Indira Gandhi National Tribal University
Amarkantak (M.P.)

New Scheme
&
Detailed Syllabus

For
B.VOC in Software Development
(To be effective from Academic Session 2019-20)

Faculty of Technical, Vocational Education & Skill Training

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

(To be effective from academic session 2019-20)

1. INTRODUCTION

Next-Generation B.VOC (Bachelor of Vocation) Course, based on the 'National Skill Qualification Framework' (NSQF) under National Skill Qualification Programme of University Grants Commission (UGC), New Delhi, approved by AICTE are offered to address the critical knowledge and skill-sets required to make the candidate 'Industry Ready' and also shape 'Young-Entrepreneurs' in the relevant sectors.

The Skill Development education will provide students with appropriate domain based technical, non-technical skill, knowledge, practice and professional attitude, so as to become work ready. The next generations B.VOC Courses which are based on skill training, therefore, provide a new direction and thrust to skill development in the various sectors which operate in globally competitive environment.

The B.Voc course focuses 60% on skill development and 40% on theoretical knowledge to help the student to acquire all the skills required for the domain and prepare them for the job market or entrepreneurial role. The course curriculum is so structured that students will able to get a job opportunity at the end of each year.

2. ELIIBILITY FOR ADMISSION

Eligibility for admissions and reservation of seats for B.Voc Software Development shall be according to the rules framed by the University from time to time. No student shall be eligible for admission to B.Voc Software Development unless he/she has successfully completed the examination conducted by a Board/ University at the +2 level of schooling or its equivalent.

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.
- There will not be provisions for improvement.
- A candidate who failed in a semester may get supplementary chances. Only failed papers are to be written in the supplementary examination.

4. CURRICULUM

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

5. 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.

6. PROGRAME STRUCTURE

The B.Voc Software Development shall include:

- Language courses (English)
- Environmental Studies
- General Education Components
- Skill Components
- Project and Industrial Training
- Soft Skills and Entrepreneurship Development Programmes.

7. 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 Training/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.

8. COURSE STRUCTURE

NSQF Level	Skill Education Credit	General Education Credit	Duration	Exit Points/ Awards
5	36	24	Two Semester/ One Year	Diploma
6	36	24	Four Semester/ Two Year	Advance Diploma
7	36	24	Sixth Semester/ Three Year	B.Voc Degree
Total	108	72		

As per the UGC guidelines, there is 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.

9. PROGRAM STRUCTURE

Scheme of Paper and Examination

I Semester

(Basics of Computer and Programming)

S. No.	Component	Paper Code	Paper Name	Lecture / Tutorial / Practical	Scheme of Exam Theory / Practical		Total Marks	Credits
					ESE	IA / Practical Exam		
1	General Education Component	SD-101	Professional Communication	4	60	40	100	4
2		SD-102	Basics of Computer Hardware & Software	4	60	40	100	4
3		SD-103	Programming Designing With C	4	60	40	100	4
4	Skill Education Component	SDL-104	Professional Communication Lab	4	-	50	50	2
5		SDL-105	Computer Application Lab	6	-	50	50	3
6		SDL-106	C Programming Lab	6	-	50	50	3
7		SDL-107	End Semester Project I	20	-	50	50	10
Total				**48**	**180**	**320**	**500**	**30**

ESE: End Semester Examination **IA**: Internal Assessment

Note: Duration of End Semester Examination of all theory papers will be of Three Hours

Course Outcomes:

- Student will be familiar with fundamentals of computers and organization of computer.
- Students will be able to understand the basics of communication, barriers to communication and how to overcome them. Students can write reports, notice, agenda and minutes related to meetings in the correct format. Students will be able to learn how to prepare and face interviews.
- Student will understand the basic terminology used in computer programming.
- Students will learn how to document and organize information, deliver presentations as well as processing of data etc.

Opportunity:

- After completing first semester students can apply for office assistant, receptionist, computer operator with having knowledge of MS Word, Excel, PowerPoint.
- He/she can start own Cyber cafe.
- He/she can also work at BPO. Students can execute basic computer tasks.

Scheme of Paper and Examination

II Semester

(Database Design and Programming)

S. No.	Component	Paper Code	Paper Name	Lecture / Tutorial / Practical	Scheme of Exam		Total Marks	Total Credits
					Theory / Practical			
					ESE	IA / Practical Exam		
1	General Education Component	SD-201	Environmental Studies	4	60	40	100	4
2		SD-202	Database Management System	4	60	40	100	4
3		SD-203	Object Oriented Methodology with C++	4	60	40	100	4
4	Skill Education Component	SDL-204	Computer Hardware and Maintenance Lab	4	-	50	50	2
5		SDL-205	DBMS Lab	6	-	50	50	3
6		SDL-206	C++ Lab	6	-	50	50	3
7		SDL-207	End Semester Project II	20	-	50	50	10
Total				**48**	**180**	**320**	**500**	**30**

ESE: End Semester Examination **IA**: Internal Assessment

Note: Duration of End Semester Examination of all theory papers will be of Three Hours

Course Outcomes:

- Student will be aware about environment and know how to protect it.
- Students can design a database based on the given requirement and write SQL statements.
- Understand Object Oriented programming and apply this feature to program design and implementation.

Opportunity:

- He/she can also become a computer teacher at primary level or can also own Computer teaching center for children or adults who wish to learn computer basics.
- The course imparts scientific, practical and technical knowledge to its learners about various computer tools that are used in day to day life.
- The applications make tasks easier and provide ease of use. A Programmer or operators are in high demand in all sectors of the market.

Scheme of Paper and Examination

III Semester

(Web Design and Development)

S. No.	Component	Paper Code	Paper Name	Lecture / Tutorial / Practical	Scheme of Exam		Total Marks	Total Credits
					Theory / Practical			
					ESE	IA / Practical Exam		
1	General Education Component	SD-301	Life Skill Management	4	60	40	100	4
2		SD-302	Front End Development	4	60	40	100	4
3		SD-303	Web Development using PHP and MySQL	4	60	40	100	4
4	Skill Education Component	SDL-304	UI Design Lab	4	-	50	50	2
5		SDL-305	Front End Development Lab	6	-	50	50	3
6		SDL-306	PHP with MySQL Lab	6	-	50	50	3
7		SDL-307	End Semester Project III	20	-	50	50	10
Total				**48**	**180**	**320**	**500**	**30**

ESE: End Semester Examination **IA**: Internal Assessment

Note: Duration of End Semester Examination of all theory papers will be of Three Hours

Course Outcomes:

- Student can handle stressful situation in very subtle way and can choose his/her priorities successfully.
- The students will be able to understand the basic concepts of network security concepts; including authentication, integrity and system security design challenges.
- Student will be able to understand Photoshop for UI design, understanding of color calibration, basics of Photoshop, layer styles, gradients in UI design, patterns and image editing in UI design and Dribble style dashboard exercises.

Opportunity:

- User interface (UI) developers combine programming, psychology and creative design to craft intuitive controls for software and hardware.
- Demand for talented user interface developers will flourish in all of these domains, including web, software and mobile application development. There are opportunities available for web designers to progress in their career.

Scheme of Paper and Examination

IV Semester

(Mobile App Design and Development)

S. No.	Component	Paper Code	Paper Name	Lecture / Tutorial / Practical	Scheme of Exam		Total Marks	Total Credits
					Theory / Practical			
					ESE	IA / Practical Exam		
1	General Education Component	SD-401	Financial Accounting	4	60	40	100	4
2		SD-402	Advance Java Programming	4	60	40	100	4
3		SD-403	Android Application Development	4	60	40	100	4
4	Skill Education Component	SDL-404	UX Design and Development Lab	4	-	50	50	2
5		SDL-405	Java Programming Lab	6	-	50	50	3
6		SDL-406	Android Application Development Lab	6	-	50	50	3
7		SDL-407	End Semester Project IV	20	-	50	50	10
Total				**48**	**180**	**320**	**500**	**30**

ESE: End Semester Examination **IA**: Internal Assessment

Note: Duration of End Semester Examination of all theory papers will be of Three Hours

Course Outcomes:

Upon completion of the course students should be able to:

- Install and configure android application development tools.
- Design and develop user interfaces for android platform.
- Apply java programming concepts to android application development.

