SHIVAJI UNIVERSITY, KOLHAPUR.

Accredited By NAAC with 'A' Grade

CHOICE BASED CREDIT SYSTEM

Syllabus For

B. Sc. Part – III

Computer Science (Optional)

SEMESTER – V & VI

(Syllabus to be implemented from June, 2020 onwards)

CBCS B.Sc. 3: (A) (i) Structure of B. Sc. Programme Sem I & II

Structure – I

Sr. No.	Course (Subject) Title	TEACHING SCHEME						EXAMINATION SCHEME						
		THEORY			PRACTICAL			THEORY				PRACTICAL		
		Credits	No. of lectures	Hours	Credits	No. of lectures	Hours	Hours	Max	Total Marks	Min	Hours	Max	Min
S E M E S T E R – I (Duration – 6 Months)														
1	DSC-A	2	5	4	2	4	3.2	2	50	100	35	PRACTICAL EXAMINATION IS ANNUAL		
2	DSC-A	2						2	50					
3	DSC-A	2	5	4	2	4	3.2	2	50	100	35			
4	DSC-A	2						2	50					
5	DSC-A	2	5	4	2	4	3.2	2	50	100	35			
6	DSC-A	2						2	50					
7	DSC-A	2	5	4	2	4	3.2	2	50	100	35			
8	DSC-A	2						2	50					
9	AECC-A	2	4	3.2	-----	-----	-----	2	50	50	18			
Total		18	24	19.2	8	16	12.8		-	450				
S E M E S T E R – II (Duration – 6 Months)														
1	DSC-B	2	5	4	2	4	3.2	2	50	100	35	As per BOS Guide-lines	50	18
2	DSC-B	2						2	50					
3	DSC-B	2	5	4	2	4	3.2	2	50	100	35		50	18
4	DSC-B	2						2	50					
5	DSC-B	2	5	4	2	4	3.2	2	50	100	35		50	18
6	DSC-B	2						2	50					
7	DSC-B	2	5	4	2	4	3.2	2	50	100	35		50	18
8	DSC-B	2						2	50					
9	AECC-B	2	4	3.2	-----	-----	-----	2	50	50	18			
Total		18	24	19.2	8	16	12.8		-	450			200	
Grand Total		36	48	38.4	16	32	25.6			900				

- Student contact hours per week : 32 Hours(Min.)
- Theory and Practical Lectures : 48 Minutes Each
- Total Marks for B.Sc.-I (Including English) :**1100**
- Total Credits for B.Sc.-I (Semester I & II) :52
- **DSC**–Discipline Specific Core course: Select any 4 subject pairs from A1 to A38 and B1 to B38.
- **AECC** – Ability Enhancement Compulsory Course (1A & 1B)-English
- Practical Examination will be conducted annually for 50 Marks per course(subject).
- ***Except English, combined passingfortwotheorypapersof50markseach.i.e.Min.35marksrequiredforpassingoutof100.***
- ***There shall be separate passing for theory and practical courses.***

(A) Non-Credit Self Study Course : Compulsory Civic Courses (CCC)
For Sem I: CCC – I : Democracy, Elections and Good Governance

(B) Non-Credit Self Study Course : Skill Development Courses (SDC)
For Sem II: SDC – I : Any one from following (i) to (v)
i) Business Communication & Presentation ii) Event management iii) Personality Development, iv) Yoga & Physical Management v) Resume, Report & proposal writing

Structure of B. Sc. Programme Semester III &IV

Structure - II

S E M E S T E R – III (Duration – 6 Months)																
Sr. No.	Course (Subject) Title	TEACHING SCHEME						EXAMINATION SCHEME								
		THEORY			PRACTICAL			THEORY				PRACTICAL				
		Credits	No. of lectures	Hours	Credits	No. of lectures	Hours	Hours	Max	Total Marks	Min	Hours	Max	Min		
1	DSC-C	2	3	2.4	4	6.4	8	2	50	100	35	PRACTICAL EXAMINATION IS ANNUAL				
2	DSC-C	2	3	2.4				2	50							
3	DSC-C	2	3	2.4	4	6.4	8	2	50	100	35					
4	DSC-C	2	3	2.4				2	50							
5	DSC-C	2	3	2.4	4	6.4	8	2	50	100	35					
6	DSC-C	2	3	2.4				2	50							
7	AECC-C	4	4	3.2	---	---	---			---	---					
	TOTAL	16	22	17.6	12	19.2	24			300	---					
S E M E S T E R – IV (Duration – 6 Months)																
1	DSC-D	2	3	2.4	4	6.4	8	2	50	100	35	As per BOS Guide-lines	100	35		
2	DSC-D	2	3	2.4				2	50							
3	DSC-D	2	3	2.4	4	6.4	8	2	50	100	35		100	35		
4	DSC-D	2	3	2.4				2	50							
5	DSC-D	2	3	2.4	4	6.4	8	2	50	100	35		100	35		
6	DSC-D	2	3	2.4				2	50							
7	AECC-C AECC-D	---	---	---	---	---	---	3	70 30	100	25 10	---	---	---		
	TOTAL	12	18	14.4	12	19.2	24			400	---					
		28	40	32	24	38.4	48			700	--	---	300			

- Studentcontacthoursperweek:32Hours(Min.)
- Total Marks for B.Sc.-II(IncludingEVS) **1000**
- Theory and Practical Lectures : 48 MinutesEach
- Total Credits for B.Sc.-II (Semester III & IV) :**52**
- **DSC:-**Discipline Specific Core Course:Selectany3subjectpairs,relevanttothoseoptedasB.Sc.I, From DSCC1toDSCC38and/orDSCIC39toDSCIC50andDSCD1toDSCD38and/orDSCID39to DSCID50.
- **AECC**- Ability Enhancement Compulsory Course (1C): Environmental Studies: EVS (Theory – 70 & Project – 30 Marks)
- Practical Examination will be conducted annuallyfor100Markspercourse(subject)
- ***Except Environmental Studies, combined passingfortwotheorypapersof50markseach.i.e.Min.35 marks required for passing out of100.***
- ***There shall be separate passing for theory and practical courses also for Environmental Studies.***

