Regulation, Scheme and syllabus for B.Voc Degree Programme in Software Development

(To be introduced from 2014 admissions)

1. INTRODUCTION

The University Grants Commission (UGC) has launched a scheme on skills development based higher education as part of college/university education, leading to Bachelor of Vocation (B.Voc.) Degree with multiple exits such as Diploma/Advanced Diploma under the NSQF.The B.Voc.programme is focused on universities and colleges providing undergraduate studies which would also incorporate specific job roles along with broad based general education. This would enable the graduates completing B.Voc.to make a meaningful participation in accelerating India's economy by gaining appropriate employment, becoming entrepreneurs and creating appropriate knowledge.

The proposed vocational programme in Software Development will be a judicious mix of skills, professional education related to Software Development and also appropriate content of general education. It is designed with the objective of equipping the students to cope with the emerging trends and challenges in the Software Development environment.

2. ELIGIBILITY FOR ADMISSION

Eligibility for admissions and reservation of seats for B.VocSoftware Development shall be according to the rules framed by the University from time to time. No student shall be eligible for admission to B.VocSoftware Development unless he/she has successfully completed the examination conducted by a Board/ University at the +2 level of schooling or its equivalent in science stream. Those who passed Vocational Higher Secondary course will get an additional weightage of 25 marks in the ranking index. For the calculation of ranking mark in any stream, convert the qualifying examination mark to 1200.

3. NATURE OF THE COURSE

This course follows 2(b) pattern of the University under first degree CBCS program with appropriate modifications.

- No open course is envisaged
- No Electives are included
- Total credits enhanced to 180 instead of 120

- Working hours per week is increased to 30 hours
- All vocational subjects are treated as core course.
- Multiple exit points are permitted, that is, if willing, candidate can quit after the successful completion of first & second year. Candidate do so, can't be re-entered.
- There will not be provisions for improvement.
- A candidate who failed in a semester may get two supplementary chances.Only failed papers are to be written in the supplementary examination.
- **CURRICULUM**

The curriculum in each of the years of the programme would be a suitable mix of general education and skill development components.

4. DURATION

The duration of the B.Voc. Software Development shall be three years consisting of six semesters. The duration of each semester shall be five months inclusive of the days of examinations. There shall be at least 90 working days in a semester and a minimum 540 hours of instruction in a semester.

5. PROGRAMME STRUCTURE

The B.Voc Software Development shall include:

- Language courses (English)
- General Education Components
- Skill Components
- Project
- Industrial Training
- Soft Skills and Personality Development Programmes
- Study tours

6. CREDIT CALCULATION

The following formula is used for conversion of time into credit hours.

- One Credit would mean equivalent of 15 periods of 60 minutes each, for theory, workshops/labs and tutorials;
- For industrial visit, the credit weightage for equivalent hours shall be 50% of that for lectures/workshops;

- For self-learning, based on e-content or otherwise, the credit weightage for equivalent hours of study should be 50% or less of that for lectures/workshops.

7. COURSE STRUCTURE

NSQF Level	Skill Component Credits	General Education Credits	Normal calendar duration	Exit Points / Awards
Year 3	36	24	Six Semesters	B.Voc.
Year 2	36	24	Four semesters	Advanced Diploma
Year 1	36	24	Two semesters	Diploma
TOTAL	**108**	**72**		

As per the UGC guidelines, there are multiple exit point for a candidate admitted in this course. If he/she is completing all the six semester successfully, he/she will get B. Voc degree in Software Development. If he/she is completing the first four semesters successfully, he/she will get an advanced diploma in Software Development. If he/she is completing the first two semesters he/she will get a diploma in Software Development. B Voc Degree holder is expected to acquire the skills needed for a software developer or entrepreneur. Advanced diploma holder is expected to become a multi-skilled Software associate. Diploma holder is expected to become Data interpreter.

8. PROGRAMME STRUCTURE

The mathematics papers with code MM1231.9, MM1131.9 and English paper with code EN1111.4, EN1211.4 are adopted from the approved syllabus of the concerned boards developed for BCA course.

Semester 1

General Education				Skill Component			
No.	Title	Credit	Hrs/ Week	No.	Title	Credit	Hrs/ Week
EN1111	Speaking and Listening skills	4	4	VS 313	Introduction to IT	4	4
VS 311	Aptitude & Logical reasoning	4	4	VS 314	Programming Principles	4	4
VS 312	Managerial Economics	4	4	VS 315	Word Processing & Image editing	4	4
				VS 316	Photoshop Lab	3	3
				VS 317	Page maker Lab	3	3
	Total	**12**	**12**		**Total**	**18**	**18**

Semester II

General Education				Skill Component			
No.	Title	Credit	Hrs/ Week	No.	Title	Credit	Hrs/ Week
EN1211	Writing and Presentation skills	4	4	VS 322	Animation software	4	4
VS 321	Environmental Studies	4	4	VS 323	Network & Internet Applications	4	4
MM1131.9	Mathematics I	4	4	VS 324	C Programming	4	4
				VS 325	C PgmingLab	3	3
				VS 326	Animations Lab	3	3
	Total	**12**	**12**		**Total**	**18**	**18**

Semester III

General Education				Skill Component			
No.	Title	Credit	Hrs/ Week	No.	Title	Credit	Hrs/ Week
VS 331	Business Statistics	4	4	VS 334	Web application & development	4	4
VS 332	System Analysis & Design	4	4	VS 335	Computer H/W & Maintenance	4	4
VS 333	Management Information Systems	4	4	VS 336	Operating Systems	4	4
				VS 337	Web Development Lab	3	3
				VS 338	Computer Hardware Lab	3	3
	Total	**12**	**12**		**Total**	**18**	**18**

Semester IV

General Education				Skill Component			
No.	Title	Credit	Hrs/ Week	No.	Title	Credit	Hrs/ Week
MM1231.9	Mathematics II	4	4	VS 343	Network Administration	3	4
VS 341	Business Informatics	4	4	VS 344	Object Oriented Programming	3	4
VS 342	Financial Accounting	4	4	VS 345	Visual Tools	3	4
				VS 346	Visual Tools Lab	2	3
				VS 347	OOP & network Lab	3	3
				VS 348	Industrial Training	4	
	Total	**12**	**12**		**Total**	**18**	**18**