Opportunity:

- The latest mobile devices and applications are changing the way we communicate, do business, and access news and entertainment. Businesses, consumers and programmers have embraced this innovative medium, making mobile application developer one of the most demanded.
- Employers are hiring Android application developers a lot of quicker and additional in numbers than the other professionals in mobile technology.

Scheme of Paper and Examination

V Semester

(Desktop Application Development)

S. No.	Component	Paper Code	Paper Name	Lecture / Tutorial / Practical	Scheme of Exam		Total Marks	Total Credits
					Theory / Practical			
					ESE	IA / Practical Exam		
1	General Education Component	SD-501	Start-up Management	4	60	40	100	4
2		SD-502	System Analysis and Design	4	60	40	100	4
3		SD-503	Application Development with Python	4	60	40	100	4
4	Skill Education Component	SDL-504	.Net Application Development Lab	4	-	50	50	2
5		SDL-505	Python Programming Lab	6	-	50	50	3
6		SDL-506	Industrial Training	6	-	50	50	3
7		SDL-507	Minor Project	20	-	50	50	10
Total				**48**	**180**	**320**	**500**	**30**

ESE: End Semester Examination **IA**: Internal Assessment

Note: Duration of End Semester Examination of all theory papers will be of Three Hours

Course Outcomes:

- After completion of the course the student will be able to use the features of Dot Net Framework.
- Student will learn how easy it is to write desktop applications using Python and Dot Net. Python is famous for being simple yet powerful, and the same is true for Dot Net. In as little as 50 lines of code, you'll be able to write a fully functioning application.

Opportunity:

- An application developer is someone who creates tests and programs applications software for computers. Applications are used in almost every type of computer device, from desktops to handheld devices, and applications developers are the minds and fingers behind the greatest games, email and word processing functions that are available today.
- Application developer jobs will grow very quickly. Computer software continues to be in demand, and application developer jobs will grow.

Scheme of Paper and Examination

VI Semester

(Skill Development and Employment)

S. No.	Component	Paper Code	Paper Name	Lecture / Tutorial / Practical	Scheme of Exam		Total Marks	Total Credits
					Theory / Practical			
					ESE	IA / Practical Exam		
1	General Education Component	SD-601	Entrepreneurship and Skill Development	4	60	40	100	4
2		SD-602	IT Infrastructure Management	4	60	40	100	4
4	Skill Education Component	SDL-404	Major Project	44	-	300	300	22
Total				**52**	**120**	**380**	**500**	**30**

ESE: End Semester Examination **IA**: Internal Assessment

Note: Duration of End Semester Examination of all theory papers will be of Three Hours

Course Outcomes:

- This course provides you with cutting-edge knowledge and skills on how to successfully develop captivating products and services to solve challenging problems in a highly uncertain environment, often under considerable time constraints with very limited resources. You will be able to apply these skills in the context of both new ventures as well as in established companies.

Opportunity:

- After successful completion of B.Voc Degree in software development there are many areas such as Application Development, Graphic Designing, Website Designing and Development, Software Testing, Algorithm Designing, UI/UX Designing etc. student can get job or they can start their own business.

10. SOCIAL SERVICE / EXTENSION ACTIVITIES

Students are to participate in Extension/ NSS/ NCC or other specified social service, sports, literary and cultural activities during course. 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 practical's which a student shall be required to attend for eligibility to appear at the end semester examination shall not be less than 75 percent 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, and assignments. The CE shall carry a weightage of 40 Per cent and ESE shall carry a weightage of 60 per cent. The weightage of each component of CE shall be: 1. Attendance 2. Assignment 3. Internal Assessment. 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.

13. ASSIGNMENT / SEMINARS/ WORKSOP

Each student shall be required to do assignment/seminar/workshop for each course. The seminars/workshop 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. TEST / INTERNAL EXAM

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.

1. PATTERN OF QUESTIONS FOR INTERNAL ASSESSMENT AND END TERM EXAMINATION.

While setting questions papers for the end term examination, the paper setter should follow guidelines stated below.

For 1st & 2nd Internal Assessment (C1& C2)

Maximum Marks for all theory papers	10
Duration of the end term examination	30 minutes
Types of Question	There should be two types of questions in the test -1. Multiple choice questions and 2. Short answer type questions
Section A: Multiple choice questions	The '**Section A**' should consist of 5 multiple choice questions each carrying 1 mark. Total marks for this section will be **5.**
Section B: Short answer type questions	The **'Section B'** of the question paper should consist of 2 short answer type questions. Each question should be of 2.5 marks. The total marks of this section will be **5.**
Setting of other questions	All 5 questions in the **Section A** are compulsory. In case of **Section B** paper setter must ensure internal choices for each question.

Marks for the component C3

Marks allotted for the component C3, which includes assignments or seminars or both and attendance of the student during the semester, is divided into two parts. For assignments or seminars or both, a student can be awarded maximum 15 marks. The marks for attendance of the students will be awarded as per the following table.

Attendance	Marks
90% and above	5 Marks
85 to 89.9%	4 Marks
80 to 84.9%	3 Marks
76 to 79.9%	2 Marks
75 to 75.9%	1 Mark

A student must secure minimum 50% marks (i.e. 20 out of 40 marks) in internal assessment (C1+C2+C3), failing which the student shall not be allowed to appear in End Semester Examination.

For Semester end theory Papers:

Maximum Marks for all theory papers	60
Duration of the end term examination	3 hours
Types of Question	The paper setter should prepare three types of questions -1. Multiple choice questions 2. Short answer type questions and 3. Long answer type questions.
Section A: Multiple choice questions	The '**Section A**' should consist of 10 multiple choice questions each carrying 1 mark. Total marks for this section will be **10.**
Section B: Short answer type questions	The '**Section B**' of the question paper should consist of 5 short answer type questions. The marks allotted for each question should be of 3 marks. The total marks of this section will be **15.**
Section C: Long answer type questions	The long answer type question should consist of 5 questions of 7 marks each. The total marks allotted for the '**Section C**' will be **35.**
Setting of other questions	All 10 questions in the **Section A** are compulsory. In case of **Section B & Section C**, paper setter must ensure internal choices for each question.

Practical Papers: For internal and external assessment

The assessment of the practical papers in the end term examination has been divided into 3 distinct sections- Section A, B & C

Section A	At the end of the semester, an examination of 30 minutes duration with maximum of 20 marks to be conducted to test the knowledge of the student on the course.
Section B	20 marks to be allotted for the file containing the assignments prepared by the student during the semester.
Section C	The external examiner should interview the student to find out her/his level of understanding of the subject. Marks allotted for this section is 10.

The internal examiner should keep in mind the quality of the assignments submitted, conduct and regularity of the student in the class to evaluate his/her performance.

A student will considered pass in each course/paper of the end term examination (C4) only if he/she secures minimum 50% marks (i.e. 30 out of 60 marks) in each course/paper.

17. GRADING

Both CE and ESE will be carried out using direct grading system according to the university. Each course (paper) shall be graded on the basis of marks obtained (on scaled marks of 100) during a semester. There shall be absolute grading where marks obtained (out of 100) by a student in a course is converted to a Grade on a 10- point scale.

