coordinator/ Advisor/Mentor.

Mini-project work:

Based on the ability/abilities of the student/s and recommendations of the mentor, a single discipline or a multidisciplinary Mini- project can be assigned to an individual student or to a group having not more than 4 students.

CIE procedure for Mini-project:

(i) Single discipline: The CIE marks shall be awarded by a committee consisting of the Head of the concerned Department and two senior faculty members of the Department, one of whom shall be the Guide.

The CIE marks awarded for the Mini-project work, shall be based on the evaluation of project report, project presentation skill and question and answer session in the ratio 50:25:25.The marks awarded for the project report shall be the same for all the batch mates.

(ii) Interdisciplinary: Continuous Internal Evaluation shall be group wise at the college level with the participation of all the guides of the college.

The CIE marks awarded for the Mini-project, shall be based on the evaluation of project report, project presentation skill and question and answer session in the ratio 50:25:25.The marks awarded for the project report shall be the same for all the batch mates.

SEE for Mini-project:

(i) Single discipline: Contribution to the Mini-project and the performance of each group member shall be assessed individually in the semester end examination (SEE) conducted at the department.

(ii) Interdisciplinary: Contribution to the Mini-project and the performance of each group member shall be assessed individually in semester end examination (SEE) conducted separately at the departments to which the student/s belong to.

Internship: All the students admitted to III year of BE/B.Tech shall have to undergo mandatory internship of 4 weeks during the vacation of VI and VII semesters and /or VII and VIII semesters. A University examination shall be conducted during VIII semester and the prescribed credit shall be included in VIII semester. Internship shall be considered as a head of passing and shall be considered for the award of degree. Those, who do not take-up/complete the internship shall be declared fail and shall have to complete during subsequent University examination after satisfying the internship requirements.

AICTE activity Points: In case students fail to earn the prescribed activity Points, Eighth semester Grade Card shall be issued only after earning the required activity Points. Students shall be admitted for the award of degree only after the release of the Eighth semester Grade Card.

Scanned by CamScanner

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
Scheme of Teaching and Examination 2018 – 19
Outcome Based Education(OBE) and Choice Based Credit System (CBCS)
(Effective from the academic year 2018 – 19)

VII SEMESTER

Sl. No	Course and Course code		Course Title	Teaching Department	Teaching Hours /Week			Examination				Credits
					Theory Lecture	Tutorial	Practical/ Drawing	Duration in hours	CIE Marks	SEE Marks	Total Marks	
					L	T	P					
1	PCC	18EC71	Computer Networks		3	--	--	03	40	60	100	3
2	PCC	18EC72	VLSI Design		3	--	--	03	40	60	100	3
3	PEC	18XX73X	Professional Elective - 2		3	--	--	03	40	60	100	3
4	PEC	18XX74X	Professional Elective - 3		3	--	--	03	40	60	100	3
5	OEC	18XX75X	Open Elective -B		3	--	--	03	40	60	100	3
6	PCC	18ECL76	Computer Networks Lab		--	2	2	03	40	60	100	2
7	PCC	18ECL77	VLSI Laboratory		--	2	2	03	40	60	100	2
8	Project	18ECP78	Project Work Phase - 1		--	--	2	--	100	--	100	1
9	Internship	--	Internship	(If not completed during the vacation of VI and VII semesters, it shall be carried out during the vacation of VII and VIII semesters)								
				TOTAL	15	4	6	21	380	420	800	20

Note: PCC: Professional core, PEC: Professional Elective.

Professional Elective - 2

Course code under 18XX73X	Course Title
18EC731	Real Time System
18EC732	Satellite Communication
18EC733	Digital Image Processing
18EC734	Data Structures using C++
18EC735	DSP Algorithms & Architecture

Professional Electives - 3

Course code under 18XX74X	Course Title
18EC741	IOT & Wireless Sensor Networks
18EC742	Automotive Electronics
18EC743	Multimedia Communication
18EC744	Cryptography
18EC745	Machine Learning

Open Elective –B

(i) 18EC751 Communication Theory (ii) 18EC752 Neural Networks

Students can select any one of the open electives offered by other Departments except those that are offered by the parent Department (Please refer to the list of open electives under 18XX75X).

Selection of an open elective shall not be allowed if,

- The candidate has studied the same course during the previous semesters of the programme.
- The syllabus content of open elective is similar to that of the Departmental core courses or professional electives.
- A similar course, under any category, is prescribed in the higher semesters of the programme.

Registration to electives shall be documented under the guidance of Programme Coordinator/ Advisor/Mentor.

Project work:

Based on the ability/abilities of the student/s and recommendations of the mentor, a single discipline or a multidisciplinary project can be assigned to an individual student or to a group having not more than 4 students. In extraordinary cases, like the funded projects requiring students from different disciplines, the project student strength can be 5 or 6.

CIE procedure for Project Work Phase - 1:

(i) Single discipline: The CIE marks shall be awarded by a committee consisting of the Head of the concerned Department and two senior faculty members of the Department, one of whom shall be the Guide.

The CIE marks awarded for the project work phase -1, shall be based on the evaluation of the project work phase -1 Report (covering Literature Survey, Problem identification, Objectives and Methodology), project presentation skill and question and answer session in the ratio 50:25:25.The marks awarded for the Project report shall be the same for all the batch mates.

(ii) Interdisciplinary: Continuous Internal Evaluation shall be group wise at the college level with the participation of all guides of the college. Participation of external guide/s, if any, is desirable.

The CIE marks awarded for the project work phase -1, shall be based on the evaluation of project work phase -1 Report, project presentation skill and question and answer session in the ratio 50:25:25.The marks awarded for the project report shall be the same for all the batch mates.

Internship: All the students admitted to III year of BE/B.Tech shall have to undergo mandatory internship of 4 weeks during the vacation of VI and VII semesters and /or VII and VIII semesters. A University examination shall be conducted during VIII semester and the prescribed credit shall be included in VIII semester. Internship shall be considered as a head of passing and shall be considered for the award of degree. Those, who do not take-up/complete the internship shall be declared fail and shall have to complete during subsequent University examination after satisfying the internship requirements.

AICTE activity Points: In case students fail to earn the prescribed activity Points, Eighth semester Grade Card shall be issued only after earning the required activity Points. Students shall be admitted for the award of degree only after the release of the Eighth semester Grade Card.

Scanned by CamScanner

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
Scheme of Teaching and Examination 2018 – 19
Outcome Based Education(OBE) and Choice Based Credit System (CBCS)
(Effective from the academic year 2018 – 19)

VIII SEMESTER

Sl. No	Course and Course code		Course Title	Teaching Department	Teaching Hours /Week			Examination				Credits
					Theory Lecture	Tutorial	Practical/ Drawing	Duration in hours	CIE Marks	SEE Marks	Total Marks	
					L	T	P					
1	PCC	18EC81	Wireless and Cellular Communication		3	--	--	03	40	60	100	3
2	PEC	18XX82X	Professional Elective - 4		3	--	--	03	40	60	100	3
3	Project	18ECP83	Project Work Phase - 2		--	--	2	03	40	60	100	8
4	Seminar	18ECS84	Technical Seminar		--	--	2	03	100	--	100	1
5	Internship	18ECI85	Internship	Completed during the vacation/s of VI and VII semesters and /or VII and VIII semesters.)				03	40	60	100	3
				TOTAL	06	--	4	15	260	240	500	18

Note: PCC: Professional Core, PEC: Professional Elective.

Professional Electives - 4

Course code under 18XX82X	Course Title
18EC821	Network Security
18EC822	Micro Electro Mechanical Systems
18EC823	Radar Engineering
18EC824	Optical Communication Networks
18EC825	Biomedical Signal Processing

Project Work

CIE procedure for Project Work Phase - 2:

(i) Single discipline: The CIE marks shall be awarded by a committee consisting of the Head of the concerned Department and two senior faculty members of the Department, one of whom shall be the Guide.

The CIE marks awarded for the project work phase -2, shall be based on the evaluation of project work phase -2 Report, project presentation skill and question and answer session in the ratio 50:25:25.The marks awarded for the project report shall be the same for all the batch mates.

(ii) Interdisciplinary: Continuous Internal Evaluation shall be group wise at the college level with the participation of all guides of the college. Participation of external guide/s, if any, is desirable.

The CIE marks awarded for the project work phase -2, shall be based on the evaluation of project work phase -2 Report, project presentation skill and question and answer session in the ratio 50:25:25.The marks awarded for the project report shall be the same for all the batch mates.

SEE for Project Work Phase - 2:

(i) Single discipline: Contribution to the project and the performance of each group member shall be assessed individually in semester end examination (SEE) conducted at the department.

(ii) Interdisciplinary: Contribution to the project and the performance of each group member shall be assessed individually in semester end examination (SEE) conducted separately at the departments to which the student/s belong to.

Internship: Those, who have not pursued /completed the internship shall be declared as fail and have to complete during subsequent University examination after satisfying the internship requirements.

AICTE activity Points: In case students fail to earn the prescribed activity Points, Eighth semester Grade Card shall be issued only after earning the required activity Points. Students shall be admitted for the award of degree only after the release of the Eighth semester Grade Card.

Activity points of the students who have earned the prescribed AICTE activity Points shall be sent the University along with the CIE marks of 8th semester. In case of students who have not satisfied the AICTE activity Points at the end of eighth semester, the column under activity Points shall be marked NSAP (Not Satisfied Activity Points).

Scanned by CamScanner

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI

Scheme of Teaching and Examination – 2018-19

M.Tech Aeronautical Engineering

Outcome Based Education(OBE) and Choice Based Credit System (CBCS)

IV SEMESTER

Sl. No	Course	Course Code	Course Title	Teaching Hours /Week		Examination				Credits
				Theory	Practical/ Field work/ Assignment	Duration in hours	CIE Marks	SEE Marks Viva voce	Total Marks	
1	Project	18MAE41	Project work phase -2	--	04	03	40	60	100	20
			TOTAL	--	**04**	**03**	**40**	**60**	**100**	**20**

Note:

1. Project Phase-2:

CIE marks shall be awarded by a committee comprising of HoD as Chairman, Guide/co-guide, if any and a Senior faculty of the department. The CIE marks awarded for project work phase -2, shall be based on the evaluation of Project Report subjected to plagiarism check, Project Presentation skill and Question and Answer session in the ratio 50:25:25.

SEE shall be at the end of IV semester. Project work evaluation and Viva-Voce examination (SEE), after satisfying the plagiarism check, shall be as per the University norms.