Semester V

General Education				Skill Component			
No.	Title	Credit	Hrs/ Week	No.	Title	Credit	Hrs/ Week
VS 351	Introduction to information security	4	4	VS 354	Programming in Java	4	4
VS 352	Principles of Management	4	4	VS 355	Software Testing	3	4
VS 353	Entrepreneurship Development	4	4	VS 356	Software Engineering	3	4
				VS 357	Java Lab	3	3
				VS 358	Study tour	2	
				VS 359	Major Project (Phase I)	3	3
	Total	**12**	**12**		**Total**	**18**	**18**

Semester VI

General Education				Skill Component			
No.	Title	Credit	Hrs/ Week	No.	Title	Credit	Hrs/ Week
VS 361	Human Resource Development	4	4	VS 364	Mobile Application Development	4	4
VS 362	Free and Open Source Softwares (FOSS)	4	4	VS 365	Database Administration	4	4
VS 363	IT & Society	4	4	VS 366	Advanced Java	3	4
				VS 367	Android & Java Lab	3	3
				VS 368	Major Project (Phase II)	4	3
	Total	**12**	**12**		**Total**	**18**	**18**

9. DISTRIBUTION OF MARKS

Semester	Code No	Subject	General/ Skill	Credit	Contact Hrs	Marks ESE	Marks CE	Total Marks
	EN1111	Listening and Speaking Skills in English	General	4	72	80	20	100
	VS 311	Aptitude and Logical Reasoning	General	4	72	80	20	100
	VS 312	Managerial Economics	General	4	72	80	20	100
ONE	VS 313	Introduction to IT	Skill	4	72	80	20	100
	VS 314	Programming Principles	Skill	4	72	80	20	100
	VS 315	Word processing and Image Editing	Skill	4	72	80	20	100
	VS 316	Photoshop Lab	Skill	3	54	80	20	100
	VS 317	Page Maker Lab	Skill	3	54	80	20	100
	EN	Writing and Presentation	General	4	72	80	20	100

Two	1211	Skills in English						
	VS 321	Environmental studies	General	4	72	80	20	100
	MM113 1.9	Mathematics I	General	4	72	80	20	100
	VS 322	Animation Softwares	Skill	4	72	80	20	100
TWO	VS 323	Network & Internet Applications	Skill	4	72	80	20	100
	VS 324	C Programming	Skill	4	72	80	20	100
	VS 325	*C* programmingLab	Skill	3	54	80	20	100
	VS 326	Animations Lab	Skill	3	54	80	20	100
Three	VS 331	Business Statistics	General	4	72	80	20	100
	VS 332	System analysis and Design	General	4	72	80	20	100
	VS 333	Management Information system	General	4	72	80	20	100
THREE	VS 334	Web Application & Development	Skill	4	72	80	20	100
	VS 335	Computer HW & Maintenance	Skill	4	72	80	20	100
	VS 336	Operating System	Skill	4	72	80	20	100
	VS 337	Web Development Lab	Skill	3	54	80	20	100
	VS 338	Computer hardware Lab	Skill	3	54	80	20	100
Four	MM123 1.9	Mathematics II	General	4	72	80	20	100
	VS 341	Business Informatics	General	4	72	80	20	100
	VS 342	Financial Accounting	General	4	72	80	20	100
	VS 343	Network Administration	Skill	3	54	80	20	100
	VS 344	Object Oriented Programming	Skill	3	54	80	20	100
	VS 345	Visual Tools	Skill	3	54	80	20	100
	VS 346	Visual Tools Lab	Skill	2	36	80	20	100
	VS 347	OOP& Network Lab	Skill	3	54	80	20	100
	VS 348	Industrial Training	Skill	4				

Five	VS 351	Introduction to Information Security	General	4	72	80	20	100
FIVE	VS 352	Principles of Management	General	4	72	80	20	100
	VS 353	Entrepreneurship Development	General	4	72	80	20	100
	VS 354	Programming in Java	Skill	3	54	80	20	100
	VS 355	Software Testing	Skill	3	54	80	20	100
	VS 356	Software Engineering	Skill	3	54	80	20	100
	VS 357	Java Lab	Skill	3	54	80	20	100
	VS 358	Study Tour	Skill	2				
	VS 359	Major Project (Phase I)	Skill	3	54		100	100
SIX	VS 361	Human Resource development	General	4	72	80	20	100
	VS 362	Free and Open Source Softwares (FOSS)	General	4	72	80	20	100
	VS 363	IT & Society	General	4	72	80	20	100
	VS 364	Mobile Application development	Skill	4	72	80	20	100
	VS 365	Database Administration	Skill	4	72	80	20	100
	VS 366	Advanced JAVA	Skill	3	54	80	20	100
	VS 367	Android & Java Lab	Skill	3	54	80	20	100
	VS 368	Major Project (Phase II)	Skill	4	72	240	60	300
		TOTAL MARKS		180		3920	1080	5000

10. SOCIAL SERVICE/ EXTENSION ACTIVITIES

Students are to participate in Extension/ NSS/ NCC or other specified social service, sports, literary and cultural activities during 3_{rd}/ 4_{th} semester. These activities have to be carried out outside the instructional hours and will fetch the required one credit extra over and above the minimum prescribed180 credits.

11. ATTENDANCE

The minimum number of hours of lectures, tutorials, seminars, or practicals which a student shall be required to attend for eligibility to appear at the end semester examination shall not

be less than 75 per cent of the total number of lectures, tutorials, seminars or practical sessions. Internships, study tours and soft skill and personality development programmes are part of the course and students must attend in these activities to complete a semester.

12. EVALUATION

There shall be Continuous Evaluation (CE) and End Semester Evaluation (ESE) for B. Voc (Software Development) course. CE is based on specific components viz., attendance, tests, assignments and seminars. The CE shall carry a weightage of 20 Per cent and ESE shall carry a weightage of 80 per cent. The weightage of each component of CE shall be: Attendance – 1, assignment / seminar – 1 and test papers -2. The teacher shall define the expected quality of an assignment in terms of structure, content, presentation etc. and inform the same to the students. Due weight may be given for punctuality in submission. Seminar shall be graded in terms of structure, content, presentation, interaction etc.The allotment of grade for attendance shall be as follows:

Attendance less than 75%	- E Grade
75 % & less than 80 %	- D Grade
80 % & less than85%	- C Grade
85 % & less than 90%	- B Grade
90 % & above	- A Grade

13. ASSIGNMENTS/ SEMINARS

Each student shall be required to do one assignment or one seminar for each course. The seminars shall be organized by the teacher / teachers in charge of CE and the same shall be assessed by a group of teachers including the teacher / teachers in charge of that course.