Table for conversion of Marks to Grade

Marks (%)	Grade in letter	Grade Points
89.5-100	O (Outstanding)	10
79.5-89.4	A+ (Excellent)	9
69.5-79.4	A (Very Good)	8
59.5-69.4	B+ (Good)	7
49.5-59.4	B (Pass)	6
0-49.4	F (Fail)	0
	Ab (Absent)	0

18. DEFINITION

Every course offered will have three components associated with the teaching-learning process of the course, namely (i) Lecture – L (ii) Tutorial- T (iii) Practical – P.

L stands for Lecture session. T for Tutorial session consisting of participatory discussion / Self-study/ desk work/ brief seminar presentations by students and such other novel methods that make a student to absorb and assimilate more effectively the contents delivered in the Lecture classes.

P stands Practice session and it consists of Hands on experience / Laboratory Experiments / Field Studies / Case studies that equip students to acquire the much required skill component.

In terms of credits, every one hour session of L amounts to 1 credit per semester and a minimum of two hour session of T or P amounts to 1 credit per semester, over a period of one semester of 16 weeks for teaching-learning process.

A course shall have either or all the three components. That means a course may have only lecture component, or only practical component or combination of any two or all the three components. The total credits earned by a student at the end of the semester upon successfully completing the course are L + T + P.

19. PROMOTION TO HIGHER SEMESTER

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

Semester-I

INDIRA GANDHI NATIONAL TRIBAL UNIVERSITY, AMARKANTAK
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(Software Development)
First Semester

Title of the Paper:	**Professional Communication**	Paper Code: **SD-101**
Credit: **04**	Lecture: **04**	T/P: **0**
No. of Internal Exam: **02**		No. of Assignment: **01**

Course Objectives: To

- introduce the students to the basics of communication and its importance.
- develop verbal and non-verbal communication
- teach student to write reports, resume, minutes, agenda etc.
- prepare student for interpersonal communication and help students to write grammatically correct English.

Unit I – Communication

1. Communication: definition, objectives, process & elements.
2. Different forms of communication
3. Principles of communication, barriers of communication
4. Flow and types of communication in organization
5. Listening- need, importance, and barriers.

Unit II – Grammar

1. Determiners, subjects, verb
2. Concord, question tags
3. Tenses
4. Voice, narration, preposition
5. Correction of sentences, paragraph writing, comprehension of unseen passage

Unit III – Letter Writing

1. Types, elements, and styles.
2. Correspondence, handling correspondence.
3. Resume job application.
4. Quotation, orders, sales letter, tender
5. Advertising and job description

Unit IV – Reports

1. Introduction, characteristics &elements
2. Preparation and writing of report, illustrations in reports
3. Technical report writing
4. Bibliography and references
5. Note taking and note Making

Unit V – Precise Writing

1. Meetings (Notice, Agenda and Minutes writing techniques)
2. Preparation for presentation, conferences, seminars and interview
3. Effective speech and interpersonal communication
4. Business and technical proposals.

Suggested Readings:

1. Rajjendra Pal and J S Korlahalli - Essentials of Business Communication, S Chand
2. RC Sharma and Krishna Mohan - Business Correspondence and Report Writing, Tata McGraw-Hill
3. Asha Kaul - Business Communication, Prentice Hall

INDIRA GANDHI NATIONAL TRIBAL UNIVERSITY, AMARKANTAK
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First Semester

Title of the Paper:	**Basics of Computer Hardware & Software**	Paper Code:	**SD-102**
Credit: **04**	Lecture: **04**	T/P: **0**	
No. of Internal Exam: **02**		No. of Assignment: **01**	

Course Objectives: To

- introduce the students to the basics concepts of computer and organization of a computer.
- give basic knowledge of input output device.
- provide fundamental concepts of internet.
- introduce programming language and its type and teach students to install software and operating system.

Unit I – Introduction

1. Architecture of computer, characteristics
2. Advantages and limitation
3. Generation, classification of computer
4. Memory (primary and secondary), Concepts of data and information, data processing

Unit II – Hardware and Software

1. Input devices, output devices and storage devices
2. Software: Introduction, need and types
3. Assemblers, compilers and interpreter
4. Operating system and its type, DOS commands
5. Booting process, POST

Unit III – Programming languages

1. Introduction, types and evolution
2. Features and characteristics
3. Virus, anti-virus, worms, computer hacking

Unit IV – Internet and its application

1. Introduction of Information Technology
2. Evolution of internet, internet vs intranet

3. Internet application, TCP/IP, DNS
4. DNS, Email, POP-3, IMAP-4

Unit V – Installation, Maintenance, and Troubleshooting

1. System Configuration, Basic Hardware/Software Requirement to install window OS
2. Bootable CD/Pen Drive
3. Installation of window OS
4. Install/uninstall application software
5. Troubleshooting, recover, restore etc..

Suggested Readings:

1. P.K. Sinha - Introduction to computers, BPB Publication
2. V. Rajaraman - Fundamentals of computers, Prentice Hall of India
3. B Ram - Computer Fundamentals Architecture and Organization, New Age International publication
4. Sanders, D.H. - Computers Today, McGraw Hill

INDIRA GANDHI NATIONAL TRIBAL UNIVERSITY, AMARKANTAK
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First Semester

Title of the Paper:	**Program Designing with C**	Paper Code: **SD-103**
Credit: **04**	Lecture: **04**	T/P: **0**
No. of Internal Exam: **02**		No. of Assignment: **01**

Course Objectives: After completion of the course student will be able to

- understand basic constructs of c language.
- develop problem solving skills.
- provide programming basics for all related subjects.
- understand the purpose of pointers for parameter passing, referencing and dereferencing, linking data structure.

Unit I – Introduction to C Language

1. Problem solving methods, introduction to algorithm and flow charts, top down design, bottom up design, structure of c program, constant and variables, identifiers and keywords, data types.
2. Declaration, operators and expression, type conversion and type casting
3. Formatted I/O functions: getchar, putchar, scanf, printf, gets, puts
4. Conditional statement: if, if-else, switch, goto, break, continue
5. Control statements: while, do-while, for statements, nested loops

Unit II – Functions and Arrays

1. Introductions to functions, arguments, return value, parameter passing-call by value, call by reference
2. Return statement, calling function, recursion
3. Storage class, library function
4. Arrays: definition, types, passing an array to a function
5. Strings in c: operation and functions

Unit III – Pointers and Preprocessor directives

1. Pointers: definition, declarations, passing to a function, operation
2. Pointers and arrays, array of pointers
3. C –preprocessor directives: basics, #include, #define, #undef
4. Conditional compilation directives: #if, #else, #elif, #ifdef and #ifndef
5. Command line arguments.

Unit IV – Structures and memory management

1. Structure: defining and processing, passing to a function, pointer to structures
2. Structure within structure, array in structure, array of structure
3. Union, dynamic memory management function: malloc( ), calloc( ), realloc( )

Unit V – File Handling

1. Files in C, types of files, different modes of accessing a file, fopen(), fclose()
2. File operation: character I/O, String I/O, Word I/O
3. Formatted I/O: fprint(), fscanf(), block read and write: fread(), fwrite()
4. Low level file operations: read(), write() and close()
5. Random access file processing: fseek(), ftell(), rewind(), feof(), ferror(), fflush()

Suggested Readings:

1. Kanetkar Y.P. - Let us C, BPB Publications
2. Gottfried - Programming and problem solving in C, TMH (Schaum Series)
3. Balagurusamy - Programming in

INDIRA GANDHI NATIONAL TRIBAL UNIVERSITY, AMARKANTAK
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First Semester

Title of the Paper:	**Professional Communication Lab**		Paper Code: **SDL-104**
Credit: **02**	Lecture: **0**	T/P: **04**	Lab File: **01**

Course Objective: To

- Provide advance communication skills in practical lab with advance communication exercise.
- Make them expressive and open mind personality.