2018 Scheme

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
Scheme of Teaching and Examination 2018 – 19
Outcome Based Education(OBE) and Choice Based Credit System (CBCS)
(Effective from the academic year 2018 – 19)

VI SEMESTER

Sl. No	Course and Course code		Course Title	Teaching Department	Teaching Hours /Week			Examination				Credits
					Theory Lecture	Tutorial	Practical/ Drawing	Duration in hours	CIE Marks	SEE Marks	Total Marks	
					L	T	P					
1	PCC	18ME61	Finite Element Methods		3	2	--	03	40	60	100	4
2	PCC	18ME62	Design of Machine Elements II		3	2	--	03	40	60	100	4
3	PCC	18ME63	Heat Transfer		3	2	--	03	40	60	100	4
4	PEC	18ME64X	Professional Elective -1		3	--	--	03	40	60	100	3
5	OEC	18ME65X	Open Elective -A		3	--	--	03	40	60	100	3
6	PCC	18MEL66	Computer Aided Modelling and Analysis Lab		--	2	2	03	40	60	100	2
7	PCC	18MEL67	Heat Transfer Lab		--	2	2	03	40	60	100	2
8	MP	18MEMP68	Mini-project		--	--	2	03	40	60	100	2
9	Internship	--	Internship	To be carried out during the vacation/s of VI and VII semesters and /or VII and VIII semesters.								
				TOTAL	15	10	06	24	320	480	800	24

Note: PCC: Professional core, PEC: Professional Elective, OE: Open Elective, MP: Mini-project.

Professional Elective -1

Course code under 18XX64X	Course Title	Course code under 18XX64X	Course Title
18ME641	Non-Traditional Machining	18ME644	Vibrations and Noise Engineering
18ME642	Refrigeration and Air conditioning	18ME645	Composite Materials Technology
18ME643	Theory of Elasticity	18ME646	Entrepreneurship Development

Open Elective -A

Students can select any one of the open electives offered by other Departments expect those that are offered by the parent Department (Please refer to the list of open electives under 18XX65X).
Selection of an open elective shall not be allowed if,

- The candidate has studied the same course during the previous semesters of the programme.
- The syllabus content of open elective is similar to that of the Departmental core courses or professional electives.
- A similar course, under any category, is prescribed in the higher semesters of the programme.

Registration to electives shall be documented under the guidance of Programme Coordinator/ Advisor/Mentor.

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
Scheme of Teaching and Examination 2018 – 19
Outcome Based Education(OBE) and Choice Based Credit System (CBCS)
(Effective from the academic year 2018 – 19)

VII SEMESTER

Sl. No	Course and Course code		Course Title	Teaching Department	Teaching Hours /Week			Examination				Credits
					Theory Lecture	Tutorial	Practical/ Drawing	Duration in hours	CIE Marks	SEE Marks	Total Marks	
					L	T	P					
1	PCC	18ME71	Control Engineering		3	--	--	03	40	60	100	3
2	PCC	18ME72	Computer Aided Design and Manufacturing		3	--	--	03	40	60	100	3
3	PEC	18ME73X	Professional Elective - 2		3	--	--	03	40	60	100	3
4	PEC	18ME74X	Professional Elective - 3		3	--	--	03	40	60	100	3
5	OEC	18ME75X	Open Elective -B		3	--	--	03	40	60	100	3
6	PCC	18MEL76	Computer Integrated Manufacturing Lab		--	2	2	03	40	60	100	2
7	PCC	18MEL77	Design Lab		--	2	2	03	40	60	100	2
8	Project	18MEP78	Project Work Phase - 1		--	--	2	--	100	--	100	1
9	Internship	--	Internship	(If not completed during the vacation of VI and VII semesters, it shall be carried out during the vacation of VII and VIII semesters)								
				TOTAL	15	04	06	18	340	360	700	20

Professional Elective - 2

Course code under 18XX73X	Course Title	Course code under 18XX73X	Course Title
18ME731	Design for Manufacture	18ME734	Total Quality Management
18ME732	Automation and Robotics	18ME735	Operations Research
18ME733	Computational Fluid Dynamics		

Professional Electives - 3

Course code under 18XX74X	Course Title	Course code under 18XX74X	Course Title
18ME741	Additive Manufacturing	18ME744	Mechatronics
18ME742	Emerging Sustainable Building Cooling Technologies	18ME745	Project Management
18ME743	Theory of Plasticity		

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
Scheme of Teaching and Examination 2018 – 19
Outcome Based Education(OBE) and Choice Based Credit System (CBCS)
(Effective from the academic year 2018 – 19)

VIII SEMESTER

Sl. No	Course and Course code		Course Title	Teaching Department	Teaching Hours /Week			Examination				Credits
					Theory Lecture	Tutorial	Practical/ Drawing	Duration in hours	CIE Marks	SEE Marks	Total Marks	
					L	T	P					
1	PCC	18ME81	**Energy Engineering**		3	--	--	03	40	60	100	3
2	PEC	18ME82X	**Professional Elective - 4**		3	--	--	03	40	60	100	3
3	Project	18MEP83	**Project Work Phase - 2**		--	--	2	03	40	60	100	8
4	Seminar	18MES84	**Technical Seminar**		--	--	2	03	100	--	100	1
5	Internship	18XXI85	Internship	Completed during the vacation/s of VI and VII semesters and /or VII and VIII semesters.)				03	40	60	100	3
			TOTAL		**06**	**--**	**04**	**15**	**260**	**240**	**500**	**18**

Note: PCC: Professional Core, PEC: Professional Elective.

Professional Electives - 4

Course code under 18XX82X	Course Title	Course code under 18XX82X	Course Title
18ME821	**CNC Machine Tools**	18ME824	**Automobile Engineering**
18ME822	**Tribology**	18ME825	**Tool Design**
18ME823	**Non-Destructive Testing and Evaluation**	18ME826	**Fracture Mechanics**

Project Work

CIE procedure for Project Work Phase - 2:

(i) Single discipline: The CIE marks shall be awarded by a committee consisting of the Head of the concerned Department and two senior faculty members of the Department, one of whom shall be the Guide.

The CIE marks awarded for the project work phase -2, shall be based on the evaluation of project work phase -2 Report, project presentation skill and question and answer session in the ratio 50:25:25. The marks awarded for the project report shall be the same for all the batch mates.

(ii) Interdisciplinary: Continuous Internal Evaluation shall be group wise at the college level with the participation of all guides of the college. Participation of external guide/s, if any, is desirable.

The CIE marks awarded for the project work phase -2, shall be based on the evaluation of project work phase -2 Report, project presentation skill and question and answer session in the ratio 50:25:25. The marks awarded for the project report shall be the same for all the batch mates.

2018 Scheme

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
Scheme of Teaching and Examination – 2018 - 19
M.Tech In Product Design and Manufacturing Engineering (MPD)
Outcome Based Education(OBE) and Choice Based Credit System (CBCS)

II SEMESTER

Sl. No	Course	Course Code	Course Title	Teaching Hours /Week		Examination				Credits
				Theory	Practical/ Field work/ Assignment	Duration in hours	CIE Marks	SEE Marks	Total Marks	
1	PCC	**18MPD21**	Industrial Design & Ergonomics	04	--	03	40	60	100	4
2	PCC	**18MPD22**	Design for Manufacturing	04	--	03	40	60	100	4
3	PCC	**18MPD23**	Product Planning & Marketing	04	--	03	40	60	100	4
4	PEC	**18MPD24X**	Professional elective 1	04	--	03	40	60	100	4
5	PEC	**18 MPD 25X**	Professional elective 2	04	--	03	40	60	100	4
6	PCC	**18 MPD L26**	Product Design Lab-2	--	04	03	40	60	100	2
7	PCC	**18 MPD 27**	Technical Seminar	--	02	--	100	--	100	2
TOTAL				**20**	**06**	**18**	**340**	**360**	**700**	**24**

Note: PCC: Professional core, PEC: Professional Elective.

Professional Elective 1		Professional Elective 2	
Course Code under 18MPD24X	**Course title**	**Course Code under 18 MPD 25X**	**Course title**
18 MPD 241	Product Data Management	**18 MPD 251**	Quality & Reliability Engineering
18 MPD 242	Advanced Manufacturing Practices	**18 MPD 252**	Virtual Design and Manufacturing
18 MPD 243	Non Traditional Machining Process	**18 MPD 253**	Lean Manufacturing System

Note:
1. Technical Seminar: CIE marks shall be awarded by a committee comprising of HoD as Chairman, Guide/co-guide, if any, and a senior faculty of the department. Participation in the seminar by all postgraduate students of the same and other semesters of the programme shall be mandatory.
The CIE marks awarded for Technical Seminar, shall be based on the evaluation of Seminar Report, Presentation skill and Question and Answer session in the ratio 50:25:25.
2. Internship: All the students shall have to undergo mandatory internship of 6 weeks during the vacation of I and II semesters and /or II and III semesters. A University examination shall be conducted during III semester and the prescribed credit shall be counted in the same semester. Internship shall be considered as a head of passing and shall be considered for the award of degree. Those, who do not take-up/complete the internship shall be declared as failed and have to complete during the subsequent University examination after satisfying the internship requirements.

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
Scheme of Teaching and Examination – 2018 - 19
M.Tech In Product Design and Manufacturing Engineering (MPD)
Outcome Based Education(OBE) and Choice Based Credit System (CBCS)

III SEMESTER

Sl. No	Course	Course Code	Course Title	Teaching Hours /Week		Examination				Credits
				Theory	Practical/ Field work/ Assignment	Duration in hours	CIE Marks	SEE Marks	Total Marks	
1	PCC	**18MPD31**	Product Analysis and cost optimization	04	--	03	40	60	100	4
2	PEC	**18MPD32X**	Professional elective 3	04	--	03	40	60	100	4
3	PEC	**18MPD33X**	Professional elective 4	04	--	03	40	60	100	4
4	Project	**18MPD34**	Evaluation of Project phase -1	--	02	--	100	--	100	2
5	Intenship	**18MPDI35**	Internship	(Completed during the intervening vacation of I and II semesters and /or II and III semesters.)		03	40	60	100	6
TOTAL				12	02	12	**260**	**240**	**500**	**20**

Note: PCC: Professional core, PEC: Professional Elective.

Professional elective 3		Professional elective 4	
Course Code under 18MPD32X	**Course title**	**Course Code under 18MPD33X**	**Course title**
18MPD321	Optimization Techniques for Decision Making	18MPD331	Robust Design
18MPD322	Rapid Prototyping	18MPD332	Simulation and Modeling
18MPD323	Value Engineering	18MPD333	Computer Application in Design

Note:
1. Project Phase-1: Students in consultation with the guide/co-guide if any, shall pursue literature survey and complete the preliminary requirements of selected Project work. Each student shall prepare relevant introductory project document, and present a seminar.
CIE marks shall be awarded by a committee comprising of HoD as Chairman, Guide/co-guide if any, and a senior faculty of the department. The CIE marks awarded for project work phase -1, shall be based on the evaluation of Project Report, Project Presentation skill and Question and Answer session in the ratio 50:25:25.
SEE (University examination) shall be as per the University norms.
2. Internship: Those, who have not pursued /completed the internship shall be declared as failed and have to complete during subsequent University examinations after satisfying the internship requirements.
Internship SEE (University examination) shall be as per the University norms.