ii) Structure of B. Sc. Programme Sem V &VI

Structure - III

Sr. No.	Subject Title	TEACHING SCHEME						EXAMINATION SCHEME					
		THEORY			PRACTICAL			THEORY			PRACTICAL		
		Credits	No. of lectures	Hours	Credits	No. of lectures	Hours	Hours	Theory	Internal	Min Marks	Hours	Max Marks	Min Marks
S E M E S T E R – V (Duration – 6 Months)														
1	DSE-E	**2**	3	2.4	**8**	**20**	**16**	2	40	10	**14+4=18**	**PRACTICAL EXAMINATION IS ANNUAL**		
2	DSE-E	**2**	3	2.4				2	40	10	**14+4=18**			
3	DSE-E	**2**	3	2.4				2	40	10	**14+4=18**			
4	DSE-E	**2**	3	2.4				2	40	10	**14+4=18**			
5	AECC-E	**2**	4	3.2	---	---	---	2	40	10	**14+4=18**			
	TOTAL	**10**	**16**	**12.8**	**8**	**20**	**16**		**200**	**50**	---			
S E M E S T E R – VI (Duration – 6 Months)														
1	DSE-F	**2**	3	2.4	**8**	**20**	**16**	2	40	10	**14+4=18**	**As per BOS Guidelines**	**200**	**70**
2	DSE-F	**2**	3	2.4				2	40	10	**14+4=18**			
3	DSE-F	**2**	3	2.4				2	40	10	**14+4=18**			
4	DSE-F	**2**	3	2.4				2	40	10	**14+4=18**			
5	AECC-F	**2**	4	3.2	---	---	---	2	40	10	**14+4=18**	---	---	---
TOTAL		**10**	**16**	**12.8**	**8**	**20**	**16**		**200**	**50**	---			
GRAND TOTAL		**20**	**32**	**25.6**	**16**	**40**	**32**		**400**	**100**	--	---	**200**	

- Studentcontacthoursperweek:32Hours(Min)
- Theory and Practical Lecture : 48 Min.Each
- Total Marks for B.Sc.-III(Including English):7**00**
- Total Credits for B.Sc.-III (Semester V & VI) :**36**

- **DSE- Discipline Specific Elective.** A candidate shall select one course (subject) from the three Courses (Subjects)selectedatB.Sc.–II.Selectany4pairsofpapersfromDSE-E1toDSE-E84forSem–VandDSE-F1 to DSE - F84 for Semester - VI
- **AECC**- Ability Enhancement Compulsory Course (E & F) :English
- Practical Examination will be conducted annually for 200Marks.
- ***There shall be separate passing for theory, internal and practical***

(A) Non-Credit Self Study Course : Compulsory Civic Courses (CCC)
For Sem V: CCC – II : Constitution of India and Local Self Government

(B) Non-Credit Self Study Course : Skill Development Courses (SDC) For
Sem VI: SDC – II: Any one from following (vi) to (x)
vi) Interview & Personal Presentation Skill, vii) Entrepreneurship Development Skill, viii) Travel & Tourism, ix) E-Banking & Financial Services, x) RTI & Human Right Education (HRE), IPR & Patents

CBCS R.B. Sc. 3: (B) List of courses:

i) B. Sc. Part 1 (Sem I &II),

Course code	Name of Course	Course code	Name of Course
B. Sc. 1: Sem I DSC – 1A to 38 A			
DSC A1	Physics I	**DSC A21**	Geology I
DSC A2	Physics II	**DSC A22**	Geology II
DSC A3	Chemistry I	**DSC A23**	Seed Technology I
DSC A4	Chemistry II	**DSC A24**	Seed Technology II
DSC A5	Mathematics I	**DSC A25**	Microbiology I
DSC A6	Mathematics II	**DSC A26**	Microbiology II
DSC A7	Statistics I	**DSC A27**	Industrial Microbiology I
DSC A8	Statistics II	**DSC A28**	Industrial Microbiology II
DSC A9	Electronics I	**DSC A29**	Biochemistry I
DSC A10	Electronics II	**DSC A30**	Biochemistry II
DSC A11	Computer Science I	**DSC A31**	Psychology I
DSC A12	Computer Science II	**DSC A32**	Psychology II
DSC A13	Botany I	**DSC A33**	Food Science & Quality control I
DSC A14	Botany II	**DSC A34**	Food Science & Quality control II
DSC A15	Zoology I	**DSC A35**	Astrophysics I
DSC A16	Zoology II	**DSC A36**	Astrophysics II
DSC A17	Biotechnology (Opt) I	**DSC A37**	Nanotechnology (opt) I
DSC A18	Biotechnology (Opt) II	**DSC A38**	Nanotechnology (opt) II
DSC A19	Geography I		
DSC A20	Geography II	**AECC – A**	English – I

DSC: Discipline Specific Core Course

AECC – Ability Enhancement Compulsory Course

Sem II: DSC – 1B to 38B

Course code	Name of Course	Course code	Name of Course
B. Sc. 1: Sem II DSC – 1B to 38B			
DSC B1	Physics III	**DSC B21**	Geology III
DSC B2	Physics IV	**DSC B22**	Geology IV
DSC B3	Chemistry III	**DSC B23**	Seed Technology III
DSC B4	Chemistry IV	**DSC B24**	Seed Technology IV
DSC B5	Mathematics III	**DSC B25**	Microbiology III
DSC B6	Mathematics IV	**DSC B26**	Microbiology IV
DSC B7	Statistics III	**DSC B27**	Industrial Microbiology III
DSC B8	Statistics IV	**DSC B28**	Industrial Microbiology IV
DSC B9	Electronics III	**DSC B29**	Biochemistry III
DSC B10	Electronics IV	**DSC B30**	Biochemistry IV
DSC B11	Computer Science III	**DSC B31**	Psychology III
DSC B12	Computer Science IV	**DSC B32**	Psychology IV
DSC B13	Botany III	**DSC B33**	Food Science & Quality control III
DSC B14	Botany IV	**DSC B34**	Food Science & Quality control IV
DSC B15	Zoology III	**DSC B35**	Astrophysics III
DSC B16	Zoology IV	**DSC B36**	Astrophysics IV
DSC B17	Biotechnology (Opt) III	**DSC B37**	Nanotechnology (opt) III
DSC B18	Biotechnology (Opt) IV	**DSC B38**	Nanotechnology (opt) IV
DSC B19	Geography III		
DSC B20	Geography IV	**AECC – B**	English – II

ii) B.Sc. Part 2 (Sem III &IV)