Exercise:

1. Self Introduction
2. Talking Manners
3. Body Language
4. Group Discussion
5. Face to face interview
6. Overcoming stage phobia
7. Language Proficiency
8. Grammar, Diction and Speech
9. Latter Writing (Formal, Informal and Cover Page writing)
10. Resume, Bio-Data and CV
11. Application Writing
12. Reports and Minutes etc.

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Title of the Paper:	**Computer Application Lab**		Paper Code: **SDL-105**
Credit: **03**	Lecture: **0**	T/P: **06**	Lab File: **01**

Course Objectives:

- The purpose of this practice exercise is to help prepare you to complete the Word, Excel PowerPoint and other office automation related assignment.
- Perform calculation in Microsoft excel using both manually inputting formulas and built-in functions.
- Generate simple and effective tables and graphs to describe experimental data in Microsoft excel.
- Generate slides; make basic diagrams in Microsoft Word and PowerPoint.

List of experiments/programs (At least ten are to be performed/executed by each student)

1. Write a personal letter using MS Word.
2. Create company letter head in MS Word.
3. Write simple newsletter in MS Word.
4. Create a cover page of a project report.
5. Create your own Resume/CV/Bio-Data.
6. Create a job application form.
7. Create a mail merge letter.
8. Create a simple presentation to list some fruits name, vegetables and grocery items.
9. Create a presentation and insert table and some charts in it.
10. Add sound clip and movie clip in presentation.
11. Create a worksheet with 4 columns, enter 10 records and find the sum of all columns.
12. Create a report containing the pay details of the employee using MS Excel.
13. Create a student result sheet.
14. Create a simple bar chart to highlight the sales of a company for 3 different periods.
15. Create a pie chart for a sample data and give legends.

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First Semester

Title of the Paper:	**C Programming Lab**		Paper Code: **SDL-106**
Credit: **03**	Lecture: **0**	T/P: **06**	Lab File: **01**

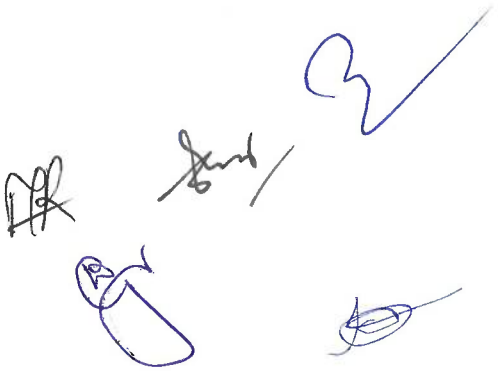
Course Objectives: After completion of the course student will be able to

- be familiar with syntax and structure of C-Programming.
- learn problem solving techniques using C.
- understand the logic for a given problem.
- write algorithm of a given problem and construction of C programming code.

List of experiments/programs (At least ten are to be performed/executed by each student)

1. Write a program to calculate the principal interest on a given amount for a given rate and time period.
2. Program to print the largest of 3 numbers. (Use of *if* statement).
3. Write a program to print whether an entered character is an upper case, lower case, a digit or other character. (use of *if* and char data type)
4. Program to take an integer array of 10 elements as input and print the largest, smallest, sum of all the elements. (use of for loop)
5. Write a C program to print the sum of digits and reverse of the number using a user-defined function. (use of while loop)
6. Write a program to find whether a number is a prime or not. (use of break)
7. Write a program to print numbers from 1 to n except the multiples of 5. (use of continue)
8. Write a C program to take a char array as input and print the number of characters, vowels in that array using pointers. (use of string)
9. Write a program to take a sentence as input and convert the string so that the first letter of each word is in upper case using pointers.
10. Write a program to take 5 names as input and sort the names and print it.
11. Write a C program to check whether a string is a palindrome or not.
12. Write a C program to calculate the factorial of an integer using a user-defined function. (use of function)

13. Write a C program to print the factorial of an integer using a recursive user defined function. (use ofrecursion)
14. Write a C program to print the sum of first N natural numbers using a recursive function.
15. Write a C program to print the Fibonacci series using recursive function.
16. Write a program to sort N numbers. (1D array)
17. Write a C program to take a 3x4 matrix of integers and print the sum of all the elements of each row. (2DArray)
18. Write a C program that takes two matrices of dimension m x n and n x k respectively and prints the productmatrix.
19. Write a C program to define a structure Employee containing Employee number, Employee name, salary as members. Initialize an array of 5 Employees and print the details of all Employees and print the details of the Employee with highest salary.
20. Write the programs to display different pattern.



INDIRA GANDHI NATIONAL TRIBAL UNIVERSITY, AMARKANTAK
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(Software Development)
First Semester

Title of the Paper:	**End Semester Project I**		Paper Code: **SDL-107**
Credit: **10**	Lecture: **0**	T/P: **20**	Project File: **01**

Introduction:

Each student will be assigned a project by the faculty member or class in charge on the basis of the GEC & SEC to be submitted three weeks before the completion of the semester. Each student/group must discuss with the mentor twice in a week to present the progress of the work. Each End Semester project will be evaluated on the basis of the context, content and presentation.

Semester-II

INDIRA GANDHI NATIONAL TRIBAL UNIVERSITY, AMARKANTAK
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Second Semester

Title of the Paper:	**Environmental Studies**	Paper Code: **SD-201**
Credit: **04**	Lecture: **04**	T/P: **0**
No. of Internal Exam: **02**		No. of Assignment: **01**

Course Objectives: After completion of the course student will able to

- understand environmental issues and its conservation.
- demonstrate a general understanding of the breadth and interdisciplinary nature of environmental issues.
- appreciate the ethical, cross-cultural and historical context of environmental issues.
- understand links between human and natural systems.

Unit I – Multidisciplinary nature of environment studies

1. Definition, scope and importance
2. Need for public awareness: institution in environment, people in environment

Unit II – Natural Resources

1. Introduction, natural resources and associated problems
2. Non-renewable resources
3. Renewable resources: forest, water, mineral, food, energy, land resources
4. Role of an individual in conservation of natural resources
5. Equitable use of resources for sustainable lifestyle

Unit III – Ecosystems

1. Concept of ecosystem
2. Structure and functions of an ecosystem
3. Producers, consumers and decomposers
4. Energy flow in the ecosystem
5. Food chain, food webs and ecological pyramids

Unit IV – Biodiversity and its conservation

1. Definition: genetic, species, ecosystem diversity
2. Bio-geographic classification of India
3. Value of biodiversity: consumptive, productive use, social, ethical, aesthetic and open values
4. Endangered and endemic species
5. Conservation of biodiversity: IN-SITU & EX-SITU

Unit V – Environmental pollution, social issues and environment

1. Causes effect and control measures of: air, water, soil, marine, noise, thermal pollution, and nuclear hazards
2. Role of individuals in pollution prevention
3. Sustainable and unsustainable development
4. Urban problem related to energy, water conservation, rain water harvesting, watershed management
5. Public awareness

Suggested Readings:

1. Bharucha erach - The Biodiversity of India, Mapin Publishing
2. Agrawal K.C. - Environmental Biology, Nidi Publication
3. Jadhav, H& Bhosale - Environmental Protection and Laws, Himalaya Publication

INDIRA GANDHI NATIONAL TRIBAL UNIVERSITY, AMARKANTAK
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Second Semester

Title of the Paper:	**Database Management System**	Paper Code: **SD-202**
Credit: **04**	Lecture: **04**	T/P: **0**
No. of Internal Exam: **02**		No. of Assignment: **01**

Course Objectives: After completion of the course student will be able to

- understand basic concepts of designing and building a database management system
- familiar with syntax and implementation of SQL
- understand relational model and design RDBMS etc.
- formulate, using relational algebra, solutions to a broad range of query problems.