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
Scheme of Teaching and Examination – 2018 - 19
M.Tech In Product Design and Manufacturing Engineering(MPD)
Outcome Based Education(OBE) and Choice Based Credit System (CBCS)

IV SEMESTER

Sl. No	Course	Course Code	Course Title	Teaching Hours /Week		Examination				Credits
				Theory	Practical/ Field work/ Assignment	Duration in hours	CIE Marks	SEE Marks Viva voce	Total Marks	
1	Project	**18MPD41**	Project work phase -2	--	04	03	40	60	100	20
			TOTAL	--	**04**	**03**	**40**	**60**	**100**	**20**

Note:

1. Project Phase-2:

CIE marks shall be awarded by a committee comprising of HoD as Chairman, Guide/co-guide, if any, and a Senior faculty of the department. The CIE marks awarded for project work phase -2, shall be based on the evaluation of Project Report subjected to plagiarism check, Project Presentation skill and Question and Answer session in the ratio 50:25:25.

SEE shall be at the end of IV semester. Project work evaluation and Viva-Voce examination (SEE), after satisfying the plagiarism check, shall be as per the University norms.

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
Scheme of Teaching and Examination – 2018 - 19
M.Tech Name of the programme (CSE)
Outcome Based Education(OBE) and Choice Based Credit System (CBCS)

III SEMESTER

Sl. No	Course	Course Code	Course Title	Teaching Hours /Week		Examination				Credits
				Theory	Practical/ Field work/ Assignment	Duration in hours	CIE Marks	SEE Marks	Total Marks	
1	PCC	18CSE31	Design of Concrete Bridges	04	--	03	40	60	100	4
2	PEC	18CSE32X	Professional elective 3	04	--	03	40	60	100	4
3	PEC	18CSE33X	Professional elective 4	04	--	03	40	60	100	4
4	Project	18CSE34	Evaluation of Project phase -1	--	02	--	100	--	100	2
5	INT	18CSEI35	Internship	(Completed during the intervening vacation of I and II semesters and /or II and III semesters.)		03	40	60	100	6
TOTAL				12	02	12	**260**	**240**	**500**	**20**

Note: PCC: Professional core, PEC: Professional Elective.

Professional elective 3		**Professional elective 4**	
Course Code under 18CSE32X	**Course title**	**Course Code under 18CSE33X**	**Course title**
18CSE321	Design Concepts of Substructures	18CSE331	Fracture Mechanics applied to concrete
18CSE322	Repair and Rehabilitation of Structures	18CSE332	Design of Masonry Structures
18CSE323	Theory of Plates and Shells	18CSE333	Design of Formwork
18CSE324	Optimization Techniques	18CSE334	Composite materials

Note:

1. Project Phase-1: Students in consultation with the guide/co-guide if any, shall pursue literature survey and complete the preliminary requirements of selected Project work. Each student shall prepare relevant introductory project document, and present a seminar.

CIE marks shall be awarded by a committee comprising of HoD as Chairman, Guide/co-guide if any, and a senior faculty of the department. The CIE marks awarded for project work phase -1, shall be based on the evaluation of Project Report, Project Presentation skill and Question and Answer session in the ratio 50:25:25.

SEE (University examination) shall be as per the University norms.

2. Internship: Those, who have not pursued /completed the internship shall be declared as failed and have to complete during subsequent University examinations after satisfying the internship requirements.

Internship SEE (University examination) shall be as per the University norms.

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI

Scheme of Teaching and Examination – 2018 - 19

M.Tech Name of the programme (CSE)

Outcome Based Education(OBE) and Choice Based Credit System (CBCS)

IV SEMESTER

Sl. No	Course	Course Code	Course Title	Teaching Hours /Week		Examination				Credits
				Theory	Practical/ Field work/ Assignment	Duration in hours	CIE Marks	SEE Marks Viva voce	Total Marks	
1	Project	18CSE41	Project work phase -2	--	04	03	40	60	100	20
			TOTAL	--	**04**	**03**	**40**	**60**	**100**	**20**

Note:

1. Project Phase-2:

CIE marks shall be awarded by a committee comprising of HoD as Chairman, Guide/co-guide, if any, and a Senior faculty of the department. The CIE marks awarded for project work phase -2, shall be based on the evaluation of Project Report subjected to plagiarism check, Project Presentation skill and Question and Answer session in the ratio 50:25:25.

SEE shall be at the end of IV semester. Project work evaluation and Viva-Voce examination (SEE), after satisfying the plagiarism check, shall be as per the University norms.

1.3.2.1 Number of courses that include experiential learning through project work/field work/internship year – wise during last five years

The data shown below is the list of courses that include experiential learning through project work/field work/internship during the year 2019-2020.

Sl.NO	Program code	Program Name	Course code	Course Name
1	EC	ELECTRONICS AND COMMUNICATION ENGINEERING	17ECP78	Project Work
2	EC	ELECTRONICS AND COMMUNICATION ENGINEERING	17EC84	Internship
3	EC	ELECTRONICS AND COMMUNICATION ENGINEERING	17ECP85	Project Work
4	ME	MECHANICAL ENGINEERING	15MEP78	Project Work
5	ME	MECHANICAL ENGINEERING	15ME84	Internship / Professional Practice
6	ME	MECHANICAL ENGINEERING	15ME85	Project Work
7	AE	AERONAUTICAL ENGINEERING	15AEP78	Project work
8	AE	AERONAUTICAL ENGINEERING	15AE84	Internship Professional
9	AE	AERONAUTICAL ENGINEERING	15AEP85	Project Work
10	CV	CIVIL ENGINEERING	15CVP78	Project Work
11	CV	CIVIL ENGINEERING	15CV84	Internship/Professional Practice
12	CV	CIVIL ENGINEERING	15CVP85	Project Work
13	BM	Biomedical Engineering	15BMP78	Project Work
14	BM	Biomedical Engineering	15BM84	Internship
15	BM	Biomedical Engineering	15BMP85	Project Work
16	CS	Computer Science & Engineering	15CSP78	Project Work
17	CS	Computer Science & Engineering	15CS84	Internship / Professional Practice
18	CS	Computer Science & Engineering	15CSP85	Project work
19	CSE	Mtech Structural Engineering	18CSE41	Project work
20	MPD	Product Design & Manufacturing	18MPD41	Project work
21	ELD	Digital Electronics and Communication Engineering	18ELD41	Project work

PRINCIPAL

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELGAUM

CHOICE BASED CREDIT SYSTEM (CBCS)

SCHEME OF TEACHING AND EXAMINATION 2015-2016

Aeronautical Engineering
VIII SEMESTER

Sl. No	Subject Code	Title	Teaching Hours /Week		Examination				Credit
			Theory	Practical/Drawing	Duration	I.A. Marks	Theory/ Practical Marks	Total Marks	
1	15AE81	AVIONICS	4	-	3	20	80	100	4
2	15AE82	FLIGHT VEHICLE DESIGN	4	-	3	20	80	100	4
3	15AE83X	Professional Elective	3	-	3	20	80	100	3
4	15AE84	Internship / Professional Practice	Industry Oriented		3	50	50	100	2
5	15AEP85	Project Work Phase -II	-	6	3	100	100	200	6
6	15AES86	Seminar	-	4	-	100	-	100	1
TOTAL			**11**	**10**	**15**	**310**	**390**	**700**	**20**

Professional Elective	
15AE831	FLIGHT TESTING
15AE832	BOUNDARY LAYER THEORY
15AE833	OPTIMIZATION TECHNIQUES
15AE834	CRYOGENICS

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 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
Aeronautical 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	15AE71	CONTROL ENGINEERING		04		03	20	80	100	4
2	15AE72	COMPUTATIONAL FLUID DYNAMICS		04		03	20	80	100	4
3	15AE73	AIRCRAFT STABILITY AND CONTROL		04		03	20	80	100	4
4	15AE74X	PROFESSIONAL ELECTIVE		03		03	20	80	100	3
5	15AE75X	PROFESSIONAL ELECTIVE		03		03	20	80	100	3
6	15AEL76	FLIGHT SIMULATION LAB			1I+2P	03	20	80	100	2
7	15AEL77	MODELING AND ANALYSIS LAB			1I+2P	03	20	80	100	2
8	15AEP78	Project Phase –I + Project Seminar		-		-	100	-	100	2
TOTAL				18	6	21	240	560	800	24

Professional Elective (15AE74X)		Professional Elective (15AE75X)	
15AE741	FATIGUE AND FRACTURE MECHANICS	15AE751	OPERATIONS RESEARCH
15AE742	HIGH PERFORMANCE COMPUTING	15AE752	WIND TUNNEL TECHNIQUES
15AE743	HELICOPTER DYNAMICS	15AE753	NUMERICAL METHODS
15AE744	AERO-ELASTICITY	15AE754	GUIDANCE, NAVIGATION & CONTROL

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 + Project 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 (APPROVED)

B.E. Biomedical Engineering

VII SEMESTER

Sl. No	Subject Code	Title	Teaching Dept.	Teaching Hours /Week		Examination				Credits
				Theory	Practical/ Drawing	Duration	I.A. Marks	Theory/ Practical Marks	Total Marks	
1	15BM71	Biomedical Digital Signal Processing	BM	04	-	03	20	80	100	4
2	15BM72	Computer Communication Networks in Healthcare	BM	04	-	03	20	80	100	4
3	15BM73	ARM Processor	BM	04	-	03	20	80	100	4
4	15BM74X	Professional Elective-III	BM	03	-	03	20	80	100	3
5	15BM75X	Professional Elective-IV	BM	03	-	03	20	80	100	3
6	15BML76	Biomedical DSP Lab	BM	-	1I+2P	03	20	80	100	2
7	15BML77	ARM Processor Lab	BM	-	1I+2P	03	20	80	100	2
8	15BMP78	Project Work Phase-I + Project Seminar	BM	-	1I+2P	-	100	-	100	2
TOTAL				18	9	21	240	560	800	24

Professional Elective-III		Professional Elective-IV	
15BM741	Database Management System in Healthcare	15BM751	Biostatistics
15BM742	Medical Informatics and Expert Systems	15BM752	Lasers and Optical Fibers in Medicine
15BM743	Hardware-Software Co-design	15BM753	Ergonomics
15BM744	Biometric Systems	15BM754	Big-data and Cloud Computing

1. **Core Subject:** This is the course which is compulsorily need to be studied by the 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 Work Phase-I + Project Seminar:** Literature Survey, Problem Identification, Objectives & Methodology, Submission of synopsis & seminar presentation

TENTATIVE

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

B.E. Biomedical Engineering

VIII SEMESTER

Sl. No	Subject Code	Title	Teaching Dept.	Teaching Hours /Week		Examination				Credit
				Theory	Practical/ Drawing	Duration	I.A. Marks	Theory/ Practical Marks	Total Marks	
1	15BM81	Medical Imaging Systems	BM	4	-	3	20	80	100	4
2	15BM82	Biomaterials and Artificial Organs	BM	4	-	3	20	80	100	4
3	15BM83X	Professional Elective-V	BM	3	-	3	20	80	100	3
4	15BM84	Internship / Professional Practice	BM	Industry Oriented		3	50	50	100	2
5	15BMP85	Project Work Phase-II	BM	-	6	3	100	100	200	6
6	15BMS86	Seminar	BM	-	4	-	100	-	100	1
TOTAL				11	10	15	310	390	700	20

Professional Elective-V	
15BM831	Bio-MEMS
15BM832	Medical Device Regulations
15BM833	Picture Archiving and Communication Systems
15BM834	Neural Networks and AI in Biomedical Engg.