Course code	Name of Course	Course code	Name of Course
B. Sc. 2: Sem III DSC – 1C to 38C			
DSC C1	Physics V	**DSC C21**	Geology V
DSC C2	Physics VI	**DSC C22**	Geology VI
DSC C3	Chemistry V	**DSC C23**	Seed Technology V
DSC C4	Chemistry VI	**DSC C24**	Seed Technology VI
DSC C5	Mathematics V	**DSC C25**	Microbiology V
DSC C6	Mathematics VI	**DSC C26**	Microbiology VI
DSC C7	Statistics V	**DSC C27**	Industrial Microbiology V
DSC C8	Statistics VI	**DSC C28**	Industrial Microbiology VI
DSC C9	Electronics V	**DSC C29**	Biochemistry V
DSC C10	Electronics VI	**DSC C30**	Biochemistry VI
DSC C11	Computer Science V	**DSC C31**	Psychology V
DSC C12	Computer Science VI	**DSC C32**	Psychology VI
DSC C13	Botany V	**DSC C33**	Food Science & Quality control V
DSC C14	Botany VI	**DSC C34**	Food Science & Quality control VI
DSC C15	Zoology V	**DSC C35**	Astrophysics V
DSC C16	Zoology VI	**DSC C36**	Astrophysics VI
DSC C17	Biotechnology (Opt) V	**DSC C37**	Nanotechnology (opt) V
DSC C18	Biotechnology (Opt) VI	**DSC C38**	Nanotechnology (opt) VI
DSC C19	Geography V	*	
DSC C20	Geography VI		

*Interdisciplinary Courses (IDS) (DSC - IC)

DSC IC39	Astrophysics I	**DSC IC45**	Plant Protection I
DSC IC40	Astrophysics II	**DSC IC46**	Plant Protection II
DSC IC41	Geochemistry I	**DSC IC47**	Pollution I
DSC IC42	Geochemistry II	**DSC IC48**	Pollution II
DSC IC43	Biochemistry I	**DSC IC49**	Fisheries I
DSC IC44	Biochemistry II	**DSC IC50**	Fisheries II

Sem – IV

Course code	Name of Course	Course code	Name of Course
B. Sc. 2: Sem IV DSC – 1D to 38D			
DSC D1	Physics VII	**DSC D20**	Geography VIII
DSC D2	Physics VIII	**DSC D21**	Geology VII
DSC D3	Chemistry VII	**DSC D22**	Geology VIII
DSC D4	Chemistry VIII	**DSC D23**	Seed Technology VII
DSC D5	Mathematics VII	**DSC D24**	Seed Technology VIII
DSC D6	Mathematics VIII	**DSC D25**	Microbiology VII
DSC D7	Statistics VII	**DSC D26**	Microbiology VIII
DSC D8	Statistics VIII	**DSC D27**	Industrial Microbiology VII
DSC D9	Electronics VII	**DSC D28**	Industrial Microbiology VIII
DSC D10	Electronics VIII	**DSC D29**	Biochemistry VII
DSC D11	Computer Science VII	**DSC D30**	Biochemistry VIII
DSC D12	Computer Science VIII	**DSC D31**	Psychology VII
DSC D13	Botany VII	**DSC D32**	Psychology VIII
DSC D14	Botany VIII	**DSC D33**	Food Science & Quality control VII
DSC D15	Zoology VII	**DSC D34**	Food Science & Quality control VIII
DSC D16	Zoology VIII	**DSC D35**	Astrophysics VII
DSC D17	Biotechnology (Opt) VII	**DSC D36**	Astrophysics VIII
DSC D18	Biotechnology (Opt) VIII	**DSC D37**	Nanotechnology (opt) VII
DSC D19	Geography VII	**DSC D38**	Nanotechnology (opt) VIII
		*	
AECC C Environmental Studies (Theory Paper)			
AECC D Environmental Studies **(**Project)			

*Interdisciplinary Courses (IDS) (DSC – ID)

DSC ID39	Astrophysics III	**DSC ID45**	Plant Protection III
DSC ID40	Astrophysics IV	**DSC ID46**	Plant Protection IV
DSC ID41	Geochemistry III	**DSC ID47**	Pollution III
DSC ID42	Geochemistry IV	**DSC ID48**	Pollution IV
DSC ID43	Biochemistry III	**DSC ID49**	Fisheries III
DSC ID44	Biochemistry IV	**DSC ID50**	Fisheries IV

iii) B. Sc. Part 3 (Sem V &VI)

Discipline Specific Elective (DSE)

Course code	Name of Course	Course code	Name of Course
B. Sc. 3: Sem V DSE – 1E to 84E			
DSE E1	Physics IX	**DSE E45**	Seed Technology IX
DSE E2	Physics X	**DSE E46**	Seed Technology X
DSE E3	Physics XI	**DSE E47**	Seed Technology XI
DSE E4	Physics XII	**DSE E48**	Seed Technology XII
DSE E5	Chemistry IX	**DSE E49**	Microbiology IX
DSE E6	Chemistry X	**DSE E50**	Microbiology X
DSE E7	Chemistry XI	**DSE E51**	Microbiology XI
DSE E8	Chemistry XII	**DSE E52**	Microbiology XII
DSE E9	Mathematics IX	**DSE E53**	Industrial Microbiology IX
DSE E10	Mathematics X	**DSE E54**	Industrial Microbiology X
DSE E11	Mathematics XI	**DSE E55**	Industrial Microbiology XI
DSE E12	Mathematics XII	**DSE E56**	Industrial Microbiology XII
DSE E13	Statistics IX	**DSE E57**	Biochemistry IX
DSE E14	Statistics X	**DSE E58**	Biochemistry X
DSE E15	Statistics XI	**DSE E59**	Biochemistry XI
DSE E16	Statistics XII	**DSE E60**	Biochemistry XII
DSE E17	Electronics IX	**DSE E61**	Psychology IX
DSE E18	Electronics X	**DSE E62**	Psychology X
DSE E19	Electronics XI	**DSE E63**	Psychology XI
DSE E20	Electronics XII	**DSE E64**	Psychology XII
DSE E21	Computer Science IX	**DSE E65**	Food Science & Quality control IX
DSE E22	Computer Science X	**DSE E66**	Food Science & Quality control X
DSE E23	Computer Science XI	**DSE E67**	Food Science & Quality control XI
DSE E24	Computer Science XII	**DSE E68**	Food Science & Quality control XII
DSE E25	Botany IX	**DSE E69**	Plant Protection V
DSE E26	Botany X	**DSE E70**	Plant Protection VI
DSE E27	Botany XI	**DSE E71**	Plant Protection VII
DSE E28	Botany XII	**DSE E72**	Plant Protection VIII
DSE E29	Zoology IX	**DSE E73**	Fisheries V
DSE E30	Zoology X	**DSE E74**	Fisheries VI