14. TESTS

For each course there shall be at least two class tests during a semester. Grades for the test component in CE shall be awarded on the basis of the grades secured for the better of the two class tests. Valued answer scripts shall be made available to the students for perusal within 20 days from the date of the test.

15. END SEMESTER EVALUATION (ESE)

End Semester Examination of all the courses in all semesters shall be conducted .The duration of examination of all courses shall be 3 hours.

16. EVALUATION OF PROJECT

The report of the project shall be submitted to the Department in duplicate before the completion of the sixth semester. There shall be no CE for project work. A Board of two

examiners appointed by the University shall evaluate the report of the project work. The viva – voce based on the project report shall be conducted individually.

17. GRADING

Both CE and ESE will be carried out using direct grading system on a 5 point scale and the grades are given below:

18. LETTER GRADE PERFORMANCE

A - Excellent

B - Very Good

C - Good

D - Average

E - Below Average

19. PROMOTION TO HIGHER SEMESTERS

Students who complete the semester by securing the minimum required attendance and by registering for the End Semester Examination of each semester conducted by the University alone shall be promoted to the next higher semester.

20. SYLLABUS

EN 1111: LISTENING AND SPEAKING SKILLS

No. of credits: 4 **No. of instructional hours: 4 per week**

AIMS

1. To familiarize students with English sounds and phonemic symbols.
2. To enhance their ability in listening and speaking.

OBJECTIVES

On completion of the course, the students should be able to

1. listen to lectures, public announcements and news on TV and radio.
2. engage in telephonic conversation.
3. communicate effectively and accurately in English.
4. use spoken language for various purposes.

COURSE OUTLINE

Module 1

Pronunciation

Phonemic symbols – consonants – vowels – syllables - word stress - strong and weak forms- intonation.

Module 2

Listening Skills

Difference between listening and hearing – active listening –barriers to listening – academic listening - listening for details - listening and note-taking - listening for sound contents of videos - listening to talks and descriptions - listening for meaning - listening to announcements - listening to news programmes.

Module 3

Speaking Skills

Interactive nature of communication - importance of context - formal and informal - set expressions in different situations –greeting – introducing - making requests - asking for / giving permission - giving instructions and directions – agreeing / disagreeing – seeking and giving advice - inviting and apologizing telephonic skills - conversational manners.

Module 4

Dialogue Practice

(Students should be given ample practice in dialogue, using core and supplementary materials.

COURSE MATERIAL

Modules 1 – 3

Core reading:*English for Effective Communication*. Oxford University Press, 2013.

Further reading:

1. Marks, Jonathan. *English Pronunciation in Use*. New Delhi: CUP, 2007.

2. Lynch, Tony. *Study Listening.*New Delhi:CUP, 2008.

3. Kenneth, Anderson, Tony Lynch, Joan MacLean. *Study Speaking*. New Delhi: CUP, 2008.

Reference:

Jones, Daniel. *English Pronouncing Dictionary* 17th Edition. New Delhi: CUP, 2009.

Module 4:

Core reading: *Dramatic Moments: A Book of One Act Plays.* Orient Black Swan, 2013.

The following One-act plays prescribed:

1. Serafin and Joaquin Alvarez Quinters - A *Sunny Morning*
2. H.H.Munro - *The Death Trap*
3. Vincent Godefroy - *Fail Not Our Feast*

Language Course - LISTENING AND SPEAKING SKILLS: EN 1111

Time: Three hours **Maximum Marks: 80**

END SEMESTER EVALUATION

External written exam to be conducted by the University

I. Very short answer type

10 questions covering all the four modules.

Answer all the questions.

Each question to be answered in a word or a sentence Mark distribution: 10 x 1 = 10

II. Short answers

8 questions out of 12 - the questions will be based on all the four modules. Eachquestion to be answered in a short paragraph not exceeding 50 words Mark distribution: 8 x 2 = 16

III. Short essays or paragraphs

6 questions out of 9 - the questions will be based on all the four modules. Each question to be answered in a paragraph not exceeding 100 words Mark distribution: 6 x 4 = 24

IV. Long essays

2 questions out of 4 - The essays will be based on all the four modules. Each question to be answered in about 3 pages Mark distribution: 2 x 15 = 30

Model Question Paper

Time: Three hours **Maximum Marks: 80**

I. <u>Answer all questions</u>, each in a word or a sentence

1. Which sound is common to the following words: “home”, “soap”, “shoulder” and “social”?
2. Which of the following is a verb: ‘subject’, ‘apple’, ‘child’, ‘produce’?
3. Which of the following has the vowel ‘u’ - ‘wool’, ‘womb’, ‘zoom’, ‘swoon’?
4. How is the word ‘heart’ pronounced?
5. How is the word ‘debut’ pronounced?
6. How many syllables are there in the word ‘communication’?
7. In which play does the character Analytikos appear?
8. Which play is identified by the sub-title “A Comedy of Madrid in One Act”?
9. Name the reigning prince of Kedaria, the central character in Munro’s play.
10. Identify the source of the title of Vincent Godefroy’s play “Fail Not Our Feast”.

(10 x 1 = 10 marks)

II. Answer **any eight**, each in a short paragraph not exceeding 50 words

11. Divide any eight of the following words into syllables:

achievement, laudable, constitutional, reproductive, improbability, journalism, enthusiasm, mandatory, conspiracy, elementary

12. Give the orthographical version of the following transcribed words

/□g□zæm□□ne□□a n/, /□fi□l□ŋ/, /□na□n□ti □n/, /a□d□enda/, /□kri□t□ar /

/□kæ□jual/, /□næ□nal/, /□□n.jan/

13. Transcribe the following words in phonetic script marking word stress:

Accommodate, coincidence, bridegroom, frequency, eradicate, dependent, respectful, secretariat.

14. Mark the stress in the following sentences:

a. How do you spell it?

b. Don‘t worry if you make a mistake.