1. **Core Subject:** This is the course which is compulsorily need to be studied by the 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 6th and 7th semester vacation or 7th and 8th semester vacation period.
4. **Project Work Phase –II:** Design, Development, Implementation, Demonstration, Testing, Presentation and Project Report Submission.
5. **Seminar:** On current topics of Engineering & Technology related to said discipline of study. Preparation of Seminar Report and Presentation.

TENTATIVE

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)**

TENTATIVE

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)**

TENTATIVE

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		Examination				Credits
			Theory	Practical/ Drawing	Duration	I.A. Marks	Theory/ Practical Marks	Total Marks	
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

TENTATIVE

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

TENTATIVE

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

VII SEMESTER

Sl. No	Subject Code	Title	Teaching Hours /Week		Examination				15EC
			Theory	Practical/Drawing	Duration	I.A. Marks	Theory/ Practical Marks	Total Marks	
1	15EC71	Microwave and Antennas	04		03	20	80	100	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.

Scanned by CamScanner

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.

Scanned by CamScanner

2015 Scheme

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

B.E. Mechanical Engineering

VII SEMESTER

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

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

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

2018 Scheme

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
Scheme of Teaching and Examination 2018 – 19
Outcome Based Education(OBE) and Choice Based Credit System (CBCS)
(Effective from the academic year 2018 – 19)

VI SEMESTER

Sl. No	Course and Course code		Course Title	Teaching Department	Teaching Hours /Week			Examination				Credits
					Theory Lecture	Tutorial	Practical/ Drawing	Duration in hours	CIE Marks	SEE Marks	Total Marks	
					L	T	P					
1	PCC	18ME61	Finite Element Methods		3	2	--	03	40	60	100	4
2	PCC	18ME62	Design of Machine Elements II		3	2	--	03	40	60	100	4
3	PCC	18ME63	Heat Transfer		3	2	--	03	40	60	100	4
4	PEC	18ME64X	Professional Elective -1		3	--	--	03	40	60	100	3
5	OEC	18ME65X	Open Elective -A		3	--	--	03	40	60	100	3
6	PCC	18MEL66	Computer Aided Modelling and Analysis Lab		--	2	2	03	40	60	100	2
7	PCC	18MEL67	Heat Transfer Lab		--	2	2	03	40	60	100	2
8	MP	18MEMP68	Mini-project		--	--	2	03	40	60	100	2
9	Internship	--	Internship	To be carried out during the vacation/s of VI and VII semesters and /or VII and VIII semesters.								
				TOTAL	15	10	06	24	320	480	800	24

Note: PCC: Professional core, PEC: Professional Elective, OE: Open Elective, MP: Mini-project.

Professional Elective -1

Course code under 18XX64X	Course Title	Course code under 18XX64X	Course Title
18ME641	Non-Traditional Machining	18ME644	Vibrations and Noise Engineering
18ME642	Refrigeration and Air conditioning	18ME645	Composite Materials Technology
18ME643	Theory of Elasticity	18ME646	Entrepreneurship Development

Open Elective -A

Students can select any one of the open electives offered by other Departments expect those that are offered by the parent Department (Please refer to the list of open electives under 18XX65X).
Selection of an open elective shall not be allowed if,

- The candidate has studied the same course during the previous semesters of the programme.
- The syllabus content of open elective is similar to that of the Departmental core courses or professional electives.
- A similar course, under any category, is prescribed in the higher semesters of the programme.

Registration to electives shall be documented under the guidance of Programme Coordinator/ Advisor/Mentor.

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
Scheme of Teaching and Examination 2018 – 19
Outcome Based Education(OBE) and Choice Based Credit System (CBCS)
(Effective from the academic year 2018 – 19)

VII SEMESTER

Sl. No	Course and Course code		Course Title	Teaching Department	Teaching Hours /Week			Examination				Credits
					Theory Lecture	Tutorial	Practical/ Drawing	Duration in hours	CIE Marks	SEE Marks	Total Marks	
					L	T	P					
1	PCC	18ME71	Control Engineering		3	--	--	03	40	60	100	3
2	PCC	18ME72	Computer Aided Design and Manufacturing		3	--	--	03	40	60	100	3
3	PEC	18ME73X	Professional Elective - 2		3	--	--	03	40	60	100	3
4	PEC	18ME74X	Professional Elective - 3		3	--	--	03	40	60	100	3
5	OEC	18ME75X	Open Elective -B		3	--	--	03	40	60	100	3
6	PCC	18MEL76	Computer Integrated Manufacturing Lab		--	2	2	03	40	60	100	2
	PCC	18MEL77	Design Lab		--	2	2	03	40	60	100	2
7	Project	18MEP78	Project Work Phase - 1		--	--	2	--	100	--	100	1
8	Internship	--	Internship	(If not completed during the vacation of VI and VII semesters, it shall be carried out during the vacation of VII and VIII semesters)								
				TOTAL	15	04	06	18	340	360	700	20

Professional Elective - 2

Course code under 18XX73X	Course Title	Course code under 18XX73X	Course Title
18ME731	Design for Manufacture	18ME734	Total Quality Management
18ME732	Automation and Robotics	18ME735	Operations Research
18ME733	Computational Fluid Dynamics		

Professional Electives - 3

Course code under 18XX74X	Course Title	Course code under 18XX74X	Course Title
18ME741	Additive Manufacturing	18ME744	Mechatronics
18ME742	Emerging Sustainable Building Cooling Technologies	18ME745	Project Management
18ME743	Theory of Plasticity		

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
Scheme of Teaching and Examination 2018 – 19
Outcome Based Education(OBE) and Choice Based Credit System (CBCS)
(Effective from the academic year 2018 – 19)

VIII SEMESTER

Sl. No	Course and Course code		Course Title	Teaching Department	Teaching Hours /Week			Examination				Credits
					Theory Lecture	Tutorial	Practical/ Drawing	Duration in hours	CIE Marks	SEE Marks	Total Marks	
					L	T	P					
1	PCC	18ME81	**Energy Engineering**		3	--	--	03	40	60	100	3
2	PEC	18ME82X	**Professional Elective - 4**		3	--	--	03	40	60	100	3
3	Project	18MEP83	**Project Work Phase - 2**		--	--	2	03	40	60	100	8
4	Seminar	18MES84	**Technical Seminar**		--	--	2	03	100	--	100	1
5	Internship	18XXI85	Internship	Completed during the vacation/s of VI and VII semesters and /or VII and VIII semesters.)				03	40	60	100	3
			TOTAL		**06**	**--**	**04**	**15**	**260**	**240**	**500**	**18**

Note: PCC: Professional Core, PEC: Professional Elective.

Professional Electives - 4

Course code under 18XX82X	Course Title	Course code under 18XX82X	Course Title
18ME821	**CNC Machine Tools**	18ME824	**Automobile Engineering**
18ME822	**Tribology**	18ME825	**Tool Design**
18ME823	**Non-Destructive Testing and Evaluation**	18ME826	**Fracture Mechanics**

Project Work

CIE procedure for Project Work Phase - 2:

(i) Single discipline: The CIE marks shall be awarded by a committee consisting of the Head of the concerned Department and two senior faculty members of the Department, one of whom shall be the Guide.

The CIE marks awarded for the project work phase -2, shall be based on the evaluation of project work phase -2 Report, project presentation skill and question and answer session in the ratio 50:25:25. The marks awarded for the project report shall be the same for all the batch mates.

(ii) Interdisciplinary: Continuous Internal Evaluation shall be group wise at the college level with the participation of all guides of the college. Participation of external guide/s, if any, is desirable.

The CIE marks awarded for the project work phase -2, shall be based on the evaluation of project work phase -2 Report, project presentation skill and question and answer session in the ratio 50:25:25. The marks awarded for the project report shall be the same for all the batch mates.

2018 Scheme

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
Scheme of Teaching and Examination – 2018 - 19
M.Tech In Product Design and Manufacturing Engineering (MPD)
Outcome Based Education(OBE) and Choice Based Credit System (CBCS)

II SEMESTER

Sl. No	Course	Course Code	Course Title	Teaching Hours /Week		Examination				Credits
				Theory	Practical/ Field work/ Assignment	Duration in hours	CIE Marks	SEE Marks	Total Marks	
1	PCC	**18MPD21**	Industrial Design & Ergonomics	04	--	03	40	60	100	4
2	PCC	**18MPD22**	Design for Manufacturing	04	--	03	40	60	100	4
3	PCC	**18MPD23**	Product Planning & Marketing	04	--	03	40	60	100	4
4	PEC	**18MPD24X**	Professional elective 1	04	--	03	40	60	100	4
5	PEC	**18 MPD 25X**	Professional elective 2	04	--	03	40	60	100	4
6	PCC	**18 MPD L26**	Product Design Lab-2	--	04	03	40	60	100	2
7	PCC	**18 MPD 27**	Technical Seminar	--	02	--	100	--	100	2
TOTAL				**20**	**06**	**18**	**340**	**360**	**700**	**24**

Note: PCC: Professional core, PEC: Professional Elective.

Professional Elective 1		Professional Elective 2	
Course Code under 18MPD24X	**Course title**	**Course Code under 18 MPD 25X**	**Course title**
18 MPD 241	Product Data Management	**18 MPD 251**	Quality & Reliability Engineering
18 MPD 242	Advanced Manufacturing Practices	**18 MPD 252**	Virtual Design and Manufacturing
18 MPD 243	Non Traditional Machining Process	**18 MPD 253**	Lean Manufacturing System

Note:
1. Technical Seminar: CIE marks shall be awarded by a committee comprising of HoD as Chairman, Guide/co-guide, if any, and a senior faculty of the department. Participation in the seminar by all postgraduate students of the same and other semesters of the programme shall be mandatory.
The CIE marks awarded for Technical Seminar, shall be based on the evaluation of Seminar Report, Presentation skill and Question and Answer session in the ratio 50:25:25.
2. Internship: All the students shall have to undergo mandatory internship of 6 weeks during the vacation of I and II semesters and /or II and III semesters. A University examination shall be conducted during III semester and the prescribed credit shall be counted in the same semester. Internship shall be considered as a head of passing and shall be considered for the award of degree. Those, who do not take-up/complete the internship shall be declared as failed and have to complete during the subsequent University examination after satisfying the internship requirements.