DSE E31	Zoology XI	**DSE E75**	Fisheries VII
DSE E32	Zoology XII	**DSE E76**	Fisheries VIII
DSE E33	Biotechnology (Opt) IX	**DSE E77**	Astrophysics IX
DSE E34	Biotechnology (Opt) X	**DSE E78**	Astrophysics X
DSE E35	Biotechnology (Opt) XI	**DSE E79**	Astrophysics XI
DSE E36	Biotechnology (Opt) XII	**DSE E80**	Astrophysics XII
DSE E37	Geography IX	**DSE E81**	Nanotechnology (Opt)IX
DSE E38	Geography X	**DSE E82**	Nanotechnology (Opt)X
DSE E39	Geography XI	**DSE E83**	Nanotechnology (Opt)XI
DSE E40	Geography XII	**DSE E84**	Nanotechnology (Opt)XII
DSE E41	Geology IX		
DSE E42	Geology X		
DSE E43	Geology XI		
DSE E44	Geology XII	**AECC E**	English III

SEM – VI

Course code	Name of Course	Course code	Name of Course
B. Sc. 3: Sem VI DSE – 1F to 84F			
DSE F1	Physics XIII	**DSE F45**	Seed Technology XIII
DSE F2	Physics XIV	**DSE F46**	Seed Technology XIV
DSE F3	Physics XV	**DSE F47**	Seed Technology XV
DSE F4	Physics XVI	**DSE F48**	Seed Technology XVI
DSE F5	Chemistry XIII	**DSE F49**	Microbiology XIII
DSE F6	Chemistry XIV	**DSE F50**	Microbiology XIV
DSE F7	Chemistry XV	**DSE F51**	Microbiology XV
DSE F8	Chemistry XVI	**DSE F52**	Microbiology XVI
DSE F9	Mathematics XIII	**DSE F53**	Industrial Microbiology XIII
DSE F10	Mathematics XIV	**DSE F54**	Industrial Microbiology XIV
DSE F11	Mathematics XV	**DSE F55**	Industrial Microbiology XV
DSE F12	Mathematics XVI	**DSE F56**	Industrial Microbiology XVI
DSE F13	Statistics XIII	**DSE F57**	Biochemistry XIII
DSE F14	Statistics XIV	**DSE F58**	Biochemistry XIV
DSE F15	Statistics XV	**DSE F59**	Biochemistry XV
DSE F16	Statistics XVI	**DSE F60**	Biochemistry XVI
DSE F17	Electronics XIII	**DSE F61**	Psychology XIII
DSE F18	Electronics XIV	**DSE F62**	Psychology XIV
DSE F19	Electronics XV	**DSE F63**	Psychology XV
DSE F20	Electronics XVI	**DSE F64**	Psychology XVI
DSE F21	Computer Science XIII	**DSE F65**	Food Science & Quality control XIII
DSE F22	Computer Science XIV	**DSE F66**	Food Science & Quality control XIV
DSE F23	Computer Science XV	**DSE F67**	Food Science & Quality control XV
DSE F24	Computer Science XVI	**DSE F68**	Food Science & Quality control XVI
DSE F25	Botany XIII	**DSE F69**	Plant Protection IX
DSE F26	Botany XIV	**DSE F70**	Plant Protection X
DSE F27	Botany XV	**DSE F71**	Plant Protection XI
DSE F28	Botany XVI	**DSE F72**	Plant Protection XII
DSE F29	Zoology XIII	**DSE F73**	Fisheries IX
DSE F30	Zoology XIV	**DSE F74**	Fisheries X
DSE F31	Zoology XV	**DSE F75**	Fisheries XI

DSE F32	Zoology XVI	**DSE F76**	Fisheries XII
DSE F33	Biotechnology (Opt) XIII	**DSE F77**	Astrophysics XIII
DSE F34	Biotechnology (Opt) XIV	**DSE F78**	Astrophysics XIV
DSE F35	Biotechnology (Opt) XV	**DSE F79**	Astrophysics XV
DSE F36	Biotechnology (Opt) XVI	**DSE F80**	Astrophysics XVI
DSE F37	Geography XIII	**DSE F81**	Nanotechnology (Opt) XIII
DSE F38	Geography XIV	**DSE F82**	Nanotechnology (Opt) XIV
DSE F39	Geography XV	**DSE F83**	Nanotechnology (Opt) XV
DSE F40	Geography XVI	**DSE F84**	Nanotechnology (Opt) XVI
DSE F41	Geology XIII		
DSE F42	Geology XIV		
DSE F43	Geology XV		
DSE F44	Geology XVI	**AECC F**	English IV

B.Sc. Computer Science (Optional) Part III
Semester-V&VI
CBCS Syllabus to be implemented from June 2020 Onwards

1. **TITLE:** Computer Science
2. **YEAR OF IMPLEMENTATION**: Revised Syllabus will be implemented from June2020onwards.
3. **DURATION:** B.Sc. in Computer Science Part- III The duration of course shall be one year and two semesters.
4. **PATTERN:** Pattern of examination will be semester.
5. **STRUCTURE OF COURSE:**

STRUCTURE OF COURSE

Sr. No.	Paper	Name of Paper	Marks
Computer Science (Semester V)			
1	DSE-21E	Core Java	40 (Theory)
2	DSE-22E	C# Programming	40 (Theory)
3	DSE-23E	Linux part- I	40 (Theory)
4	DSE-24E	Python Part -I	40 (Theory)
Computer Science (Semester VI)			
5	DSE-21F	Advance Java	40 (Theory)
6	DSE-22F	ASP .NET	40 (Theory)
7	DSE-23F	Linux Part- II	40 (Theory)
8	DSE-24F	Python Part -II	40 (Theory)
Practical (Annual)			
5	Practical Paper-IV	Computer Science Practical Paper Based on DSE-21E,22E,21F and 22F	50 (Practical)
6	Practical Paper-V	Computer Science Practical Paper Based on DSE-23E,24E,23F and 24F	50 (Practical)
7	Practical Paper VI	Software Project	100

6. EQUIVALENCE IN ACCORDANCE WITH TITLES AND CONTENTS OF PAPERS (FOR REVISED SYLLABUS)

Paper No.	Title of old paper	Paper No.	Title of New paper
SEMESTER V			
IX	Computer Networking	IX	More chances be given
X	Visual Programming using C#	X	C# Programming
XI	Linux Operating System	XI	Linux- I
XII	MY SQL and PHP	XII	More chances be given
SEMESTER – VI			
XIII	Network Technology and Windows Server 2008	XIII	More chances be given
XIV	Java Programming	XIV	Core Java
XV	Advanced Linux OS	XV	Linux- II
XVI	E-commerce	XVI	More chances be given
PRACTICAL (ANNUAL PATTERN)			
	Computer Science Practical Paper-IV,V and VI		More chances be given

B.Sc. Part –III Computer Science Optional (Semester– V)
Course Code: DSE-21E
Paper IX
Course Title: Core Java
Total Contact Hours: 36 Hrs. (45 Lectures of 48 Min.)
Teaching Scheme: Theory – 03 Lect. / Week

Credits: 02 **Total Marks: 40**

Objectives:

The objective of this course is to teach the learner how to use Object Oriented paradigm to develop code and understand the concepts of Core Java and to cover-up with the pre-requisites of Core java.