15. Underline words which are weakened in speech in the following sentence:

I haven‘t got a car of my own, but sometimes I borrow one from a friend and drive to see my brother and sister-in-law.

16. Mark intonation in the following questions.

a. Are we late?

b. Who would like some ice cream?

17. Mark intonation in the following statements.

a. I am easily satisfied with the very best.

b. You are coming.

18. The friendship between Joan, Matilda and Nora.

19. The news conveyed by the police to Joan.

20. The reason for Don Gonzalo’s ill temper at the beginning of the play.

21. Dr.Stronetz in the “The Death Trap”

22. Why do the assassins decide not to kill Prince Dimitri?

(8 x 2 = 16 marks)

III. Answer **any six,** each in a paragraph not exceeding 100 words

23. Mark the primary stress in eight of the following words

adverb, atomic, banana, collector, designer, distinction, intensity, melody, police, provide, savage, undertake, university, yesterday, zenith.

24. Transcribe eight of the following in phonetic script:

ability, beautiful, calm, capable, development, easy, general, harm, important, juice, know,

music, real, share, urgent, zero.

25. Prepare a speech to be delivered on the Human Rights Day in about 150 words.

26. What is the difference between active and passive listening? (Answer in about 100 words).

27. Why is English called an unphonetic language?

28. The role of Mason in "Fail Not Our Feast".

29. Irony in "Fail Not Our Feast".

30. Dona Laura's narration of the story of her death.

31. Dr.Stronetz's role in "The Death Trap".

(6 x 4 = 24 marks)

IV. Answer **any two**, each in about three hundred words:

32. Narrate the story of Gonzalo and Laura, bringing out the elements of humour.

33. Analyse the relevance of the title of the play 'The Death Trap".

34. Write dialogues on the following topics, each in about 80 words:

a. An accidental meeting of two old friends at the railway station.

b.You want to visit New Delhi. Make a telephonic enquiry about the availability of a berth on the train.

c. You are a new comer on the campus. You want to find out more about private accommodation on the neighbourhood. Compose a dialogue between you and your friends on the topic.

d. Compose a dialogue between you and a stranger you met at the bus stop. How will you help him reach his destination?

35. a. Conduct a group discussion on 'Global Warming' with four participants.

b. Read the short lecture below on computers and take down the notes.

With a computer connected to the internet, you can send electronic messages to other users (this is called e-mail)' hold electronic conversations, transfer computer files, or find information on thousands of different subjects. In the modern times internet is also used for buying and selling goods. This is known as 'e-commerce' or 'e-com' in short. More and more banks and financial institutions are encouraging their customers to do all their transactions through the internet. It is also possible to book tickets for travel to different parts of the country through the internet. The number of people connected to the internet and the volume of information going through it is increasing. It

brings about a change, people begin to work from home, order shopping, visit library, choose and watch videos, all through the net.

(2 x 15 = 30 marks)

VS 311 APTITUDE& LOGICAL REASONING

1. AIM

To impart students with logical skills to solve problems easily

2. OBJECTIVES

At the end of the course the students will be able to

- Interpret different data
- Establish relationship between numbers
- Solve different logical problems

3. SYLLABUS

Module I: Data sufficiency, Measurement, Time and distance, Arithmetic, Relationship between numbers

Module II: Basic mathematical relations and formula, Computation, Data interpretation

Module III: Differences, Discrimination, Decision-making, Judgment, Problem-solving, Analogies, Analysis

Module IV: Arithmetic reasoning, Relationship concept, Arithmetic number series, Similarities, Verbal and figure classification, Space visualization, Observation

4. REFERENCES

- How to Prepare for Logical Reasoning for the CATby Arun Sharma
- Logical and Analytical Reasoningby A.K. Gupta

VS 312 MANAGERIAL ECONOMICS

1. SYLLABUS

Module I: Introduction – Economics – Macro and Micro economics, managerial economics – distinction between managerial economics and traditional economics – characteristics of managerial economics – scope of managerial economics – Application of economic theories in business decisions.

Module II: Demand Estimation – Demand– Law of Demand, Determinants of demand, types of demand, elasticity of demand – price – income – advertisement & cross elasticity – uses – measurement. Demand forecasting – short term and Long term forecasting – methods of forecasting – forecasting the demand for new products.

ModuleIII : Theory of Production – Production function – Cobb Douglas Production function – Laws of production–Law of Diminishing Returns–Law of returns to scale–Economies and diseconomies of scale–Isoquant curve – Iso cost curve–optimum combination of inputs.

Module IV: Market &Pricing Policy – Different types of markets, Pricing objectives – role of cost in pricing – demand factor in pricing – factors to be considered when formulating a pricing policy – cost plus pricing –marginal cost pricing – going rate pricing – Breakeven point pricing –Product Line pricing – Pricing of a new product – Pricing over the life cycle of a product.

Module V: Business Cycles – Introduction – phases of a business cycle – causes and indicators – Theories of business cycles – control of business cycles.

2. REFERENCES

1. Maheswari.K.L andVarshney. Managerial Economics,Sultan Chand &Sons, New Delhi.

2. Mote V.L, Samuel Paul and Gupta G.S. Managerial Economics, Tata McGraw-Hill Publishing Co. Ltd., New Delhi.

3. Gupta G.S. Managerial Economics, Tata McGraw-Hill Publishing Co. Ltd. New Delhi.

4. Dwivedi N.D. Managerial Economics, Vikas Publishing House, New Delhi.

5. Reddy P.N and Appanniah. H.R. Principles of Business Economics, S. Chand &Co. Ltd. New Delhi.

VS 313 INTRODUCTION TO IT

1. AIM:

- To create overall generic awareness about scope of the field of IT and to impart basic personal computing skills.
- To create background knowledge for the various courses in the programme.

2. OBJECTIVES:

- ✓ To introduce the basic terminology in the field of IT
- ✓ To impart functional knowledge about PC hardware, operations and concepts
- ✓ To impart functional knowledge in the use of GUI Operating System
- ✓ To impart functional knowledge in a standard office package (word processor, spread sheet and presentation softwares) and popular utilities

- ✓ To impart functional knowledge about networks and internet.
- ✓ To give an overview of computer application in various fields and an overall generic awareness about the scope of the field of IT

3. SYLLABUS

Module–I:Computer characteristics: Speed, storage, accuracy, diligence; Digital signals, Binary System, ASCII; Historic Evolution of Computers; Classification of computers: Microcomputer, Minicomputer, mainframes, Supercomputers; Personal computers: Desktop, Laptops, Palmtop, Tablet PC; Hardware & Software; Von Neumann model.