Unit I – Database concept

1. Definition, advantages of DBMS, data model and types, schema and instances
2. DBMS architecture and data independence, E-R model, attribute and keys,
3. Relationship types, entity and entity set
4. Specialization, generalization and aggregation, constraints
5. Structure of files, types of single level ordered indexes, multilevel indexes, dynamic multilevel indexes using B tree and B+ tree

Unit II – Relational Data Model

1. Relational data model concepts, constraints, relational algebra,
2. Relational calculus, tuple relational calculus
3. SQL: DDL, DML, DCL, types of constraints, defining constraints on a table
4. Defining & dropping integrity constraints in the alter command, view, index

Unit III – Database design

1. Functional dependencies
2. Normalization, Normal forms
3. Problems related with normal forms & solution

Unit IV – Query & Transaction processing

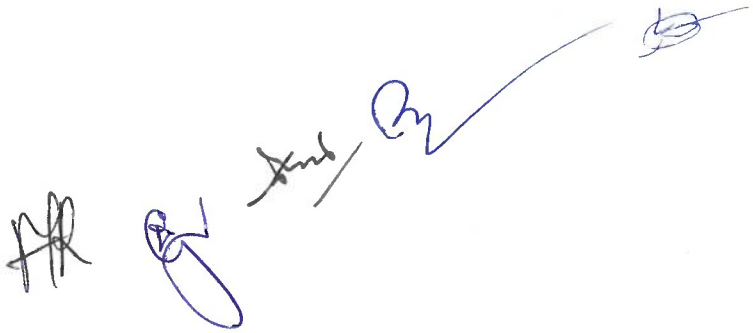
1. Query processing: query processing stages, query interpretation
2. Query execution plan, structure of a query optimizer
3. Transaction processing: type of failures, ACID property,
4. schedules and recoverability, basic idea of serializability, view and conflict serializablity, deadlocks

Unit V – Crash Recovery

1. Failure classification, different type of recovery techniques and their comparative analysis
2. Deferred update, immediate update, shadow paging, check points
3. On-line backup during database updates, concurrency control: concurrency control techniques, locking techniques,
4. Time stamp ordering, multi version techniques, optimistic techniques, multiple granularity

Suggested Readings:

1. Korth & Sudarshan - Database system concept, TMH
2. Elmasri & Navathe - Fundamentals of Database Systems, Pearson Education



INDIRA GANDHI NATIONAL TRIBAL UNIVERSITY, AMARKANTAK
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(Software Development)
Second Semester

Title of the Paper:	**Object oriented methodology with C++**	Paper Code: **SD-203**
Credit: **4**	Lecture: **04**	T/P: **0**
No. of Internal Exam: **02**		No. of Assignment: **01**

Course Objectives: After completion of the course student will be able to

- understand object oriented design and program implementation
- use object oriented modeling techniques and methodologies to produce requirements speciation documents.
- explain how an existing C++ program works.
- discover errors in a C++ program and describe how to fix them.

Unit I – Object Oriented Concepts:

1. Introduction , features, OOPs vs POP
2. Class and objects, scope of a class & its members, nested class
3. Constructors: definition, types, destructor
4. Passing objects as function arguments, returning objects, array of objects
5. Object pointer, new and delete operator, inline function

Unit II – Polymorphism and Inheritance

1. Polymorphism, types
2. Function overloading, default arguments,
3. Operator overloading: unary, binary
4. Friend function, inheritance, type of inheritance,
5. Container classes

Unit II – Late binding, Template and Exception Handling

1. Virtual base classes, pointers to base and derived classes
2. Virtual function, pure virtual function,
3. Early and late binding
4. Template, function and class templates
5. Exception handling

Unit IV – Formatting and working with files

1. Formatted I/O with manipulators
2. Formatting with ios class, stream and files
3. File modes, writing and reading objects on a file
4. Random access of file, updating file

Unit V – Object Oriented Analysis and Design

1. OOA and OOD
2. Three Models: Object, Dynamic and Functional
3. Object Modeling: objects and class, links, association, generalization and inheritance
4. Dynamic Modeling: events and states, operation, nested state diagrams. Concurrency
5. Functional modeling: functional models, examples, relation of functional to object and dynamic models, OMT methodology

Suggested Readings:

1. K. R. Venugopal, Raj Kumar and T. R - Mastering C++, TMH
2. H. Schildt - C++ Complete Reference, TMH
3. Balaguruswami - Object Oriented Programming with

INDIRA GANDHI NATIONAL TRIBAL UNIVERSITY, AMARKANTAK
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Second Semester

Title of the Paper:	**Computer Hardware & Maintenance Lab**	Paper Code: **SDL-204**	
Credit: **02**	Lecture: **0**	T/P: **04**	Lab File: **01**

Course Objectives:

On completion course the students will be able to understand the fundamentals of Hardware, handling, testing & troubleshooting of personal computer problems.

Computer Assembling:

1. Overview of Computer Parts – Cabinet, Motherboards, Video Cards, Sound Cards, Modems, Hard Drive, Zip Drive, CD ROM Drive, Network Card, Interfaces – CPU, Main Memory, Power Supply, Cables.

Setting up the Motherboard:

1. Study of different types of Motherboards, Motherboard Configuration.
2. Installing CPU, Setting the Clock Speed, Installing the Memory
3. Installing Video Card.
4. Testing, Plug in the Video Card, Providing Power to the Motherboard, Testing
5. Installing Floppy Drives.
6. Installing Hard Disk Drives, Installing the CD ROM Drive, Installing Key Board and Mouse

BIOS Configuration:

1. Study of BIOS Set-up.
2. Boot configuration, Boot Menu.

Installation, Partitioning and Formatting:

1. Installation of different types of Service Packs,
2. Windows XP, Windows-7 and Unix etc.
3. Formatting of Hard disk, Partitioning of Hard disk in different logical drives,
4. Disk defragmentation, Disk clean up, Scan disk etc.

Installation of Device Drivers:

Different types of Motherboard drivers, LAN, Audio, and Video.

Configuration of External devices:

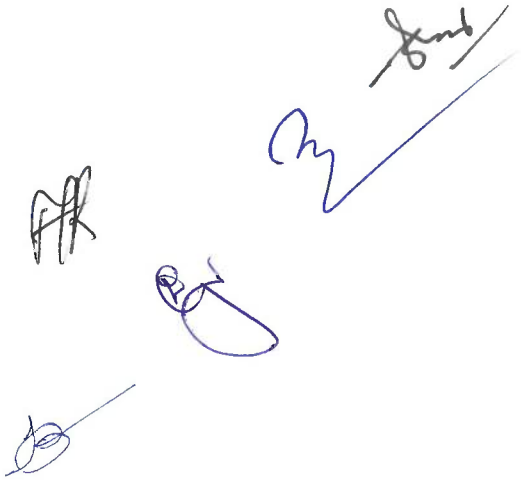
1. Physical set-up of Printers- Performing test print out,
2. Printing of document etc,
3. Scanner set-up, Webcam, Bluetooth device, Memory card reader etc.

Types of PC Faults:

1. Solid Faults, Intermittent Faults, Developing Strategy.
2. Diagnostic and Repair Tools, Diagnostic Software Tools, Diagnostic Hardware Tools, Advanced Testing Tools.
3. Disassembling PC.

Diagnostic and troubleshooting of PC:

1. POST (Power on Self Test),
2. Identifying problems by Beep codes errors,
3. Checking power supply,
4. Replacement of components.



INDIRA GANDHI NATIONAL TRIBAL UNIVERSITY, AMARKANTAK
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(Software Development)
Second Semester

Title of the Paper: **DDBMS Lab**			Paper Code: **SDL-205**
Credit: **03**	Lecture: **0**	T/P: **6**	Lab File: **01**

Course Objectives: After completion of the course student will be able to

- Understand, appreciate and effectively explain the underlying concepts of database technologies.
- Design and implement a database schema for a given problem-domain.
- Normalize a database.
- Declare and enforce integrity constraints on a database using a state of the art RDBMS.