Course Outcomes:

1.Object oriented programming concepts using Java.
2.Knowledgeof input, its processing and getting suitable output.
3.Understand, design, implement and evaluate classes and applets
4. Understand concept of Multiprogramming and Exception Handling

Unit	Content	Hours Allotted
I	**Introduction to java** • History of java • Features of Java • Comparison between C++ and java • Java Virtual Machine(JVM) • Tokens • Java Keywords • Data Types-integer(byte,short,int ,long),floating point(float, double),char, boolean • Operators-arithemetic,relational,logical,unary,ternary,bitwise • Branching and looping statement • Typecasting-Implicit and Explicit • Command line arguments • Writing simple java program • Compiling and executing Java program	**12**
II	**Object Oriented Programming using Java** • Introduction- Class, Object and method • staticKeywords,Constructors,and destructor • super and thisKey Word • Encapsulation and Abstraction • Inheritance- Definition and its types-single,multilevel,hierarchical • Polymorphism-Definition and concepts of overloading and overriding • Difference between Overloading and overriding • Abstract Classes and Interfaces • String- String and String Buffer class • Defining package • System Packages –java, lang, awt, javax, swing, net, io, util.	**12**

	• user defined packages-creating and accessing the package	
III	**Multithreading, Exception Handling and Applets** • Creating threads, extending a thread class- declaring the class, run() method • Stopping and blocking threads • Life cycle of thread • Using thread method • Thread priority • Definition of exception • Syntax of exception handling code • Multiple catch statement • Using finally statement • Applets Definition • Building applet code • Applet life cycle • Adding applet code to HTML file • Introduction to Abstract Window Toolkit (AWT)	**12**

Reference Books:

1. Programming with JAVA, A Primer by E Balaguruswamy
2. Herbert Schildt, Java2: The Complete Reference, Tata McGraw-Hill
3. Java Programming- Rajendra Salokhe (Aruta Pub)
4. *The Java Tutorials: http://docs.oracle.com/javase/tutorial/)*
5. The Java Tutorials of Sun Microsystems Inc

Practical Based on DSE 21E(Lab course IV)

1. Java programs based on branching and looping statements.
2. Java programs based Type Casting
3. Java programs based on command line arguments
4. Java programs based on constructors
5. Java programs based on inheritance
6. Java programs based on method overloading
7. Java programs based on method overriding.
8. Java programs based on interfaces
9. Java programs based on packages
10. Java programs based on multithreading
11. Java programs based on exception handling
12. Java programs with applets.

B.Sc. Part –III Computer Science Optional (Semester– V)
Course Code: DSE-22E
Computer Paper X
Course Title: C# Programming
Total Contact Hours: 36 Hrs. (45 Lectures of 48 Min.)
Teaching Scheme: Theory – 03 Lect. / Week

Credits: 02 **Total Marks:40**

Course Outcomes:

This course will cover the practical aspects C#.NET framework. The goal of this course is to introduce the students to the basics of OOPs and windows application program.

Unit	Content	Hours Allotted
I	**Introduction to .Net** • .NET Framework Architecture • An Overview • Components of .NET: CLR ,CLS • Microsoft Intermediate Language ("MSIL" or "IL"), • The Common Type System (CTS), Namespaces, • .NET Framework Base Classes, DLL and Exe. • An Overview of C# • History and Features of C#. • Data Types, Value and Reference Types, Boxing and • Unboxing • Properties : Set and Get • C# - Flow Control: Branching, Switching and Looping • Structure	**12**
II	**Object oriented Concepts** • C# Program compilation and execution • Command Line Arguments • Programming Examples using Console application , • Classes and Objects • Inheritance • Polymorphism • Abstract Classes • Sealed Classes • Partial Classes • Exception Handling	**12**
III	**Introduction to Windows Form Application Using C#** • IDE – (Integrated Development Environment) • Form Controls: Label, Button, Textbox, Checkbox, RadioButton, Timer, calendar, ListBox, Image and overview of remaining all common controls its properties and events	**12**

References:

1. C# 4.0 The Complete Reference Schildt Mc Graw Hill
2. Inside C# - By Tom Archer, Andrew Whitechapel (Microsoft Pub)
3. Programming in C#- E Balagurusamy

Practical Based on DSE-E22

1. Write a C# program that print hello word using command line argument.
2. Write a console application program to demonstrate switching, looping, branching statement.
3. Write a console application for swapping of 2 numbers using Pass by value.
4. Write a console application for swapping of 2 numbers using Pass by Reference.
5. Write a C# program that uses explicit keyword.
6. Write a C# program that uses implicit keyword.
7. Write a C# program to implement out parameter.
8. Write C# program to display factorial of number.
9. Write C# program to display prime factors of entered number.
10. Write C# program check entered number is even or odd.
11. Write C# program to demonstrate array.
12. Create DLL and implement in another console application.
13. Write C# program to demonstrate static and non-static methods.
14. Write C# program to demonstrate Inheritance.
15. Write C# program to demonstrate Interface.
16. Write C# program to demonstrate abstract class.

B.Sc. Part –III Computer Science Optional (Semester– V)
CourseCode: DSE-23E
Computer Paper XI
Course Title: LINUX Part I
Total Contact Hours: 36 Hrs. (45 Lectures of 48 Min.)
Teaching Scheme: Theory – 03 Lect. / Week

Credits: 02 **Total Marks:40**

Course Outcomes

1. Upon completion of this course, students should have a good working knowledge of Linux.
2. Allowing them to easily use any Linux distribution.
3. This course shall help student to learn advanced subjects in computer science practically.