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
Scheme of Teaching and Examination – 2018 - 19
M.Tech In Product Design and Manufacturing Engineering (MPD)
Outcome Based Education(OBE) and Choice Based Credit System (CBCS)

III SEMESTER

Sl. No	Course	Course Code	Course Title	Teaching Hours /Week		Examination				Credits
				Theory	Practical/ Field work/ Assignment	Duration in hours	CIE Marks	SEE Marks	Total Marks	
1	PCC	**18MPD31**	Product Analysis and cost optimization	04	--	03	40	60	100	4
2	PEC	**18MPD32X**	Professional elective 3	04	--	03	40	60	100	4
3	PEC	**18MPD33X**	Professional elective 4	04	--	03	40	60	100	4
4	Project	**18MPD34**	Evaluation of Project phase -1	--	02	--	100	--	100	2
5	Intenship	**18MPDI35**	Internship	(Completed during the intervening vacation of I and II semesters and /or II and III semesters.)		03	40	60	100	6
TOTAL				12	02	12	**260**	**240**	**500**	**20**

Note: PCC: Professional core, PEC: Professional Elective.

Professional elective 3		Professional elective 4	
Course Code under 18MPD32X	**Course title**	**Course Code under 18MPD33X**	**Course title**
18MPD321	Optimization Techniques for Decision Making	18MPD331	Robust Design
18MPD322	Rapid Prototyping	18MPD332	Simulation and Modeling
18MPD323	Value Engineering	18MPD333	Computer Application in Design

Note:
1. Project Phase-1: Students in consultation with the guide/co-guide if any, shall pursue literature survey and complete the preliminary requirements of selected Project work. Each student shall prepare relevant introductory project document, and present a seminar.
CIE marks shall be awarded by a committee comprising of HoD as Chairman, Guide/co-guide if any, and a senior faculty of the department. The CIE marks awarded for project work phase -1, shall be based on the evaluation of Project Report, Project Presentation skill and Question and Answer session in the ratio 50:25:25.
SEE (University examination) shall be as per the University norms.
2. Internship: Those, who have not pursued /completed the internship shall be declared as failed and have to complete during subsequent University examinations after satisfying the internship requirements.
Internship SEE (University examination) shall be as per the University norms.

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
Scheme of Teaching and Examination – 2018 - 19
M.Tech In Product Design and Manufacturing Engineering(MPD)
Outcome Based Education(OBE) and Choice Based Credit System (CBCS)

IV SEMESTER

Sl. No	Course	Course Code	Course Title	Teaching Hours /Week		Examination				Credits
				Theory	Practical/ Field work/ Assignment	Duration in hours	CIE Marks	SEE Marks Viva voce	Total Marks	
1	Project	**18MPD41**	Project work phase -2	--	04	03	40	60	100	20
			TOTAL	--	**04**	**03**	**40**	**60**	**100**	**20**

Note:

1. Project Phase-2:

CIE marks shall be awarded by a committee comprising of HoD as Chairman, Guide/co-guide, if any, and a Senior faculty of the department. The CIE marks awarded for project work phase -2, shall be based on the evaluation of Project Report subjected to plagiarism check, Project Presentation skill and Question and Answer session in the ratio 50:25:25.

SEE shall be at the end of IV semester. Project work evaluation and Viva-Voce examination (SEE), after satisfying the plagiarism check, shall be as per the University norms.

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
Scheme of Teaching and Examination – 2018 - 19
M.Tech Name of the programme (CSE)
Outcome Based Education(OBE) and Choice Based Credit System (CBCS)

III SEMESTER

Sl. No	Course	Course Code	Course Title	Teaching Hours /Week		Examination				Credits
				Theory	Practical/ Field work/ Assignment	Duration in hours	CIE Marks	SEE Marks	Total Marks	
1	PCC	18CSE31	Design of Concrete Bridges	04	--	03	40	60	100	4
2	PEC	18CSE32X	Professional elective 3	04	--	03	40	60	100	4
3	PEC	18CSE33X	Professional elective 4	04	--	03	40	60	100	4
4	Project	18CSE34	Evaluation of Project phase -1	--	02	--	100	--	100	2
5	INT	18CSEI35	Internship	(Completed during the intervening vacation of I and II semesters and /or II and III semesters.)		03	40	60	100	6
TOTAL				12	02	12	**260**	**240**	**500**	**20**

Note: PCC: Professional core, PEC: Professional Elective.

Professional elective 3		**Professional elective 4**	
Course Code under 18CSE32X	**Course title**	**Course Code under 18CSE33X**	**Course title**
18CSE321	Design Concepts of Substructures	18CSE331	Fracture Mechanics applied to concrete
18CSE322	Repair and Rehabilitation of Structures	18CSE332	Design of Masonry Structures
18CSE323	Theory of Plates and Shells	18CSE333	Design of Formwork
18CSE324	Optimization Techniques	18CSE334	Composite materials

Note:

1. Project Phase-1: Students in consultation with the guide/co-guide if any, shall pursue literature survey and complete the preliminary requirements of selected Project work. Each student shall prepare relevant introductory project document, and present a seminar.

CIE marks shall be awarded by a committee comprising of HoD as Chairman, Guide/co-guide if any, and a senior faculty of the department. The CIE marks awarded for project work phase -1, shall be based on the evaluation of Project Report, Project Presentation skill and Question and Answer session in the ratio 50:25:25.

SEE (University examination) shall be as per the University norms.

2. Internship: Those, who have not pursued /completed the internship shall be declared as failed and have to complete during subsequent University examinations after satisfying the internship requirements.

Internship SEE (University examination) shall be as per the University norms.

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
Scheme of Teaching and Examination – 2018 - 19
M.Tech Name of the programme (CSE)
Outcome Based Education(OBE) and Choice Based Credit System (CBCS)

IV SEMESTER

Sl. No	Course	Course Code	Course Title	Teaching Hours /Week		Examination				Credits
				Theory	Practical/ Field work/ Assignment	Duration in hours	CIE Marks	SEE Marks Viva voce	Total Marks	
1	Project	18CSE41	Project work phase -2	--	04	03	40	60	100	20
			TOTAL	--	**04**	**03**	**40**	**60**	**100**	**20**

Note:

1. Project Phase-2:

CIE marks shall be awarded by a committee comprising of HoD as Chairman, Guide/co-guide, if any, and a Senior faculty of the department. The CIE marks awarded for project work phase -2, shall be based on the evaluation of Project Report subjected to plagiarism check, Project Presentation skill and Question and Answer session in the ratio 50:25:25.

SEE shall be at the end of IV semester. Project work evaluation and Viva-Voce examination (SEE), after satisfying the plagiarism check, shall be as per the University norms.

1.3.2.1 Number of courses that include experiential learning through project work/field work/internship year – wise during last five years

The data shown below is the list of courses that include experiential learning through project work/field work/internship during the year 2018-2019.

SL. No	Program code	Program Name	Course code	Course Name
1	EC	Electronics And Communication Engineering	15ECP78	Project Work Phase–I
2	EC	Electronics And Communication Engineering	15EC84	Internship
3	EC	Electronics And Communication Engineering	15ECP85	Project Work
4	ME	Mechanical Engineering	15MEP78	Project Phase – I
5	ME	Mechanical Engineering	15ME84	Internship / Professional Practice
6	ME	Mechanical Engineering	15ME85	Project Phase – II
7	AE	Aeronautical Engineering	15AEP78	Project Phase –I + Project Seminar
8	AE	Aeronautical Engineering	15AE84	INTERNSHIP PROFESSIONAL
9	AE	Aeronautical Engineering	15AEP85	Project Work Phase - II
10	CV	Civil Engineering	15CVP78	Project Phase I +Project Seminar
11	CV	Civil Engineering	15CVP85	Project Work
12	BM	Biomedical Engineering	15BMP78	Project Work Phase- I
13	BM	Biomedical Engineering	15BM84	Internship
14	BM	Biomedical Engineering	15BMP85	Project
15	CS	Computer Science & Engineering	15CSP78	Project Phase 1 + Seminar
16	CS	Computer Science & Engineering	15CS84	Internship / Professional Practice
17	CS	Computer Science & Engineering	15CSP85	Project work phase II
18	CSE	Mtech Structural Engineering	16CSE33	Evaluation and Viva-Voce of Internship
19	CSE	Mtech Structural Engineering	16CSE43	Project phase -2
20	MPD	Product Design & Manufacturing	16MPD44	Project Work and Viva-voce
21	ECS	Digital Electronics And Communication Engineering	16ECS31	Seminar / Presentation on Internship
22	ECS	Digital Electronics And Communication Engineering	16ECS43	Evaluation of Project phase -2

PRINCIPAL

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELGAUM

CHOICE BASED CREDIT SYSTEM (CBCS)

SCHEME OF TEACHING AND EXAMINATION 2015-2016

Aeronautical Engineering
VIII SEMESTER

Sl. No	Subject Code	Title	Teaching Hours /Week		Examination				Credit
			Theory	Practical/Drawing	Duration	I.A. Marks	Theory/ Practical Marks	Total Marks	
1	15AE81	AVIONICS	4	-	3	20	80	100	4
2	15AE82	FLIGHT VEHICLE DESIGN	4	-	3	20	80	100	4
3	15AE83X	Professional Elective	3	-	3	20	80	100	3
4	15AE84	Internship / Professional Practice	Industry Oriented		3	50	50	100	2
5	15AEP85	Project Work Phase -II	-	6	3	100	100	200	6
6	15AES86	Seminar	-	4	-	100	-	100	1
TOTAL			**11**	**10**	**15**	**310**	**390**	**700**	**20**

Professional Elective	
15AE831	FLIGHT TESTING
15AE832	BOUNDARY LAYER THEORY
15AE833	OPTIMIZATION TECHNIQUES
15AE834	CRYOGENICS

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 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
Aeronautical 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	15AE71	CONTROL ENGINEERING		04		03	20	80	100	4
2	15AE72	COMPUTATIONAL FLUID DYNAMICS		04		03	20	80	100	4
3	15AE73	AIRCRAFT STABILITY AND CONTROL		04		03	20	80	100	4
4	15AE74X	PROFESSIONAL ELECTIVE		03		03	20	80	100	3
5	15AE75X	PROFESSIONAL ELECTIVE		03		03	20	80	100	3
6	15AEL76	FLIGHT SIMULATION LAB			1I+2P	03	20	80	100	2
7	15AEL77	MODELING AND ANALYSIS LAB			1I+2P	03	20	80	100	2
8	15AEP78	Project Phase –I + Project Seminar		-		-	100	-	100	2
TOTAL				18	6	21	240	560	800	24

Professional Elective (15AE74X)		Professional Elective (15AE75X)	
15AE741	FATIGUE AND FRACTURE MECHANICS	15AE751	OPERATIONS RESEARCH
15AE742	HIGH PERFORMANCE COMPUTING	15AE752	WIND TUNNEL TECHNIQUES
15AE743	HELICOPTER DYNAMICS	15AE753	NUMERICAL METHODS
15AE744	AERO-ELASTICITY	15AE754	GUIDANCE, NAVIGATION & CONTROL

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 + Project 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 (APPROVED)