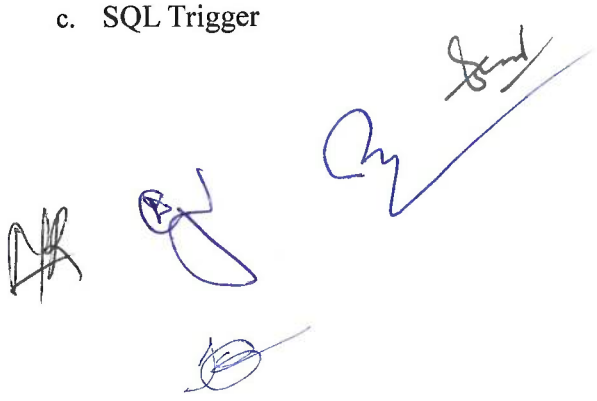
List of experiments/programs

1. Write DDL commands for:
    a. Create table
    b. Alter table
    c. Drop table

2. Write DML commands for:
    a. Insert
    b. Update
    c. Delete

3. Write program to illustrate different types of function:
    a. Number function
    b. Aggregate function
    c. Character function
    d. Conversion function
    e. Date function
4. Write program to perform different types of operators in SQL
    a. Arithmetic operators
    b. Logical operators
    c. Comparison operator
    d. Special operator
    e. Set operator

5. Implement different types of joins
    a. Inner join
    b. Outer join
    c. Natural join etc..
6. Write program for following:
    a. Group by and having clause
    b. Order by clause
    c. Indexing
7. Write SQL Query for:
    a. Sub Queries
    b. Views
    c. SQL Trigger



INDIRA GANDHI NATIONAL TRIBAL UNIVERSITY, AMARKANTAK
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Second Semester

Title of the Paper:	**C++ Programming Lab**	Paper Code:	**SDL-206**
Credit: **03**	Lecture: **0**	T/P: **06**	Lab File: **01**

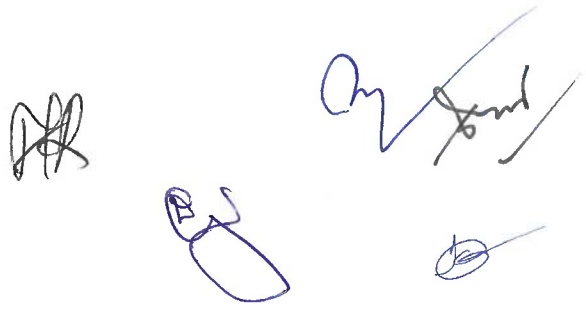
Course Objectives: After completion of the course student will be able to

- create simple programs using classes and objects in C++.
- Implement object oriented programming concepts in C++.
- develop applications using stream I/O and file I/O.
- implement object oriented programs using templates and exceptional handling.

List of experiments/programs (At least ten are to be performed/executed by each student)

1. Write a program to design a class having static member function named showcount( ) which has the property of displaying the number of objects created of the class.
2. Write a program using class to process shopping list for departmental store. The list include details such as the code no and price of each item and perform the operation like adding, deleting items to the list and printing the total value of an order.
3. Write a program which creates & uses array of object of a class.
4. Write a program to find maximum out of two numbers using friend function.
5. Write a program to swap private data members of classes named as class_1, class_2 using friend function.
6. Write a program to design a class complex to represent complex numbers. The complex class should use an external function (use it as a friend function) to add two complex numbers. The function should return an object of type complex representing the sum of two complex numbers.
7. Write a program using copy constructor to copy data of an object to another object.
8. Write a program to allocate memory dynamically for an object of a given class using class's constructor.

9. Write a program to design a class to represent a matrix. The class should have the functionality to insert and retrieve the elements of the matrix.
10. Write a program to design a class representing complex numbers and having the functionality of performing addition and multiplication of two complex numbers using operator overloading.
11. Write a program to overload operators like *, <<, >> using friend function. The following overloaded operators should work for a class vector.
12. Write a program for developing a matrix class which can handle integer matrices of different dimensions. Also overload the operator for addition, multiplication and comparison of matrices.
13. Write a program to overload new/delete operators in a class.
14. Write a program in C++ to highlight the difference between overloaded assignment operator and copy constructor.
15. Write a program to maintain the records of person with details (name and age) and find the eldest among them. The program must use this pointer to return the result.
16. Write a program to illustrate the use of pointer to objects which are related by inheritance.
17. Write a program illustrating the use of virtual functions in class.
18. Write a program to show conversion from string to int and vice-versa.
19. Write a program showing data conversion between objects of different classes.
20. Write a program implementing basic operation of class ios i.e. setf, unsetf, precision etc



INDIRA GANDHI NATIONAL TRIBAL UNIVERSITY, AMARKANTAK

Bachelor of Vocation

(Software Development)

Second Semester

Title of the Paper:	**End Semester Project II**	Paper Code:	**SDL-207**
Credit: **10**	Lecture: **0**	T/P: **20**	Project File: **01**

Introduction:

Each student will be assigned a project by the faculty member or class in charge on the basis of the GEC & SEC to be submitted three weeks before the completion of the semester. Each student/group must discuss with the mentor twice in a week to present the progress of the work. Each End Semester project will be evaluated on the basis of the context, content and presentation.

Guidelines:

1. A student is expected to perform planning, analyzing, designing and implementing the project.
2. The initiation of project should be with the project proposal / Synopsis that is to be treated as an assignment. The synopsis approval will be given by the Faculty/ Project Guides Project Proposal should include the following:

   Title

   Objectives

   Input and Output

   Process Logic

   Limitations of the Project

   Tools / Platforms, Language to be used

   Scope of Future Application

Project Report / Documentation Format:

The evaluation of the End Semester Project II will be based on the project reports submitted by the student, a presentation and a demonstration.

The format of the project report should be as under:

1. Abstract
2. List of Tables
3. List of Figures
4. List of Abbreviations / Symbols

5. Methodology
6. System Analysis and Design
7. Summary and Conclusions
8. Reference / Bibliography

Semester-III

INDIRA GANDHI NATIONAL TRIBAL UNIVERSITY, AMARKANTAK

Bachelor of Vocation

(Software Development)

Third Semester

Title of the Paper:	**Life Skill Management**	Paper Code: **SD-301**
Credit: **4**	Lecture: **04**	T/P: **02**
No. of Internal Exam: **02**		No. of Assignment: 01

Course Objectives: After completion of the course student will be able to

- handle Stressful Situations
- understand their priorities
- cope with different Psychological Problems
- find Real Happiness

UNIT I: Understanding of Life Skills Management:

1. Developing an Identity, Understanding Self and Psychological Problems
2. Life Skills Management- Concepts and Applications, Basics of Brain-Structure,
3. Hormones: Role of Hormones in changing mood and emotions, Role of genes, Understanding Memory.
4. Characteristics of Healthy Personality, Levels of Personality Dysfunctions, Ways to offset depression. Anxiety: Symptoms and Dealing with anxiety.
5. Managing Anger, and Right attitude towards competition. Understanding the reasons behind OCD and.

Unit II: Managing Habits:

1. Neurology of Habits, Developing Discipline in creating new habits, will-power, Causes of Addictions, Changing destructive habits, Habits of highly effective people.
2. Relaxation Techniques: Meditation, Effects of Meditation. Positive Attitude towards oneself, Equanimity in oneself, Happiness – a state of mind and related techniques.

Unit III: Relationship Management:

1. Emotional Intelligence: Core Domain: Self Awareness, Self-Regulation, Social Awareness and Relationship Management.
2. Relationship Management: Four Criteria for Effective Relationship Management, Competencies in the Relationship Management.
3. Ability to size-up situations, Role of Empathy Basics of Interpersonal Communication: Understanding and Observing Non-Verbal Behavior, Listening skills.
4. Profiling Personal Environments.