Unit	Contents	Hours Allotted
I	**Introduction to Linux** • History of Linux • Architecture of Linux • Operating System Services • Shell • Types of Shell • Kernel • Login, Logout • General Purpose Utilities (banner, cal, date, calendar, who, tty, uname, password, lock, echo, tput, bc, clear, script, wc, head, tail, echo, test, expr)	**9**
II	**File System, System Calls and Process** • Basic file system management • Files Types, Boot block, Super block, Inode table • Storage and Accessibility of files • Finding Information of commands • File and Directory Commands • File and Directory Manipulation commands • File ownership and permission • Open, Read, Write, Close • Mounting and Un-mounting File System • Process States and Transitions • Process Creation • Signal • Process Termination • Awaiting Process Termination • Invoking Other Programs • Process Management(ps, kill, background processing, no hang up, SPOOL, job scheduling using at command)	**18**
III	**Editors and Shell Scripting** • Types of editors • Modes of Operation	**9**

	• Editing Text Files • Block Commands • Set Commands • Command Line Options • Choosing a Shell • Invoking the Shell Variables • Getting input from keyboard • Special Variables • Control Statement- Conditional • Iterative Statements • Regular expression	

Reference Books

1. Linux Commands- Instant Reference by Bryan PF affenberge
2. The Design of the Unix Operating System- Bach
3. Unix Shell Programming- Yashwant Kanetkar
4. Unix Concepts and Application – Sumitabhadas
5. Linux : The Complete Reference- Richard Peterson

Practical Based on DSE-23E

1. Demonstration of General Purpose Utilities.
2. Write a shell script using if statements to check file exists or not.
3. Write a shell script to copy a file.
4. Write a shell script to check the given number is odd or even.
5. Write a shell script to check file permission.
6. Write a shell script to calculate the grade of student.
7. Write a shell script to find out given word contains vowel and also the entered vowel is small case or capital.
8. Write a shell script to display given year is leap year or not.
9. Write a shell script to greet message according to time.
10. Write a shell script to print the Fibonacci series.
11. Write a shell script to print the numbers between 1 to10.
12. Write a shell script to read name, sex and marital status and display the same.

B.Sc. Part –III Computer Science Optional (Semester– V)
Course Code: DSE-24E
Computer Paper XII
Course Title: Python Part I
Total Contact Hours: 36 Hrs. (45 Lectures of 48 Min.)
Teaching Scheme: Theory – 03 Lect. / Week

Credits: 02 **Total Marks: 40**

Objective
Master the fundamentals of writing Python scripts

Course Outcomes:
1. To understand why Python is a useful scripting language for developers
2. To learn how to write loops and decision statements in Python
3. To learn how to use lists, tuples, and dictionaries in Python programs

Unit	Contents	Hours Allotted
I	**Introduction** • History • Features • Setting up path • Working with Python • Basic Syntax • Keywords • Variable and Data Types • Operator • Input , output functions **Conditional Statements & Looping** • If • If- else • Nested if-else • For • While • Nested loops	**12**
II	**Control Statements** • Break • Continue • Pass **String Manipulation** • Accessing Strings • Basic Operations • String slices • Function and Methods **Lists** • Introduction • Accessing list • Operations • Working with lists • Function and Methods	**12**

III	**Tuple** • Introduction • Accessing tuples • Operations • Working • Functions and Methods **Dictionaries** • Introduction • Accessing values in dictionaries • Working with dictionaries • Properties • Functions	**12**

Reference Books

1. Practical Programming: An introduction to Computer Science Using Python, second edition, Paul Gries, Jennifer Campbell, Jason Montojo, The Pragmatic Bookshelf.
2. Python for Informatics: Exploring Information, Charles Severance
3. Learning Python, Fourth Edition, Mark Lutz, O'Reilly publication
4. Introduction to Python for Computational Science and Engineering (A beginner's guide), Hans Fangohr
5. John V Guttag. "Introduction to Computation and Programming Using Python", Prentice Hall of India
6. R. Nageswara Rao, "Core Python Programming", Dreamtech

Prctical Based on DSE-24E

1. Python program to add two numbers
2. Python program for factorial of a number
3. Python program for simple interest
4. Python program to check if a string is palindrome or not
5. Python program to reverse words in a given string in python
6. Python program to find out ways to remove i'th character from string in python
7. Python program to check if a substring is present in a given string
8. Python program to interchange first and last elements in a list
9. Python program to swap two elements in a list
10. Python program to find out different ways to clear a list in Python
11. Python program to reversing a List
12. Python Program for Linear Search
13. Python Program for Insertion Sort
14. Python Program to demonstrated use of dictionaries by Key or Value
15. Python Program to remove a key from dictionary

B.Sc. Part –III Computer Science Optional (Semester– VI)
Course Code: DSE-21F

Paper XIII

Course Title: Advanced Java
Total Contact Hours: 36 Hrs. (45 Lectures of 48 Min.)
Teaching Scheme: Theory – 03 Lect. / Week

Credits: 02 **Total Marks: 40**

Objectives:
Explore advanced topic of Java programming for solving problems.

Course Outcomes:

1) The student will be able to develop distributed business applications, develop web pages Using advanced server-side programming through servlets and Java server pages.
2) Demonstrate approaches for performance and effective coding
3) To learn database programming using Java
4) To study web development concept using Servlet and JSP

Unit	Content	Hours Allotted
I	**Swing and JDBC** • Concept of swing • MVC architecture • Component of swing: JFrame,JComponent,JLable, JTextfields, JCheckbox, JPanel, JRadiobuttons, JTabbed Pane,JButton, JTree, JTable, JMenu • Difference between AWT and Swing • Introduction Java Data Base Connectivity (JDBC) • JDBC Connection Statements, ResultSet. • simple program • Executing commands and SQL queries • Updatable ResultSet • Forward Only ResultSet • Scrollable ResultSet • PreparedStatement • Connection Modes, SavePoint.	**12**
II	**Servlet** • Introduction to Servlet • Hierarchy of Servlet • Life cycle of servlet • ServletConfig • ServletContext • Servlet API • packages- javax.servlet and javax.servlet.http • Servlet Communication • Handing get and post request (HTTP) • Handling a data from HTML to servlet • Retrieving a data from database to servlet	**12**

	• Session tracking – User Authorization, URL rewriting, Hidden form fields	
III	**Java Server Page (JSP)** • Concept of JSP • Life cycle of JSP • JSP v/s Servlet • Components of JSP: Directives, Tags • Scripting elements – Declarations, Expressions, Scriplets, Comments • Implicit objects of JSP • Connecting to database • Simple application using JSP	**12**

Reference Books

1. Programming with JAVA, A Primer by E Balaguruswamy
2. Herbert Schildt, Java2: The Complete Reference, Tata McGraw-Hill
3. Java Programming- Rajendra Salokhe (Aruta Pub)
4. Java 2 Black Book –(DreamTech)
5. *The Java Tutorials: http://docs.oracle.com/javase/tutorial/)*
6. The Java Tutorials of Sun Microsystems Inc

Practical Based on DSE-21F

Practical Program List

1. Program on Swing
2. Simple program using servlet
3. Simple program using JSP
4. Program on Database Connection.
5. Develop a java application to store image in a database as well as retrieve image from database
6. Create EMP table in Database and perform insert ,update ,and delete operation onEMP table using JSP.