Module–II:Hardware: CPU, Memory, Input devices, output devices. Memory units: RAM (SDRAM, DDR RAM, RDRAM etc. feature wise comparison only); ROM-different types: Flash memory; Auxiliary storage: Magnetic devices, Optical Devices; Floppy, Hard disk, Memory stick, CD, DVD, CD-Writer; Input devices - keyboard, mouse, scanner, speech input devices, digital camera, Touch screen, Joystick, Optical readers, bar code reader; Output devices: Display device, size and resolution; CRT, LCD; Printers: Dot-matrix, Inkjet, Laser; Plotters, Sound cards & speaker.

Module-III:Software- System software, Application software; concepts of files and folders, Introduction to Operating systems, Different types of operating systems: single user, multitasking, time-sharing multi-user; Booting, POST; Basic features of two GUI operating systems: Windows & Linux (Basic desk top management); Programming Languages, Compiler, Interpreter, Databases; Application softwares: Generic Features of Word processors, Spread sheets and Presentation softwares; Generic Introduction to Latex for scientific typesetting; Utilities and their use; Computer Viruses & Protection, Free software, open source.

Module–IV:Computer Networks- Connecting computers, Requirements for a network: Server, Workstation, switch, router, network operating systems; Internet: brief history, World Wide Web, Websites, URL, browsers, search engines, search tips; Internet connections: ISP, Dial-up, cable modem, WLL, DSL, leased line; email, email software features (send receive, filter, attach, forward, copy, blind copy); characteristics of web-based systems, Web pages, introduction to HTML.

4. REFERENCES

4.1 Core

- ❖ E. Balaguruswamy, *Fundamentals of Computers*, McGraw hill, 2014

4.2 Additional

- Dennis P Curtain, *Information Technology: The Breaking wave*, McGrawhill, 2014
- Peter Norton, *Introduction to Computers*, McGrawhill, Seventh edition

VS 314 PROGRAMMING PRINCIPLES

1. AIM

- To give an awareness about the background knowledge required for problem solving

2. OBJECTIVES

At the end of the course the students will be able to

- Explain problem solving steps
- Develop algorithm for different problems
- Draw flow chart
- Analyse algorithms

3. SYLLABUS

Module1: Problem Solving and the Computer: Problem Definition, Solution Design, Solution Refinement, Testing Strategy Development, Program Coding and Testing, Documentation Completion, Program Maintenance.

Module II: Software and Types of Software, Programming Languages- Machine Language, AssemblyLanguage, High Level Language, Object Oriented Language and its features.

ModuleIII: Algorithms and Their Representations, Flow charts, Pseudo code, Types of Programming, Languages, Structured Programming, Different approaches of Programming: Top-down and Bottom-up, Life Cycles Stages of Programming, Features of a good computer program.

Module IV: Areas of algorithm study, performance analysis – space complexity, time complexity, asymptotic notations (O, Ω, θ).

4. REFERENCES:

- Computer Fundamentals By P K Sinha&PritiSinha Fourth Edition.
- Ellis Horowitz, SartajSahni, SanguthevanRajasekharan

VS 315 WORD PROCESSING & IMAGE EDITING

1. AIM

- To create knowledge of word processing, power point, flash and photoshop

2. OBJECTIVES

At the end of the course the students will be able to

- Prepare office document
- Create presentation
- Design multimedia presentation
- Edit images

3. SYLLABUS

Module1: Wordprocessing: Word processing concepts, Editing, Formatting Text, Table Manipulation, Indexing, Mail merge, Documentation, Inserting Word Art, Inserting Picture and clip Arts, Auto formatting, Tools, Macros

Module II: Power Point: Beginning a presentation, Templates and Slide Master, Drawing Tools, ClipArt and WordArt, Organization Charts, Graph, Output and Presentation Options, Integrating with Animation and Multimedia packages.

Module III: Flash : Introduction, Drawing, Working with Colour, Using Imported Artwork, Adding Sound, Working with Objects, Using Layers, Using Type, Using Symbols and Instances, Creating Animation, Creating interactive movies, Creating Printable movies, Publishing and Exporting.

Module IV:Photoshop: Getting image into Photoshop, Selecting, Transforming and Retouching, Drawing, Painting, Applying Filters for special effects, Designing Web pages, Creating Rollovers and Animations, Preparing Graphics for the Web, Saving and exporting images.

CORE

1. *Microsoft® Office Word 2003*, Online Training Solutions Inc.
2. *PowerPoint 2003 Essential Training*,David Rivers
3. *Flash CS3 Professional for Windows and Macintosh*,Katherine Ulrich

Reference Books:

1. *Exploring Microsoft Word 2003 Comprehensive*, Robert T. Grauer and Maryann Barber
2. *Microsoft® Office PowerPoint® 2003*, Online Training Solutions Inc.
3. *Adobe Flash CS3 Professional Hands-On Training*, Todd Perkins

VS 316 PHOTOSHOP LAB

Students should provide hands-on knowledge with the Pagemaker software for preparing documents with the knowledge they acquired through module 1 of the paper VS 315

VS 317 PAGEMAKER LAB

Students should provide hands-on knowledge with the Photoshop software for editing images with the knowledge they acquired through module 4 of the paper VS 315

EN 1211: WRITING AND PRESENTATION SKILLS

No. of credits: 4 **No. of instructional hours: 4 per week**

AIMS

1. To familiarize students with different modes of general and academic writing.
2. To help them master writing techniques to meet academic and professional needs.
3. To introduce them to the basics of academic presentation
4. To sharpen their accuracy in writing.

OBJECTIVES

On completion of the course, the students should be able to

1. understand the mechanism of general and academic writing.
2. recognize the different modes of writing.
3. improve their reference skills, take notes, refer and document data and materials.
4. prepare and present seminar papers and project reports effectively.

COURSE OUTLINE

Module 1

Writing as a skill – its importance – mechanism of writing – words and sentences - paragraph as a unit of structuring a whole text – combining different sources – functional use of writing – personal, academic and business writing – creative use of writing.