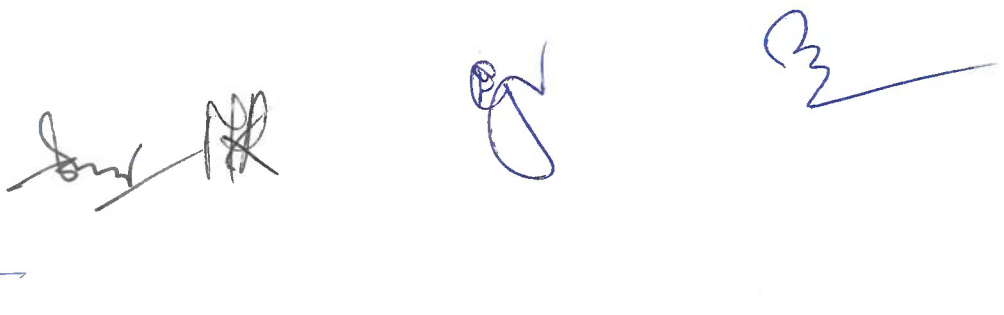
5. Understanding the types of Personality & their Motivating-Factors.
6. Concepts of healthy relationships.

Unit IV: Stress Management:

1. Understanding the Physiology of Stress, Symptoms of Stress.
2. Stress and Performance, effects of Stress on Learning, Oversensitivity, Focus and
3. Concentration, Techniques of Stress Management.
4. Concepts of Crisis Management, Dealing with Peer Pressure and Complexes, Assertiveness Training, Avoiding Groupthink, Dealing with distractions.

Unit V: Mental Health and Wellness:

1. Concept of Wellness: Measures to improve Wellness.
2. Sleeping and Mind, Yoga and Exercise, Concepts of Balanced Diet, Importance of
3. Recreational Practice, Role of art in wellness, How imagination shapes our Mind-Set. Wellness Programs for Professionals.



INDIRA GANDHI NATIONAL TRIBAL UNIVERSITY, AMARKANTAK

Bachelor of Vocation

(Software Development)

Third Semester

Title of the Paper:	**Front End Development**	Paper Code: **SD-302**
Credit: **4**	Lecture: **04**	T/P: **02**
No. of Internal Exam: **02**		No. of Assignment: 01

Course Objectives: After completion of the course student will be able to

- develop simple HTML text site.
- style web pages using CSS
- develop website with JavaScript.
- make responsive website using CSS and Bootstrap

Unit I – Hyper Text Markup Language (HTML)

1. Introduction, HTML document structure
2. HTML element: div, span, text style, ordered list & un-ordered list, hyperlink
3. Header and footer, section, main, article, heading tag, tables,
4. Images, audio, video, inputs, checkboxes, radio button, select, option, buttons
5. HTML forms, Doctypes, meta tags, keywords

Unit II – Cascading Style Sheets (CSS)

1. Introduction, targeting color, background, element specificity
2. ID targeting, margin, border, padding, float, max – width and background-image
3. Switching over to an IDE, font weight, style and family, text decorations, text spacing, text shadow
4. Pseudo-states, border radius, positions, pseudo-element, z-index,
5. viewpoint width and height, overflowing content, transition property

Unit III – JavaScript

1. Introduction to JavaScript, alerts & console logging, datatypes, variables.
2. Operators, conditional statements,
3. Looping, function.
4. Event handling, setting an elements innerHTML.
5. Arrays, forms,

Unit IV – jQuery

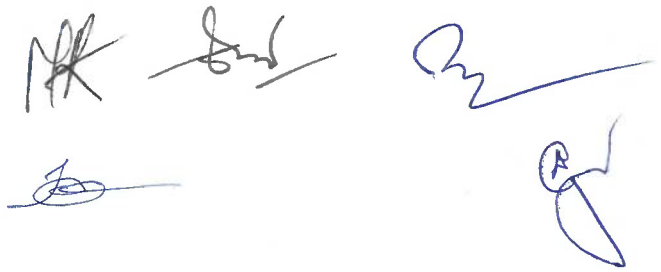
1. jQuery setup, targeting elements, event handling, dropdown menus
2. multiple targets, events and attr method, prepend, append
3. event.wchich and switch properties
4. custom context menu, pageY and pageX, is method
5. find mathhod, first & last, focusin and focusout, contains, is and has class
6. each method, callbacks

Unit V – Bootstrap

1. Introduction, features, setting up
2. Bootstrap grid
3. Bootstrap component: glyphicons, groups & button, navigation pills & tabs, navbar, breadcrumb, pagination, jumbotron, badge etc.
4. Bootstrap plugin: transition, scrollspy, tab, drop down, tooltip, button, popover, collapse etc.

Suggested Readings:

1. Jon Duckett - HTML & CSS: design and build website
2. Paul McFedries - Web Coding & Development all in one for dummies
3. DT Editorial Services - HTML 5 Black Book



INDIRA GANDHI NATIONAL TRIBAL UNIVERSITY, AMARKANTAK

Bachelor of Vocation

(Software Development)

Third Semester

Title of the Paper:	**Web Development using PHP and MySQL**	Paper Code: **SD-303**
Credit: **4**	Lecture: **04**	T/P: **02**
No. of Internal Exam: **02**		No. of Assignment: 01

Course Objectives: After completion of the course student will be able to

- discuss the concepts of PHP and its advantages over other language.
- validate user input.
- perform various MySQL database queries.
- seek solution to any php problem and further your knowledge.

Unit I – Introduction

1. Introduction to PHP & MySQL Web Development
2. Install XAMPP, WAMP, MAMP, LAMP Server
3. Setting Environment
4. Basic PHP Syntax- Hello World!

Unit II – PHP Regular Commands & Functions

1. Echo & Print Statements, Local and Global Variables
2. Arrays, Data types, Conditional Statements, Loops

Unit III – PHP Advance Function & Commands

1. PHP Function (Custom), Include & Require function
2. Post & Get Method
3. PHP Session & Cookies
4. Mail Function, Filter, Validation
5. Error Handling, Image/File Upload, Special Commands in PHP

Unit IV – MySQLi Database with PHP

1. Introduction
2. Establishing Connection
3. Insert Data into Table, Fetching Data, Deleting, Editing, Updating Data in table
4. Order by and LIMIT

Unit V – OOPs Concept

1. Class & Object, Access Modifier
2. Properties of Object, Encapsulation and abstraction
3. Inheritance, Polymorphism
4. Function Overriding

Suggested Readings:

1. Luke Welling, Laura Thomson - PHP and MySQL Web Development, Pearson
2. Paul Madoff - Learn PHP and MySQL- Zero to Hero Programming Crash Course,

INDIRA GANDHI NATIONAL TRIBAL UNIVERSITY, AMARKANTAK
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Third Semester

Title of the Paper:	**UI Design Lab**	Paper Code: **SDL-304**
Credit: **02**	Lecture: **0**	T/P: **4**
No. of Internal Exam: **00**		Lab File: 01

Course Objectives: After completion of the course student will be able to

- learn all the basic tools & shortcut of Photoshop for UI Design.
- learn about color schemes and typography.
- learn how to design modern hero/headers of website.
- understand how to use Photoshop extension, script to speed up UI Design Process and learn how to use gradients and patterns in UI Design.