B.Sc. Part –III Computer Science Optional (Semester– VI) CourseCode:DSE-22F

Computer Paper XIV

Course Title: ASP .NET

Total Contact Hours: 36 Hrs. (45 Lectures of 48 Min.)

Teaching Scheme: Theory – 03 Lect. / Week

Credits: 02 **Total Marks:40**

Course Outcomes:

This course will cover the practical aspects of multi-tier web based application development using the .NET framework. The goal of this course is to introduce the students to the basics of distributed Web application development.

Unit	Content	Hours Allotted
I	**Introduction to ASP.Net**: • Web browser, web server • HTTP request response structure • HTML form elements • GET/POST method • Client side and Server side programming. • Web form life cycle, page events, • Visual studio IDE. • **Server Controls:** Textbox, Listcontrols, FileUpload, Linkbutton, Imagemap, Image, Imagebutton, Calender, Literal control, Radiobutton, Checkbox, • Validation Controls • Navigation controls • Master Page.	**14**
II	**Asp.Net State Management** • Cross page postback property of button, • Response.Redirect, • Server.transfer, Response.Write, • Hiddenfield control, • View State, Cookies, Session, Application • Global.asax	**10**

	• Caching	

III	**Database and ADO.Net**
	• Sql Server Database.
	• Data controls
	  o Gridview
	  o Listview
	  o FormView
	  o DetailsView,
	  o Repeater
	• Introduction to ADO.Net
	  o ADO.NET Architecture- Connection, command, data reader, data adapter, data set
	  o Understanding connected layer of ADO.NET and disconnected layer of ADO.NET
	• Basics of Crystal reports
		12

Reference Books:

- Beginning ASP.NET 4.5 in C# and VB, Wrox, 2012, ISBN-10: 1118311809
- Beginning ASP.NET 4.5 in C#, Apress, 2012, ISBN-10: 1430242515
- Pro C# with .NET 3.0, Andrew Troelsen, Apress, 2007, ISBN 978-1-59059-823-8

Practical Experiments based on DSE-F22:

1. Write an Asp.Net Program to print a Message on web form.
2. Write an Asp.Net Program to Create Simple Web Application using two or more web form.
3. Write an Asp.Net Program to set a link for new Page.
4. Write an Asp.Net Program to demonstrate different common Control.
5. Write an Asp.Net program using while or for loop to print sum of first 100 ODD and Even Numbers.
6. Write an Asp.Net Program to add the value of Text Box in to Dropdown List and List box Controls.
7. Write an Asp.Net Program to Delete Items from Dropdown list and List box.
8. Write an Asp.Net Program to set Image on Image Control according to selection of image name from dropdown list.
9. Write an Asp.Net Program to demonstrate use of Master Page.
10. Program to demonstrate ADO.Net connected architecture.
11. Program to demonstrate ADO.Net disconnected architecture

12. Program to demonstrate client side state management.
13. Program to demonstrate serverside state management.
14. Write an Asp.Net Program to perform Insert and update operation in Database.
15. Write an Asp.Net program to perform Search and Delete operation in Database.
16. Write an Asp.net program to display the records from database using Data Reader Object.

B.Sc. Part –III Computer Science Optional (Semester– VI) CourseCode:DSE-23F

Computer Paper XV

Course Title: Linux Part II
Total Contact Hours: 36 Hrs (45 Lectures of 48 Min.)
Teaching Scheme: Theory – 03 Lect. / Week

Credits:02 **Total Marks:40**

Course Outcome:

1. This course covers design principles of Linux Operating System Memory management.
2. Structure of File system and virtual file system is also elaborated.
3. This course contains details of shell programming and introduces System administration

Unit	Content	Hours Allotted
I	**Memory Management and Advanced vi** • Swapping • Demand Paging • ex Mode- handling Multiple Files • Named Buffer • Numbered Buffers • Entering control characters • Searching for a characters	**9**
II	**Filters and Advanced Shell Programming** • sed and sed options • grep and grep options • Line Addressing • Multiple Instruction(-E and -F) • Context Addressing • Writing Selected Lines to a File • Shell and subshell • Command Line Arguments • Exporting Shell Variables • Arrays • Shell Functions	**18**
III	**Networking Tools** • Introduction to TCP/IP • Network Management Tools- Firewall • The write command • The wall command • cron	**9**

Reference Books:

1. Linux Commands –Instant Reference by Bryan PF affenberge
2. The design of the Unix Operating System- Bach
3. Unix Shell Programming- Yashwant Kanetkar
4. Unix Concepts and Applications- Sumitabha das
5. Linux : The Complete Reference- Richard Peterson

Practical Based on DSE-23F

1. Write a shell script using grep command to print prime numbers between 1 to 30.
2. Write a shell script to find whether the supplied user working on network or not. If he/she is working then display his/her login time.
3. Write a anawk program to display customer earning report with given format.
4. Write a shell script which accepts a file name as a input. Find out whether it is ordinary file or directory. If a file is available then display all file access permission on screen.
5. Write a shell script which copies files from one directory to another during copy command.
6. Write an awk program to display stock report with given format.
7. Create a data file which contains given format and perform the given operations on that data file using sed.
8. Write a shell script to copy a file using command line argument, source file must be exists and readable and target file must be non existing file name.
9. Write a shell script, which works similar to wc command accept filename as command line argument.
10. Accept any word through command line argument and find out its length.