Module 2

Writing process - planning a text – finding materials - drafting – revising – editing - finalizing the draft - computer as an aid – key board skills - word processing - desk top publishing.

Module 3

Writing models – essay - précis - expansion of ideas – dialogue - letter writing – personal letters formal letters - CV – surveys – questionnaire - e-mail – fax - job application - report writing.

Module 4

Presentation as a skill - elements of presentation strategies – audience – objectives – medium – key ideas -structuring the material - organizing content - audio-visual aids – handouts - use of power point - clarity of presentation - non-verbal communication - seminar paper presentation and discussion.

COURSE MATERIAL

Modules 1 – 4

Core reading: *English for Effective Communication*. Oxford University Press, 2013.

Further reading:

1. Robert, Barraas. *Students Must Write*. London: Routledge, 2006.
2. Bailey, Stephen. *Academic Writing.*Routledge, 2006.
3. Hamp-Lyons, Liz, Ben Heasley. *Study Writing.*2nd Edition.Cambridge UtyPress, 2008.
4. Ilona, Leki. *Academic Writing*.CUP, 1998.
5. McCarter, Sam, Norman Whitby. *Writing Skills.*Macmillan India, 2009.
6. Jay. *Effective Presentation*. New Delhi: Pearson, 2009.

Reference:

Mayor, Michael, et al, Ed. *Longman Dictionary of Contemporary English.*5th Edition. London: Pearson Longman Ltd, 2009.

SCHEME OF EVALUATION

The examination contains four types of questions:

I. Very short answer type.10 questions.

Questions 1-5 intended to test the students' ability to spot grammatical errors and questions 6-10, to test the students' knowledge of synonyms of common words.

Mark distribution: 10 x 1 = 10 marks

II. Short answers

8 questions out of 12 from all the four Modules

Each question to be answered in a short paragraph not exceeding 50 words

The questions are meant to examine students' understanding of writing and presentation skills. There will be ten questions on writing skills and two questions on presentation skills.

Mark distribution: 8 x 2 = 16 marks

III. Short essays or paragraphs

6 questions out of 9 from all the four Modules.

Each question to be answered in a paragraph not exceeding 100 words.

The questions will cover the following topics:

1. One personal/business letter.
2. One pre'cis.

3. One dialogue writing.
4. Survey questionnaire.
5. Newspaper Report writing.
6. Writing an email
7. One question testing the theoretical knowledge on any of the writing models.
8. Two questions on presentation skills to check the theoretical knowledge.

Mark distribution: 6 x 4 = 24 marks

IV. Long essays.

2 questions out of 4 from all the three/four Modules.

Each question to be answered in about 3 pages.

The questions will cover the following areas/topics:

1. A topic of general nature for writing an essay in about 300 words.
2. A topic of general nature for writing a report in about 300 words**.**
3. One topic of general nature and interest for the students to create content for 15-20 slides in crisp language and proper sequence for Power Point Presentation**.**
4. Preparation of a CV with the cover letter.

Mark distribution: 2 x 15 = 30 marks

NB:

The questions are intended to check spelling grammar, plan and coherence and above all the individual/distinctive writing style.

Focus should be more on manner than on matter.

Model Question Paper

Time: Three hours **Maximum Marks: 80**

I. Answer all questions.

A. Rewrite the following sentences, correcting the errors if any.

1. Twenty miles are really along distance to walk.
2. **We will discuss the matter when you will come tomorrow.**
3. Study hard lest you will fail.
4. ***For a whole week Loretta came to class on everyday with her hair a different colour.***
5. ***I am having two cars.***

B. Write one synonym each for the following words.

6. Courteous
7. Abundant

8. Magnanimous
9. Authentic
10. Beautiful

(10 x 1 = 10 marks)

II. Answer **any eight**, each in a short paragraph not exceeding 50 words

11. What is the difference between a précis and a summary?
12. What is a memo report?
13. Write any two points that should be kept in mind while preparing slides for a presentation.
14. Name any four types of business letters.
15. Write four important differences between spoken and written communication?
16. What are the mechanics of writing?
17. What is the difference between formal letters and informal letters?
18. Briefly mention the advantages of editing a text.
19. What is the etiquette regarding forwarding emails?
20. What is the role of non-verbal communication in professional presentations?
21. Give two examples of complimentary closes used in formal letters.
22. What are the features of a functional resume?

(8 x 2 = 16 marks)

III. Answer**any six,** each in a paragraph not exceeding 100 words

23. Write a letter to your friend abroad highlighting the tourist centres of your district.
24. Write a pre'cis of the following passage reducing it to one third of its length.

Though Tagore was essentially a poet, he was more than a mere poet as Gandhi was more than a mere politician. His genius enriched whatever it touched. Like the sun after which he was named (Rabi means the Sun) he shed light and warmth on his age, vitalised the mental and moral soil of his land, revealed unknown horizons of thought and spanned the arch that divides the East from the West. The vitality of his genius is truly amazing. No less amazing are the variety and beauty of the literary forms he created. He gave to his people in one life time what other peoples have taken centuries to evolve – a language capable of expressing the finest modulations of thought and feeling, a literature worthy to be taught in any university in the world. There was no field of literary activity which was not explored and enriched by his daring adventures, and many of these were virgin fields in Bengali which his hands were the first to stir into fruitfulness. He is one of the world's five writers whose works withstand the challenge of the severest tests of modern times.

25. Anishi's parents are working abroad. Anish is working in Bangalore. Now they discuss where to settle down. Write a conversation among them in about 80 words.

26. Prepare a questionnaire for conducting a survey on the rising number of suicides is your locality.
27. You are the reporter of 'The Hindu'. Prepare a report of the flower show recently conducted by the horticultural society in your Panchayath.
28. What are the 'dos and don'ts' one should keep in mind while composing an email?
29. How will you manage your stage fright during a presentation?
30. What are the common pitfalls encountered while making group presentations?
31. Write an email to your boss congratulating him on being promoted.

(6 x 4 = 24 marks)

IV. Answer **any two**, each in about three hundred words:

32. Write an essay on "Corruption in Government" in about 300 words.
33. You are the Secretary of the Music Club of your college. Prepare a report to be submitted to your Principal, apprising him of the activities of the Club.
34. Create content for 15 – 20 slides on "The Festival of Onam".
35. Your name is Karthik and you are a Postgraduate degree holder. You are applying for the post of Marketing Manager in a textile company. Prepare a CV and a covering letter that you will send to your prospective employer.