B.E. Biomedical Engineering

VII SEMESTER

Sl. No	Subject Code	Title	Teaching Dept.	Teaching Hours /Week		Examination				Credits
				Theory	Practical/ Drawing	Duration	I.A. Marks	Theory/ Practical Marks	Total Marks	
1	15BM71	Biomedical Digital Signal Processing	BM	04	-	03	20	80	100	4
2	15BM72	Computer Communication Networks in Healthcare	BM	04	-	03	20	80	100	4
3	15BM73	ARM Processor	BM	04	-	03	20	80	100	4
4	15BM74X	Professional Elective-III	BM	03	-	03	20	80	100	3
5	15BM75X	Professional Elective-IV	BM	03	-	03	20	80	100	3
6	15BML76	Biomedical DSP Lab	BM	-	1I+2P	03	20	80	100	2
7	15BML77	ARM Processor Lab	BM	-	1I+2P	03	20	80	100	2
8	15BMP78	Project Work Phase-I + Project Seminar	BM	-	1I+2P	-	100	-	100	2
TOTAL				18	9	21	240	560	800	24

Professional Elective-III		Professional Elective-IV	
15BM741	Database Management System in Healthcare	15BM751	Biostatistics
15BM742	Medical Informatics and Expert Systems	15BM752	Lasers and Optical Fibers in Medicine
15BM743	Hardware-Software Co-design	15BM753	Ergonomics
15BM744	Biometric Systems	15BM754	Big-data and Cloud Computing

1. **Core Subject:** This is the course which is compulsorily need to be studied by the 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 Work Phase-I + Project Seminar:** Literature Survey, Problem Identification, Objectives & Methodology, Submission of synopsis & seminar presentation

TENTATIVE

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

B.E. Biomedical Engineering

VIII SEMESTER

Sl. No	Subject Code	Title	Teaching Dept.	Teaching Hours /Week		Examination				Credit
				Theory	Practical/ Drawing	Duration	I.A. Marks	Theory/ Practical Marks	Total Marks	
1	15BM81	Medical Imaging Systems	BM	4	-	3	20	80	100	4
2	15BM82	Biomaterials and Artificial Organs	BM	4	-	3	20	80	100	4
3	15BM83X	Professional Elective-V	BM	3	-	3	20	80	100	3
4	15BM84	Internship / Professional Practice	BM	Industry Oriented		3	50	50	100	2
5	15BMP85	Project Work Phase-II	BM	-	6	3	100	100	200	6
6	15BMS86	Seminar	BM	-	4	-	100	-	100	1
TOTAL				11	10	15	310	390	700	20

Professional Elective-V	
15BM831	Bio-MEMS
15BM832	Medical Device Regulations
15BM833	Picture Archiving and Communication Systems
15BM834	Neural Networks and AI in Biomedical Engg.

1. **Core Subject:** This is the course which is compulsorily need to be studied by the 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 6th and 7th semester vacation or 7th and 8th semester vacation period.
4. **Project Work Phase –II:** Design, Development, Implementation, Demonstration, Testing, Presentation and Project Report Submission.
5. **Seminar:** On current topics of Engineering & Technology related to said discipline of study. Preparation of Seminar Report and Presentation.

TENTATIVE

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)**

TENTATIVE

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)**

TENTATIVE

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		Examination				Credits
			Theory	Practical/ Drawing	Duration	I.A. Marks	Theory/ Practical Marks	Total Marks	
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

TENTATIVE

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

TENTATIVE

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

VII SEMESTER

Sl. No	Subject Code	Title	Teaching Hours /Week		Examination				15EC
			Theory	Practical/Drawing	Duration	I.A. Marks	Theory/ Practical Marks	Total Marks	
1	15EC71	Microwave and Antennas	04		03	20	80	100	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.

Scanned by CamScanner

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.

Scanned by CamScanner

2015 Scheme

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

B.E. Mechanical Engineering

VII SEMESTER

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

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

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

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

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 - i	-	-	-	50	-	50	1
TOTAL			-	-	-	100	50	150	21

Scanned by CamScanner

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

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.
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 4thsemester. Project work evaluation and Viva-Voce examination shall be conducted.
   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.

Scanned by CamScanner

2016 Scheme

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELGAUM

SCHEME OF TEACHING AND EXAMINATION FOR

M.TECH.-PRODUCT DESIGN AND MANUFACTURING ENGINEERING (MPD)

II Semester

Subject Code	Name of the Subject	Teaching hours/week		Duration of Exam in Hours	Ma
		Lecture	Practical / Field Work / Assignment/ Tutorials		I.A.
16 MPD 21	Industrial Design And Ergonomics	4	-	3	20
16 MPD 22	Product data Management	4	-	3	20
16 MPD 23	Design for Manufacturing	4	-	3	20
16 MPD 14	Rapid Prototyping	4	-	3	20
16 MPD 25x	Elective - I	3	-	3	20
16 MPD 26	Lab Component	--	3	3	20
16MPD 27	Seminar	--	3	--	100
	Total	**19**	**6**	**18**	**220**

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELGAUM

SCHEME OF TEACHING AND EXAMINATION FOR

M.TECH.-PRODUCT DESIGN & MANUFACTURING (MPD)

III Semester: INTERNSHIP **CREDIT BASED**

Course Code	Subject	No. of Hrs./Week		Duration of the Exam in Hours	Marks for		Total Marks	CREDITS
		Lecture	Practical / Field Work		I.A.	Exam		
16MPD31	Seminar / Presentation on Internship (After 8 weeks from the date of commencement)	-	-	-	25	-	25	20
16MPD 32	Report on Internship	-	-	-	25	-	25	
16MPD 33	Evaluation and Viva-voce of Internship	-	-	-	–	50	50	
16MPD34	Evaluation of Project Phase 1				50	-	50	1
	Total	**-**	**-**	**-**	**100**	**50**	**150**	**21**

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELGAUM

SCHEME OF TEACHING AND EXAMINATION FOR

M.TECH.-PRODUCT DESIGN & MANUFACTURING (MPD)

IV Semester **CREDIT BASED**

Subject Code	Subject	No. of Hrs./Week		Duration of Exam in Hours	Marks for		Total Marks	CREDITS
		Lecture	Field Work / Assignment / Tutorials		I.A.	Exam		
16MPD41	Advanced Manufacturing Practices	4	--	3	20	80	100	4
16MPD42X	Elective-III	3	-	3	20	80	100	3
16MPD43	Evaluation of Project Phase-II	-	-	-	50	-	50	3
16MPD44	Evaluation of Project Work and Viva-voce	–	-	-	-	100+100	200	10
	Total	**07**	**-**	**06**	**90**	**360**	**450**	**20**

Elective – III	
Sub. Code	**Name of the Subject**
16 MPD 421	Optimization Techniques for Decision Making
16 MPD 422	Product Planning and Marketing
16 MPD 423	Agile Manufacturing
16 MPD 424	Product Analysis and Cost Optimization

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.

1.3.2.1 Number of courses that include experiential learning through project work/field work/internship year – wise during last five years

The data shown below is the list of courses that include experiential learning through project work/field work/internship during the year 2017-2018.

SL.No	Program code	Program Name	Course code	Course Name
1	EC	Electronics And Communication Engineering	10ECP85	Project Work
2	ME	Mechanical Engineering	10ME85L	PROJECT WORK
3	AE	Aeronautical Engineering	10AE85	Project Work
4	CV	Civil Engineering	15CVP68	Extensive Survey Project /Camp
5	CV	Civil Engineering	10CV85	Project Work
6	BM	Biomedical Engineering	10BM86	Project
7	EE	Electrical And Electronics Engineering	10EE86	Project
8	CS	Computer Science & Engineering	10CS85	Project Work
9	CSE	Mtech Structural Engineering	16CSE32	Report on Internship
10	CSE	Mtech Structural Engineering	16CSE43	Project phase -2
11	SE	Pg-Software Engineering	16SSE33	Evaluation and Viva-Voce of Internship
12	SE	Pg-Software Engineering	16SSE43	Evaluation of Project phase -2
13	MPD	Product Design & Manufacturing	16MPD 33	Viva-voce of Internship
14	MPD	Product Design & Manufacturing	16MPD44	Project Work and Viva-voce
15	ECS	Digital Electronics And Communication Engineering	16ECS31	Seminar / Presentation on Internship
16	ECS	Digital Electronics And Communication Engineering	16ECS43	Evaluation of Project phase -2

PRINCIPAL

SCHEME OF TEACHING AND EXAMINATION
B.E. AERONAUTICAL ENGINEERING
VIII SEMESTER

Sl. No.	Subject Code	Title	Teaching Dept.	Teaching Hours / week		Examination			
				Th.	Pr.	Duration	I.A Marks	Theory/ Practical	Total Marks
1	10AE81	Flight Vehicle Design	AE	04	—	03	25	100	125
2	10AE82	Avionics	AE	04	—	03	25	100	125
3	10AE83*	*Electives IV- (Group D)	AE	04	—	03	25	100	125
4	10AE84*	*Electives V- (Group E)	AE	04	—	03	25	100	125
5	10AE85	Project Work	AE	—	03	—	100	100	200
6	10AE86	Seminar on Current / Topics	AE	03	—	—	50	—	50
		Total		**19**	**03**	**12**	**250**	**500**	**750**

Note : One question has to be set for every 6 to 8 hours of teaching.

Subject Code	* Elective IV (Group D)
10AE831	Flight Testing
10AE832	Fracture Mechanics
10AE833	Theory of Aeroelasticity
10AE834	Hydraulics and Pneumatics
10AE835	Reliability and Maintenance Engineering
10AE836	Boundary Layer Theory
10AE837	Operation Research
10AE838	Aerospace Quality Assurance

Subject Code	* Elective V (Group E)
10AE841	Aircraft Safety Rules and Regulations
10AE842	Guidance and Navigation
10AE843	Management Information Systems
10AE844	Project Management
10AE845	Product Design and Manufacturing
10AE846	Artificial Intelligence
10AE847	Computer Integrated Manufacturing
10AE848	Aircraft Systems and Instrumentation

* Students shall register for one subject each from Group D and E Electives.