B.Sc. Part –III Computer Science Optional (Semester– VI) CourseCode:DSE-24F
Computer Paper XVI
Course Title: Python Part II
Total Contact Hours: 36 Hrs. (45 Lectures of 48 Min.)
Teaching Scheme: Theory – 03 Lect. / Week

Credits:02 **Total Marks:40**

Course Outcomes:

1. To learn how to write functions and pass arguments in Python
2. To learn how to build and package Python modules for reusability
3. To learn how to use exception handling in Python applications for error handling

Unit	Content	Hours Allotted
I	**Functions** • Defining a function • Calling a function • Types of functions • Function Arguments • Anonymous functions • Global and local variables	12
II	**Modules** • Importing module • Math module • Random module • Packages • Composition **Input-Output** • Printing on screen • Reading data from keyboard • Opening and closing file • Reading and writing files • Functions	12
III	**Exception Handling** • Exception • Exception Handling • Except clause • Try , finally clause • User Defined Exceptions **Object Oriented Programming Concepts** • Class and object • Attributes • Inheritance • Overloading • Overriding • Data hiding	12

Reference Books:

1. Practical Programming: An introduction to Computer Science Using Python, second edition, Paul Gries, Jennifer Campbell, Jason Montojo, The Pragmatic Bookshelf.
2. Python for Informatics: Exploring Information, Charles Severance
3. Learning Python, Fourth Edition, Mark Lutz, O'Reilly publication
4. Introduction to Python for Computational Science and Engineering (A beginner's guide), Hans Fangohr
5. John V Guttag. "Introduction to Computation and Programming Using Python", Prentice Hall of India
6. R. Nageswara Rao, "Core Python Programming", Dreamtech

Practical Based on DSE-24F

1. Write a simple Python function to check whether x is even or odd
2. Write a simple Python program to demonstrate default arguments to function
3. Write a simple module (e.g. calc.py) for addition and subtraction
4. Write a program for importing sqrt() and factorial from the module math
5. Write a program to provide the facility to input and display it on the screen
6. Write a program to demonstrate to open and close file
7. Write a Python program to handle simple runtime error
8. Write program to handle multiple errors with one except statement
9. Write a python program to create user-defined exception
10. Write Python code to illustrate clean up (finally) actions
11. Write a program to demonstrate the use of class
12. Write a Python program to demonstrate inheritance
13. Write a Python program to demonstrate overloading
14. Write a Python program to demonstrate overriding

NATURE OF QUESTION PAPER AND SCHEME OF MARKING:

The practical Paper – IV is based on Paper No. IX, X, XIII and XIV.

The practical Paper – V is based on Paper No. XI, XII, XV and XVI.

The practical Paper – VI is of Major Project work done by the student.

NATURE OF PRACTICAL QUESTION PAPER:

1. The practical question paper IV and V for B.Sc.-III(computer science) will be of maximum 50 marks each.
2. The practical paper IV having four questions out of which two questions are based on Paper –IX (Sem.-V) Paper-XIII (Sem.-VI) and two questions are based on Paper X(Sem.V), Paper-XIV (Sem.-VI)
3. The practical paper V having four questions out of which two questions are based on Paper – XI (Sem.-V), Paper XV (Sem.-VI) and two questions are based on Paper-XII(Sem.-V), Paper-XVI (Sem.- VI)
4. The Student has to attempt any TWO questions out of FOUR questions. Each question carries 20 marks.
5. 10 marks are for Viva and certified Journal.
6. The student appearing for the practical examination is expected to write paper work for TWO questions. Paper work is compulsory and it includes problem analysis, Algorithm, source code, output and tracing.
7. It is expected to complete the paper work within 120 minutes. The student has to complete his/her actual practical experiment on machine within 90 minutes. The practical based viva will be of 30 minutes duration.
8. The duration of practical will be 4 hours.
9. Practical Paper VI is Project work of 100 marks.

Practical Paper VI: Project work - 100 marks

Project work Guidelines:

1. Institute is expected to conduct Industrial visit to any computerized industry and students are supposed to submit the report based on same.
2. Software development project is to be carried out by the candidate in actual consumer environment taking some real life problem.
3. The candidate submit the project work according to norms of software engineering i.e. the project document should contain Introduction, detailed design, sample testing and conclusion(Guidelines and other details are mentioned at **Appendix -1 and 2**)
4. Project will have internal guide to supervise and monitor the progress of the project. The internal guide may assign the project to the student or within the group of student (maximum 2 candidates in group) depending upon the complexity of the problem preferably using MySQL /MSSQL/Oracle as a back end and C#.NET/ASP with C#/PHP/ Java as a front end.
5. There will be online demonstration of project work in the presence of the external examiner and it will be considered for the evaluation.

6. The mark distribution for Practical paper VI will be as follows:

Project documentation	:	30 marks
On-line Presentation	:	20 marks
Project Based Viva-voce	:	30 marks
Industrial Visit Report	:	20 marks
Total Marks	**:**	**100marks**

Appendix- 1

Guidelines for Project:
Number of Copies: The student should submit two Hard-bound copies of the Project Report. (one copy for institute and one copy for student)

Acceptance/Rejection of Project Report:

The student must submit an outline of the project report to the college for approval. The college holds the right to accept the project or suggest modifications for resubmission.

Format of the Project Report:
The student must adhere strictly to the following format for the submission of the Project Report.

a. Paper:
The Report shall be typed on white paper, A4 size, for the final submission.

b. Typing:
The typing shall be of standard letter size, 1.5 spaced and on one side only. (Normal text should have Arial Font size 12. Headings have bigger size i.e. up to size 14)

c. Margins:
- The typing must be done in the following margins:
- Left -----1.5 inch, Right-------1 inch
- Top ----- 1 inch, Bottom------ 1 inch

d. Front Cover:
The front cover should contain the following details:

- TOP : The title in block capitals of 6mm to 15mm letters.
- CENTRE: Full name in block capitals of 6mm to 10mm letters.
- BOTTOM: Name of the University, Course, Year of submission -all in block capitals of 6mm to 10mm letters on separate lines with proper spacing and centring.

f. Blank Sheets:
At the beginning and end of the report, two white black bound papers should be provided, one for The purpose of binding and other to be left blank.

Appendix - 2
- Input Design
- Report Design
- Implementation
- Testing

Standard Project Report Documentation Format

a) Covering Page

b) Institute/College certificate

c) Guide Certificate

d) Student declaration

e) Acknowledgement

f) Index (Chapter Scheme)

1) Introduction to Project

- Introduction
- Existing System
- Need and scope of System
- Organization Profile

2) Proposed System

- Objectives
- Requirement Engineering.
- Requirement Gathering.
- SRS

3) System Diagrams

- DFD
- ERD
- UML(if applicable)

4) System Requirements

- Hardware
- Software

5) System Design

- Database Design
- Input Design
- Output Design

6) User Guideline

- Installation process

7) Source Code

8) Outputs

- Input screens and Reports (with valid Data)

9) Conclusion and Suggestions

- Conclusion and suggestions

• Future enhancement

- Bibliography:

Note: Minimum 5 reports are essential as outputs of the project work done by the student