(2 x 15 = 30 marks)

VS 321 ENVIRONMENTAL STUDIES

1. AIMS:

To create better understanding about the deteriorating condition of our environment among students

2. OBJECTIVES:

On completion this course, student should:

- *Have better awareness and concern about current environmental issues*
- *Develop a healthy respect and sensitivity to environment*
- *Develop pride in social and environmental activism.*

3. SYLLABUS

Module–I: The Multi-disciplinary Nature of Environmental Studies: Definition, scope and importance, Need for Public Awareness, Ecology and Ecosystems: Definition of Ecology, Structure and function of an ecosystem, Producers, Consumers and Decomposers, Energy flow in the ecosystem, Ecological succession, Food chains, food webs and ecological pyramids, Introduction, types, characteristics features and function of – forest ecosystem, grassland ecosystem, desert ecosystem, aquatic ecosystem(ponds, streams, lakes, rivers, oceans, estuaries)

Module-II: Biodiversity and its conservation: Introduction, genetic, species and ecosystem diversity definition, value of biodiversity, biodiversity at global, national and local levels, India as a mega diversity nation, hot spots of biodiversity, threats to biodiversity – habitat lose, poaching of wild life, man wild life conflicts, endangered and endemic species of India, conservation of bio diversity in in-situ EX-situ

Module-III Natural Resources: Air resources-features, composition, structure, air quality management, forest resources-, water resources, mineral resources, food resources, energy resources, land resources, Environmental pollution: definition, air pollution, water pollution, marine pollution, thermal pollution, soil pollution, noise pollution, nuclear hazards, waste management, cleaner technologies, reuse and recycling, solid waste management, role of individuals to prevent pollution, pollution case studies, disaster management – floods, earthquake, cyclone and landslides

Module –IV: Social issues and the environment: From unsustainable to sustainable development, urban problems related to energy, water conservation, rain water harvesting, water shed management, resettlement and rehabilitation of people- it's problems and concerns, case studies, environmental ethics- environmental value relation ships, environmental ethics and species preservation, climate change, global warming, acid rain, Ozone layer depletion, nuclear accidents and holocaust, case studies, waste land reclamation, consumerism and waste products, legislation to protect the environment, environmental protection act, dir(prevention and control of pollution) act, water(prevention and control of pollution) act, wild life protection act, forest conservation act, environmental management systems(EMS), environmental information systems(EIS), P.I.L public hearing and role of NGOS, ISO 9000 and 14000, issues involved in enforcement of environment legislation, public awareness, environmental economics-environment and standard of living

4. Readings

- Kiran B Chokkas and others : "Understanding Environment", Sage 2004
- P. VenugopalaRao, Environmental Science & Engineering, PHI
- Benny Joseph: Environmental Studies, Tata McGraw Hill
- Lester R Brown, Plan B: rescuing a Planet under stress and a civilization in trouble, Orient LongmanKurien Joseph & R Nagendran, Essentials of Environmental Studies, Pearson

MM1131.9 MATHEMATICS I

1. SYLLABUS

Module–I: Review of basic differentiation, Differentiation of hyperbolic functions, derivatives of hyperbolic functions, inverse hyperbolic functions logarithmic differentiation, implicit differentiation, Lebnitz's theorem, Mean value theorem, Rolle's theorem, Lagrange's mean-value theorem, Maxima and minima.

Module–II: Differential equations, General Concepts, Formulation and solution of differential equations, solution of higher order linear DEs. Partial Des**,** Laplace and Inverse Laplace transforms.

Module–III: Theory of Numbers, prime numbers, Unique factorization theorem, Euclidean algorithm, congruences, Fermat's theorem, Wilson's theorem.

Module–IV: Complex Numbers, Separation into real and imaginary parts, Complex mapping

Module V: Miscellaneous Topics: Markov processes. Harmonic analysis and Fourier series, Linear Programming

2. REFERENCES

2.1 Core

- Erwin Kreyzig*Advanced Engineering Mathematics*, New Age International Pvt Ltd.
- Shanthi Narayan, *Differential Calculus*, S Chand & Company
- ZafarAhsan, *Differential Equations and their applications*.
- RudraPratap, *Getting Started with MATLAB*, Oxford University Press

VS 322 ANIMATION SOFTWARES

1. AIM

- To create skills in animation

2. OBJECTIVES

At the end of the course the students will be able to

- Create objects using 3DMax
- Perform animation
- Add special effects

3. SYLLABUS

Module 1: Introduction to 3D Max, Creating objects, Selecting objects, Transforming objects

Module 2: Animation, Modifying objects and Editing Objects

Module 3: Compound objects, Cameras, Lights

Module 4: Maps and Material, Rendering and Special Effects

4. REFERENCE

- 3D Studio MAX® R3 Bibleby Kelly L. Murdock
- 3D Studio MAX in Motion: Basics Using 3D Studio MAX 4.2by Stephen J. Ethier and Christine A. Ethier

VS 323 COMPUTER NETWORKS AND INTERNET APPLICATIONS-

1. AIM

- To create an awareness of internet and different tools used

2. OBJECTIVES

At the end of the course the students will be able to

- Explain different components for internet
- Discuss different applications of it

3. SYLLABUS

Module-I: Computer Network: Introduction, Uses of computer networks, Networks Hardware, LAN,MAN, WAN, Protocol hierarchies, OSI Model, TCP/IP reference model.

Module-II: History of internet, The early years, The global Internet, A global information infrastructure, Review of packet switching and its relevance to the internet, Incompatible topologies, Routers, Dial-up access, Software to create a virtual network, Datagrams, IP address.

Transmission Control Protocol (TCP) :Software for reliable communication, Guaranteed delivery, Recovering the datagrams, Automatic retransmission, Brief discussion on distributed computing, Domain names, Names and IP address, TCP/IP, Flexibility, Reliability and efficiency.