Sl. No	Subject Code	Title of the Subject	Teaching Dept.	Teaching Hours / Week		Examination			
				Theory	Practical	Duration (Hrs)	Marks		
							IA	External Marks	Total
1	10BM81	Data Base Management System in Healthcare	BM	04	-	03	25	100	125
2	10BM82	Medical Imaging Systems	BM	04	-	03	25	100	125
3	10BM83X	Elective-IV (Group - D)	BM	04	-	03	25	100	125
4	10BM84X	Elective-V (Group - E)	BM	04	-	03	25	100	125
5	10BM85	Project Work	BM	-	06		100	100	200
6	10BM86	Seminar	BM		-		50	-	50
Total				**16**	**06**	**-**	**250**	**500**	**750**

Electives-IV (Group-D)			Electives-V (Group-E)		
Sl. No	Subject Code	Title of the Subject	Sl. No	Subject Code	Title of the Subject
1	10BM831	Lasers & Optical Fibers in Medicine	1	10BM841	Bio-MEMS
2	10BM832	Biosensors & Smart Sensors	2	10BM842	Biological Control Systems and Modeling
3	10BM833	Nanotechnology	3	10BM843	Picture Archiving & Communication Systems
4	10BM834	Neural Networks & AI in Biomedical Engg.	4	10BM844	Pattern Recognition in Medicine
5	10BM835	Hardware-Software Co-design	5	10BM845	Digital Systems using Verilog
6	10BM836	Distributed Sensor Networks	6	10BM846	Real Time Systems

SCHEME OF TEACHING AND EXAMINATION
B.E. CIVIL EINGINEERING
VII SEMESTER

Sl. No.	Subject Code	Title of the Subject	Teaching Dept.	Teaching Hrs / Week		Examination			
				Theory	Practical	Duration (Hrs)	Marks		
							IA	Theory / Practical	Total
1	10 CV 71	Environmental Engineering.-II	Civil	04	--	03	25	100	125
2	10 CV 72	Design of Steel Structures	Civil	04	--	03	25	100	125
3	10 CV 73	Estimation and Valuation	Civil	04	--	03	25	100	125
4	10 CV 74	Design of Pre Stressed Concrete Structures	Civil	04	--	03	25	100	125
5	10 CV 75x	Elective-II (Group B)	Civil	04	--	03	25	100	125
6	10 CV 76x	Elective-III (Group C)	Civil	04	--	03	25	100	125
7	10 CVL 77	Environmental Engineering. Lab	Civil	--	03	03	25	50	75
8	10 CVL 78	Concrete and Highway Materials lab.	Civil	--	03	03	25	50	75
TOTAL				**24**	**06**	**24**	**200**	**700**	**900**

Elective-II (Group B)

10 CV 751	Matrix Method of Structural Analysis
10 CV 752	Advanced Design of RC Structures
10 CV 753	Design of Masonry Structures
10 CV 754	Earth and Earth Retaining Structures
10 CV 755	Highway Geometric Design
10 CV 756	Open Channel Hydraulics
10 CV 757	Solid Waste Management

Elective-III (Group C)

10 CV 761	Numerical methods in Civil Engineering
10 CV 762	Rock Mechanics
10 CV 763	Pavement Materials and Construction
10 CV 764	Photogrammetry and Remote Sensing
10 CV 765	Air Pollution and Control
10 CV 766	Design and Drawing of Bridges.: * (2 Hrs of Theory + 3 Hrs of Drawing) * (Exam Duration : 4 Hrs)
10 CV 767	Structural Dynamics

SCHEME OF TEACHING AND EXAMINATION
B.E. CIVIL EINGINEERING
VIII SEMESTER

Sl. No.	Subject Code	Title of the Subject	Teaching Dept.	Teaching Hrs / Week		Examination			
				Theory	Practical	Duration (Hrs)	Marks		
							IA	Theory / Practical	Total
1	10 CV 81	Advanced Concrete Technology	Civil	04	--	03	25	100	125
2	10 CV 82	Design and Drawing of Steel Structures	Civil	02	03	04	25	100	125
3	10 CV 83x	Elective-IV (Group D)	Civil	04	--	03	25	100	125
4	10 CV 84x	Elective-V (Group E)	Civil	04	--	03	25	100	125
5	10 CV 85	Project Work	Civil	--	06	03	100	100	200
6	10 CV 86	Seminar	Civil	--	03	03	50	--	50
TOTAL				**14**	**12**	**19**	**250**	**500**	**750**

Elective-IV (Group D)

10 CV 831	Advanced Pre-stressed Concrete Structures
10 CV 832	Advanced Foundation Design
10 CV 833	Pavement Design
10 CV 834	Earthquake Resistant Design of Structures
10 CV 835	Industrial Waste Water Treatment
10 CV 836	Quality Management System In Civil Engineering .

Elective-V (Group E)

10 CV 841	Finite Element Analysis
10 CV 842	Reinforced Earth Structures
10 CV 843	Urban Transport Planning
10 CV 844	Geographic Information System
10 CV 845	Advanced Design of Steel Structures
10 CV 846	Water Resources Engineering
10 CV 847	Environmental Impact Assessment

2010 Scheme

VISVESWARAIAH TECHNOLOGICAL UNIVERSITY, BELGAUM

SCHEME OF TEACHING AND EXAMINATION VII SEMESTER B.E. MECHANICAL

S.No.	Sub-Code	Title	Teaching Hours/week		Examination			Total Marks
			Theory	Pract. ./ Drg.	Duration	Max. I.A. Marks	Max. Theory /Pr.	
1	10ME71	Engineering Economics	04	--	03	25	100	125
2	10ME72	Mechanical Vibrations	04	--	03	25	100	125
3	10ME73	Hydraulics and Pneumatics	04	--	03	25	100	125
4	10ME74	Operations Research	04	--	03	25	100	125
5	10ME75X	Elective B	04	--	03	25	100	125
6	10ME76X	Elective C	04	--	03	25	100	125
7	10MEL77	Design Lab	--	03	03	25	50	75
8	10MEL78	CIM and Automation Lab	--	03	03	25	50	75
9	10MEL79	Project Phase I	--	--	--	50	--	50
			24	**06**	**24**	**250**	**700**	**950**

VISVESWARAIAH TECHNOLOGICAL UNIVERSITY, BELGAUM

SCHEME OF TEACHING AND EXAMINATION

VIII SEMESTER B.E. MECHANICAL

S.No.	Sub-Code	Title	Teaching Hours/week		Examination			Total Marks
			Theory	Pract. ./ Drg.	Duration	Max. I.A. Marks	Max. Theory /Pr.	
1	10ME81	Operations Management	04	--	03	25	100	125
2	10ME82	Control Engineering	04	--	03	25	100	125
3	10ME83X	Elective D	04	--	03	25	100	125
4	10ME84X	Elective E	04	--	03	25	100	125
5	10ME85L	Project Work	--	06	03	100	100	200
6	10ME86L	Seminar	--	03	--	50	--	50
				09	**15**	**250**	**500**	**750**

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

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 - i	-	-	-	50	-	50	1
TOTAL			-	-	-	100	50	150	21

Scanned by CamScanner

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

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.
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 4thsemester. Project work evaluation and Viva-Voce examination shall be conducted.
   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.

Scanned by CamScanner

2016 Scheme

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELGAUM

SCHEME OF TEACHING AND EXAMINATION FOR

M.TECH.-PRODUCT DESIGN AND MANUFACTURING ENGINEERING (MPD)

II Semester

Subject Code	Name of the Subject	Teaching hours/week		Duration of Exam in Hours	Ma
		Lecture	Practical / Field Work / Assignment/ Tutorials		I.A.
16 MPD 21	Industrial Design And Ergonomics	4	-	3	20
16 MPD 22	Product data Management	4	-	3	20
16 MPD 23	Design for Manufacturing	4	-	3	20
16 MPD 14	Rapid Prototyping	4	-	3	20
16 MPD 25x	Elective - I	3	-	3	20
16 MPD 26	Lab Component	--	3	3	20
16MPD 27	Seminar	--	3	--	100
	Total	**19**	**6**	**18**	**220**

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELGAUM

SCHEME OF TEACHING AND EXAMINATION FOR

M.TECH.-PRODUCT DESIGN & MANUFACTURING (MPD)

III Semester: INTERNSHIP **CREDIT BASED**

Course Code	Subject	No. of Hrs./Week		Duration of the Exam in Hours	Marks for		Total Marks	CREDITS
		Lecture	Practical / Field Work		I.A.	Exam		
16MPD31	Seminar / Presentation on Internship (After 8 weeks from the date of commencement)	-	-	-	25	-	25	20
16MPD 32	Report on Internship	-	-	-	25	-	25	
16MPD 33	Evaluation and Viva-voce of Internship	-	-	-	–	50	50	
16MPD34	Evaluation of Project Phase 1				50	-	50	1
	Total	**-**	**-**	**-**	**100**	**50**	**150**	**21**

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELGAUM

SCHEME OF TEACHING AND EXAMINATION FOR

M.TECH.-PRODUCT DESIGN & MANUFACTURING (MPD)

IV Semester **CREDIT BASED**

Subject Code	Subject	No. of Hrs./Week		Duration of Exam in Hours	Marks for		Total Marks	CREDITS
		Lecture	Field Work / Assignment / Tutorials		I.A.	Exam		
16MPD41	Advanced Manufacturing Practices	4	--	3	20	80	100	4
16MPD42X	Elective-III	3	-	3	20	80	100	3
16MPD43	Evaluation of Project Phase-II	-	-	-	50	-	50	3
16MPD44	Evaluation of Project Work and Viva-voce	–	-	-	-	100+100	200	10
	Total	**07**	**-**	**06**	**90**	**360**	**450**	**20**

Elective – III	
Sub. Code	**Name of the Subject**
16 MPD 421	Optimization Techniques for Decision Making
16 MPD 422	Product Planning and Marketing
16 MPD 423	Agile Manufacturing
16 MPD 424	Product Analysis and Cost Optimization

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.

1.3.2.1 Number of courses that include experiential learning through project work/field work/internship year – wise during last five years

The data shown below is the list of courses that include experiential learning through project work/field work/internship during the year 2016-2017.

SL.NO	Program code	Program Name	Course code	Course Name
1	EC	Electronics And Communication Engineering	10ECP85	Project Work
2	ME	Mechanical Engineering	10ME85L	Project Work
3	AE	Aeronautical Engineering	10AE85	Project Work
4	CV	Civil Engineering	10CV85	Project Work
5	BM	Biomedical Engineering	10BM86	Project
6	EE	Electrical And Electronics Engg	10EE86	Project
7	CS	Computer Science & Engineering	10CS85	Project Work
8	CSE	Structural Engineering	14CSE31	Seminar Presentation On Internship
9	CSE	Structural Engineering	14CSE44	Final Evaluation Of Project Work & Viva Voce
10	SE	Software Engineering	14SSE31	Seminar / Presentation On Internship
11	SE	Software Engineering	14SSE43	Evaluation Of Project Phase -2
12	MPD	Product Design & Manufacturing	14MPD31	SEMINAR/PRESENTATION OF Internship
13	MPD	Product Design & Manufacturing	14MPD424	Final Viva-Voce Of Project Work
14	ECS	Digital Electronics And Communication Engineering	14ECS32	Evaluation Of Intenrship
15	ECS	Digital Electronics And Communication Engineering	14ECS44	Final Project Viva Voce

PRINCIPAL

SCHEME OF TEACHING AND EXAMINATION
B.E. AERONAUTICAL ENGINEERING
VIII SEMESTER

Sl. No.	Subject Code	Title	Teaching Dept.	Teaching Hours / week		Examination			
				Th.	Pr.	Duration	I.A Marks	Theory/ Practical	Total Marks
1	10AE81	Flight Vehicle Design	AE	04	—	03	25	100	125
2	10AE82	Avionics	AE	04	—	03	25	100	125
3	10AE83*	*Electives IV- (Group D)	AE	04	—	03	25	100	125
4	10AE84*	*Electives V- (Group E)	AE	04	—	03	25	100	125
5	10AE85	Project Work	AE	—	03	—	100	100	200
6	10AE86	Seminar on Current / Topics	AE	03	—	—	50	—	50
		Total		**19**	**03**	**12**	**250**	**500**	**750**

Note : One question has to be set for every 6 to 8 hours of teaching.