Module III: Electronic mail, Mail box, Sending, Notification, Reading, How it works, Address format, E-mail to and from non-Internet sites, Access to service via E-mail, Speed and reliability, Impact and significance, Joining a mailing list.Bulletin Board Services (BBS), Network norms, News group, Selection, Subscription, Reading, submitting, article, How BBS woksFile Transfer Protocol (FTP) Store/ retrieve, Binary and text files, How FTP works, Impact and significance, Remote login, How it works, TELNET

Module-IV: Browsing the World Wide Web (WWW), How a browser works, Software used to access, URLs, Browser. WWW documents, HTML, Web page design with HTML, Features and importance of HTML.Advanced WEB technologies, CGI, How it works. CGI

and advertising Search engines, Browsing, Searching, and Search tool, Advanced search engines, Examples of search engines.

Text:

1. Ferozan. Intruduction to Data Communication & Networking, TMH.

2. Leon and Leon, Internet For Everyone, LeonTechworld, Chennai

References:

1. Douglas E Comer, The Internet Book, 2nd Edition, Prentice Hall of India.

2. Nancy Cadeno, The Internet Tool Kit, BPB Publications.

3. Christian Crumlish, ABC's of the Internet, 2nd Edition, BPB Publications

4. Patrick Naugton, Java Hand Book, Tata McGraw Hill

VS 324C PROGRAMMING

1. AIM:

- ➢ To Expose students to algorithmic thinking and problem solving and impart moderate skills in programming in a industry-standard programming language

2. OBJECTIVES:

- ✓ To expose students to algorithmic thinking and algorithmic representations
- ✓ To introduce students to basic data types and control structures in C.
- ✓ To introduce students to structured programming concepts
- ✓ To introduce students to standard library functions in C language

3. SYLLABUS

Module–I: Introduction to programming: Character set, Variables and Constants, Rules for naming the Variables/Identifiers; Basic data types of C, int, char, float, double; storage capacity – range of all the data types; Storage classes;

Module-II: Basic Elements: Operators and Expressions: Assignment Operator, Arithmetic Operator and Arithmetic expression, Relational Operator and Relational exp., Logical Operator and how it is used in condition, Expression Evaluation (Precedence of Operators); simple I/O statements, Control structures, if, if else, switch-case, for, while, do-while, break, continue.Arrays, Defining simple arrays, Multi-dimensional arrays, declaration, initialization and processing;

Module-III: Functions & Pointers: concept of modular programming, Library, User defined functions, declaration, definition & scope, recursion, Pointers: The & and * Operators, pointer

declaration, assignment and arithmetic, visualizing pointers, call by value, call by reference, dynamic memory allocation.

Module–IV: Advanced features: Array & pointer relationship, pointer to arrays, array of pointers. Strings: String handling functions; Structures and unions; File handling: text and binary files, file operations, Library functions for file handling, Modes of files.

4. REFERENCES

4.1 Core

- Ashok N. Kamthene, *Programming in C*, Pearson Education, Second edition
- E.Balaguruswamy, *Programming in ANSI C*, McGrawhill, Sixth Edition

VS 325C PROGRAMMING LAB

1. AIM:

- To provide an opportunity for hands-on practice of basic features of DOS, Windows, software tools(word processor, spread sheet, presentation s/w) and algorithmic thinking and problem solving in a industry standard programming language

2. OBJECTIVES:

After the completion of this course, the student should be able to:

- ✓ Create, Save, Copy, Delete, Organise various types of files and manage the desk top in general
- ✓ Use a standard word processing package Exploiting popular features
- ✓ Use a standard spread-sheet processing package Exploiting popular features
- ✓ Use a standard presentation package Exploiting popular features

Also, this course will provide hands-on practice in the following topics, under a variety of programming situations with a focus on writing, debugging and analyzing structured programs:

- ✓ basic data types in C.
- ✓ basic control structures in C.
- ✓ arrays, structures and files
- ✓ standard library functions in C language
- ✓ solving moderately complex problems involving the above and requiring selection of appropriate data structures and efficient algorithms

3. SYLLABUS

1. Familiarization of important DOS/Windows/Linux features
2. Practice on basic features of word processor, spread sheet and presentation software.

Part A

The C laboratory work will consist of 15-20 Experiments

1. Testing out and interpreting a variety of simple programs to demonstrate the syntax and use of the following features of the language: basic data types, operators and control structures.

Part II

2. 1-D Arrays: A variety of programs to declare, intitialise, read, print and process 1-D arrays of various basic data types. Processing to include, selection, sum, counting, selective sum, selective counting, reversing etc.
3. Pointers: A large number of trivial programs involving all possible data types to familiarize the syntax of pointers in a variety of situations and to draw memory diagrams based on the observations.
4. Structures: A variety of programs to declare, intitialise, read, print and process structures made up of a variety of data types and structures.
5. 2-D Arrays: A variety of programs to declare, intitialise, read, print and process 2-D arrays of various basic data types. Processing to include, selection, sum, counting, selective sum, selective counting, reversing etc.
6. Array of Structures and Structure of Arrays: Programs to demonstrate declaration and processing of structure of arrays and array of structures.
7. Pointers to Arrays: A number of programs to demonstrate handling of 1-D and 2-D arrays using pointers and to draw memory diagrams based on the observations.
8. Pointers to Structures: A number of programs to demonstrate use of pointers to structures and to draw memory diagrams based on the observations.
9. Functions –I: Simple Examples of declaring and using functions of the following categories (i) no argument, no return, (ii) argument, no return, (iii) no argument, return, (iv) argument, return, all pass by value
10. Functions –II: Declaring and using functions with pass by reference, Passing and Returning structures, Recursive functions.
11. Files: Simple Example involving use of multiple files: declaring, opening, closing, reading from and writing to text files.

12. Files: Example involving use of multiple files: declaring, opening, closing, reading from and writing to binary files.
13. Library functions: A variety of Examples demonstrating (i) string processing functions (ii) a variety of selected library functions
14. Debugging programs involving syntactic and/or logical errors

16-20: Developing programming solutions to problems including program design, algorithm development and data structure selection.

4. REFERENCES

4.1 Core

- Deitel&Deital, *C: How to Program*, Pearson Education
- Alan R Feuer, *The C Puzzle Book*, Pearson Education
- YashvantKanetkar, *Test Your C Skills*, BPB Publications, 3rd Edition

VS 326 ANIMATIONS LAB

Students should provide hands-on knowledge with the 3D Max software for creating animation with the knowledge they acquired through module 1 of the paper VS 322