Subject Code	* Elective IV (Group D)
10AE831	Flight Testing
10AE832	Fracture Mechanics
10AE833	Theory of Aeroelasticity
10AE834	Hydraulics and Pneumatics
10AE835	Reliability and Maintenance Engineering
10AE836	Boundary Layer Theory
10AE837	Operation Research
10AE838	Aerospace Quality Assurance

Subject Code	* Elective V (Group E)
10AE841	Aircraft Safety Rules and Regulations
10AE842	Guidance and Navigation
10AE843	Management Information Systems
10AE844	Project Management
10AE845	Product Design and Manufacturing
10AE846	Artificial Intelligence
10AE847	Computer Integrated Manufacturing
10AE848	Aircraft Systems and Instrumentation

* Students shall register for one subject each from Group D and E Electives.

Sl. No	Subject Code	Title of the Subject	Teaching Dept.	Teaching Hours / Week		Examination			
				Theory	Practical	Duration (Hrs)	Marks		
							IA	External Marks	Total
1	10BM81	Data Base Management System in Healthcare	BM	04	-	03	25	100	125
2	10BM82	Medical Imaging Systems	BM	04	-	03	25	100	125
3	10BM83X	Elective-IV (Group - D)	BM	04	-	03	25	100	125
4	10BM84X	Elective-V (Group - E)	BM	04	-	03	25	100	125
5	10BM85	Project Work	BM	-	06		100	100	200
6	10BM86	Seminar	BM		-		50	-	50
Total				**16**	**06**	**-**	**250**	**500**	**750**

Electives-IV (Group-D)			Electives-V (Group-E)		
Sl. No	Subject Code	Title of the Subject	Sl. No	Subject Code	Title of the Subject
1	10BM831	Lasers & Optical Fibers in Medicine	1	10BM841	Bio-MEMS
2	10BM832	Biosensors & Smart Sensors	2	10BM842	Biological Control Systems and Modeling
3	10BM833	Nanotechnology	3	10BM843	Picture Archiving & Communication Systems
4	10BM834	Neural Networks & AI in Biomedical Engg.	4	10BM844	Pattern Recognition in Medicine
5	10BM835	Hardware-Software Co-design	5	10BM845	Digital Systems using Verilog
6	10BM836	Distributed Sensor Networks	6	10BM846	Real Time Systems

SCHEME OF TEACHING AND EXAMINATION
B.E. CIVIL EINGINEERING
VII SEMESTER

Sl. No.	Subject Code	Title of the Subject	Teaching Dept.	Teaching Hrs / Week		Examination			
				Theory	Practical	Duration (Hrs)	Marks		
							IA	Theory / Practical	Total
1	10 CV 71	Environmental Engineering.-II	Civil	04	--	03	25	100	125
2	10 CV 72	Design of Steel Structures	Civil	04	--	03	25	100	125
3	10 CV 73	Estimation and Valuation	Civil	04	--	03	25	100	125
4	10 CV 74	Design of Pre Stressed Concrete Structures	Civil	04	--	03	25	100	125
5	10 CV 75x	Elective-II (Group B)	Civil	04	--	03	25	100	125
6	10 CV 76x	Elective-III (Group C)	Civil	04	--	03	25	100	125
7	10 CVL 77	Environmental Engineering. Lab	Civil	--	03	03	25	50	75
8	10 CVL 78	Concrete and Highway Materials lab.	Civil	--	03	03	25	50	75
TOTAL				**24**	**06**	**24**	**200**	**700**	**900**

Elective-II (Group B)

10 CV 751	Matrix Method of Structural Analysis
10 CV 752	Advanced Design of RC Structures
10 CV 753	Design of Masonry Structures
10 CV 754	Earth and Earth Retaining Structures
10 CV 755	Highway Geometric Design
10 CV 756	Open Channel Hydraulics
10 CV 757	Solid Waste Management

Elective-III (Group C)

10 CV 761	Numerical methods in Civil Engineering
10 CV 762	Rock Mechanics
10 CV 763	Pavement Materials and Construction
10 CV 764	Photogrammetry and Remote Sensing
10 CV 765	Air Pollution and Control
10 CV 766	Design and Drawing of Bridges.: * (2 Hrs of Theory + 3 Hrs of Drawing) * (Exam Duration : 4 Hrs)
10 CV 767	Structural Dynamics

SCHEME OF TEACHING AND EXAMINATION
B.E. CIVIL EINGINEERING
VIII SEMESTER

Sl. No.	Subject Code	Title of the Subject	Teaching Dept.	Teaching Hrs / Week		Examination			
				Theory	Practical	Duration (Hrs)	Marks		
							IA	Theory / Practical	Total
1	10 CV 81	Advanced Concrete Technology	Civil	04	--	03	25	100	125
2	10 CV 82	Design and Drawing of Steel Structures	Civil	02	03	04	25	100	125
3	10 CV 83x	Elective-IV (Group D)	Civil	04	--	03	25	100	125
4	10 CV 84x	Elective-V (Group E)	Civil	04	--	03	25	100	125
5	10 CV 85	Project Work	Civil	--	06	03	100	100	200
6	10 CV 86	Seminar	Civil	--	03	03	50	--	50
TOTAL				**14**	**12**	**19**	**250**	**500**	**750**

Elective-IV (Group D)

10 CV 831	Advanced Pre-stressed Concrete Structures
10 CV 832	Advanced Foundation Design
10 CV 833	Pavement Design
10 CV 834	Earthquake Resistant Design of Structures
10 CV 835	Industrial Waste Water Treatment
10 CV 836	Quality Management System In Civil Engineering .

Elective-V (Group E)

10 CV 841	Finite Element Analysis
10 CV 842	Reinforced Earth Structures
10 CV 843	Urban Transport Planning
10 CV 844	Geographic Information System
10 CV 845	Advanced Design of Steel Structures
10 CV 846	Water Resources Engineering
10 CV 847	Environmental Impact Assessment

2010 Scheme

VISVESWARAIAH TECHNOLOGICAL UNIVERSITY, BELGAUM

SCHEME OF TEACHING AND EXAMINATION VII SEMESTER B.E. MECHANICAL

S.No.	Sub-Code	Title	Teaching Hours/week		Examination			Total Marks
			Theory	Pract. ./ Drg.	Duration	Max. I.A. Marks	Max. Theory /Pr.	
1	10ME71	Engineering Economics	04	--	03	25	100	125
2	10ME72	Mechanical Vibrations	04	--	03	25	100	125
3	10ME73	Hydraulics and Pneumatics	04	--	03	25	100	125
4	10ME74	Operations Research	04	--	03	25	100	125
5	10ME75X	Elective B	04	--	03	25	100	125
6	10ME76X	Elective C	04	--	03	25	100	125
7	10MEL77	Design Lab	--	03	03	25	50	75
8	10MEL78	CIM and Automation Lab	--	03	03	25	50	75
9	10MEL79	Project Phase I	--	--	--	50	--	50
			24	**06**	**24**	**250**	**700**	**950**

VISVESWARAIAH TECHNOLOGICAL UNIVERSITY, BELGAUM

SCHEME OF TEACHING AND EXAMINATION

VIII SEMESTER B.E. MECHANICAL

S.No.	Sub-Code	Title	Teaching Hours/week		Examination			Total Marks
			Theory	Pract. ./ Drg.	Duration	Max. I.A. Marks	Max. Theory /Pr.	
1	10ME81	Operations Management	04	--	03	25	100	125
2	10ME82	Control Engineering	04	--	03	25	100	125
3	10ME83X	Elective D	04	--	03	25	100	125
4	10ME84X	Elective E	04	--	03	25	100	125
5	10ME85L	Project Work	--	06	03	100	100	200
6	10ME86L	Seminar	--	03	--	50	--	50
				09	**15**	**250**	**500**	**750**

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

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

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 - i	-	-	-	50	-	50	1
TOTAL			-	-	-	100	50	150	21

Scanned by CamScanner

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

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.
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 4thsemester. Project work evaluation and Viva-Voce examination shall be conducted.
   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.

Scanned by CamScanner

2016 Scheme

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELGAUM

SCHEME OF TEACHING AND EXAMINATION FOR

M.TECH.-PRODUCT DESIGN AND MANUFACTURING ENGINEERING (MPD)

II Semester

Subject Code	Name of the Subject	Teaching hours/week		Duration of Exam in Hours	Ma
		Lecture	Practical / Field Work / Assignment/ Tutorials		I.A.
16 MPD 21	Industrial Design And Ergonomics	4	-	3	20
16 MPD 22	Product data Management	4	-	3	20
16 MPD 23	Design for Manufacturing	4	-	3	20
16 MPD 14	Rapid Prototyping	4	-	3	20
16 MPD 25x	Elective - I	3	-	3	20
16 MPD 26	Lab Component	--	3	3	20
16MPD 27	Seminar	--	3	--	100
	Total	**19**	**6**	**18**	**220**

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELGAUM

SCHEME OF TEACHING AND EXAMINATION FOR

M.TECH.-PRODUCT DESIGN & MANUFACTURING (MPD)

III Semester: INTERNSHIP **CREDIT BASED**

Course Code	Subject	No. of Hrs./Week		Duration of the Exam in Hours	Marks for		Total Marks	CREDITS
		Lecture	Practical / Field Work		I.A.	Exam		
16MPD31	Seminar / Presentation on Internship (After 8 weeks from the date of commencement)	-	-	-	25	-	25	20
16MPD 32	Report on Internship	-	-	-	25	-	25	
16MPD 33	Evaluation and Viva-voce of Internship	-	-	-	–	50	50	
16MPD34	Evaluation of Project Phase 1				50	-	50	1
	Total	**-**	**-**	**-**	**100**	**50**	**150**	**21**

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELGAUM

SCHEME OF TEACHING AND EXAMINATION FOR

M.TECH.-PRODUCT DESIGN & MANUFACTURING (MPD)

IV Semester **CREDIT BASED**

Subject Code	Subject	No. of Hrs./Week		Duration of Exam in Hours	Marks for		Total Marks	CREDITS
		Lecture	Field Work / Assignment / Tutorials		I.A.	Exam		
16MPD41	Advanced Manufacturing Practices	4	--	3	20	80	100	4
16MPD42X	Elective-III	3	-	3	20	80	100	3
16MPD43	Evaluation of Project Phase-II	-	-	-	50	-	50	3
16MPD44	Evaluation of Project Work and Viva-voce	–	-	-	-	100+100	200	10
	Total	**07**	**-**	**06**	**90**	**360**	**450**	**20**

Elective – III	
Sub. Code	**Name of the Subject**
16 MPD 421	Optimization Techniques for Decision Making
16 MPD 422	Product Planning and Marketing
16 MPD 423	Agile Manufacturing
16 MPD 424	Product Analysis and Cost Optimization

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.