Setting up Adobe Photoshop for UI Design

1. Introduction
2. Setting Photoshop preferences, color profile, color proof setting,
3. setting up panel for UI design work
4. Creating custom shortcuts, installing Photoshop scripts, Photoshop extension for UI design

Basics of Photoshop

1. Customizing Photoshop toolbar, Photoshop User Interface
2. Art boards, layers panel, filtering and finding in layers panel, type tool, character panel,
3. Paragraph panel, new shape tool, pen tool basics, making selections, alignments,
4. Common shortcuts, clipping masks, layer masks, smart objects, layer comps, smart guide

Layer styles, Gradients & pattern in Web and UI Design

1. Drop shadow, inner shadow, stroke effects
2. Gradients, gradient overlay, gradient editor
3. Pattern, applying patterns, create pattern from an image file, using .PAT files

Basics of UI Design and UI Design Exercise

1. Light and shadow work in UI Design
2. Color Schemes, create color schemes form logo and using HSL,
3. Online tool for color schemes, fonts and typography, Using grids for web design
4. Soft button, 3D Button, Pressed Effects in Photoshop, Modern Header design

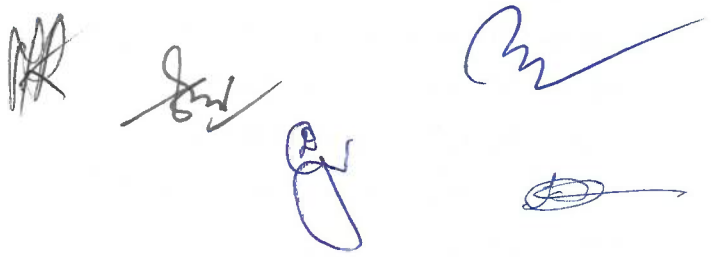
5. Color overlay header, transparency, tabs, tabbed navigation

Working with background

1. Removing a white background from an image with blending option
2. Using magnetic lasso to quickly remove a background
3. Using select and mask to remove a background
4. Using the spot healing brush
5. Using adjustment layers to make colors pop

Suggested Readings:

1. Andrew Faulkner, Conrad Chavez - Adobe Photoshop CC Classroom in a Book
2. Jenifer Tidwell - Designing Interface: Patterns for Effective Interaction Design
3. Steve Krug - Don't Make Me Think: A Common Sense Approach to Web Usability



INDIRA GANDHI NATIONAL TRIBAL UNIVERSITY, AMARKANTAK
Bachelor of Vocation
(Software Development)
Third Semester

Title of the Paper:	**Front End Development Lab**		Paper Code: **SDI-305**
Credit: **03**	Lecture: **0**	T/P: **06**	Lab File: **01**

Course Objectives: After completion of the course student will be able to

- Develop a dynamic webpage by the use of JavaScript and DHTML.
- Write a well formed/valid HTML document.
- Create client side application.
- To perform any task related to web design.

List of experiments/programs (At least ten are to be performed/executed by each student)

1. Design a HTML page describing your profile in one paragraph. Design in such a way that it has a heading, a horizontal rule, three links and your photo also write three HTML documents for the links.
2. Design HTML page describing your academic career. The page will tell about the degrees, Institutions and your hobbies. Add some lists too.
3. Design HTML page demonstrating Concept of Internal Hyper-link.
4. Design HTML page which gives the list of grocery Items by using Unordered List bullets are of form disc, square and circle.
5. Write a program in html to create a webpage with four frames (Picture, table, list and hyperlink)
6. Write a program in html to create a webpage to show registration form.
7. Write JavaScript to perform all arithmetic operation.
8. Write JavaScript to check whether a given number is prime or not..
9. Write JavaScript for form validation.
10. Create a login page with validation.
11. Design a Static Homepage for a NGO.
12. Design a Contact page for a NGO.
13. Create a portfolio website.

INDIRA GANDHI NATIONAL TRIBAL UNIVERSITY, AMARKANTAK
Bachelor of Vocation
(Software Development)
Third Semester

Title of the Paper: **PHP with MySQL Lab**			Paper Code: **SDL-306**
Credit: **03**	Lecture: **0**	T/P: **06**	Lab File: **01**

Course Objectives: After completion of the course student will be able to

- Create responsive and dynamic website and web application.
- Create a full functional database oriented web pages.

List of experiments/programs (At least ten are to be performed/executed by each student)

1. Create hello world program in PHP.
2. Write a program in PHP to print the factorial of a given number.
3. Write a program to find whether a number is Armstrong or not.
4. Write a Program for Bubble sorting in PHP.
5. Create a login page in using HTML, PHP and MySQL.
6. Demonstrate the use of PHP mail function.
7. Write a PHP program to store current date-time in a COOKIE and display the "Last visited on" date-time on the web page upon reopening of the same page.
8. Write a PHP program to store page views count in SESSION, to increment the count on each refresh, and to show the count on web page.
9. Using PHP and MySQL, develop an address book program.
10. Create a USER Registration Form using HTML, PHP and MySQL.
11. Create a webpage where new user can be added, delete, update etc.
12. Admin panel, including login, check user list and activate, deactivate user feature.
13. Develop an image upload webpage including feature of add new image, delete image, image title etc.
14. Create a complete dynamic portfolio website.

INDIRA GANDHI NATIONAL TRIBAL UNIVERSITY, AMARKANTAK
Bachelor of Vocation
(Software Development)
Third Semester

Title of the Paper:	**End Semester Project III**		Paper Code: **SDL-307**
Credit: **10**	Lecture: **0**	T/P: **20**	Project File: **01**

Introduction:

An end semester project II should be done by the students based on the concept they have already learnt in the first two semester of the B.Voc in Software Development Programme. It may be primarily based on Database, Web Based, Object oriented concept.

Guidelines:

1. A student is expected to perform planning, analyzing, designing and implementing the project.
2. The initiation of project should be with the project proposal / Synopsis that is to be treated as an assignment. The synopsis approval will be given by the Faculty/ Project Guides Project Proposal should include the following:
   - ❖ Title
   - ❖ Objectives
   - ❖ Input and Output
   - ❖ Process Logic
   - ❖ Limitations of the Project
   - ❖ Tools / Platforms, Language to be used
   - ❖ Scope of Future Application

Project Report / Documentation Format:

The evaluation of the End Semester Project II will be based on the project reports submitted by the student, a presentation and a demonstration. **The format of the project report should be as under:**

- ❖ Abstract
- ❖ List of Tables
- ❖ List of Figures
- ❖ List of Abbreviations / Symbols
- ❖ Methodology
- ❖ System Analysis and Design
- ❖ Summary and Conclusions
- ❖ Reference / Bibliography

Semester-IV

INDIRA GANDHI NATIONAL TRIBAL UNIVERSITY, AMARKANTAK
Bachelor of Vocation
(Software Development)
Fourth Semester

Title of the Paper:	**Financial Accounting**	Paper Code: **SD-401**
Credit: **4**	Lecture: **04**	T/P: **0**
No. of Internal Exam: **02**		No. of Assignment: 01

Course Objectives: After completion of the course student will be able to

- define book keeping and accounting.
- explain the general purpose and functions of accounting
- prepare financial statement, balance sheet.
- describe the main elements of financial accounting information- assets, liabilities expenses etc

Unit-I

1. Introduction, accounting cycle,
2. Accounting equation, rules
3. Journalizing, ledger posting

Unit-II

1. Cash Book, Trial Balance
2. Profit and Loss account, Balance sheet
3. Outstanding expanses, prepaid expenses
4. Accrued income depreciation
5. Bad debts, Provision for bad debts, provision for discount on debtors and creditors

Unit-III

1. Cost accounting, elements of cost
2. Classification of cost, cost sheet
3. Inventory pricing

Unit-IV

1. Numerical trough FIFO and LIFO Methods
2. Profit and Loss analysis
3. Budget

Unit-V

1. Bill of exchange, acceptance of a Bill
2. Due Date, Recording of Bill of exchange in books of account
3. Partnership- meaning and features

Reference Books:

1. Accounting for Management -Bhattacharya S. K. and Dearden John Prentice Hall of India
2. Introduction to Book Keeping - Grewal

INDIRA GANDHI NATIONAL TRIBAL UNIVERSITY, AMARKANTAK
Bachelor of Vocation
(Software Development)
Fourth Semester

Title of the Paper:	**Advance Java Programming**	Paper Code: **SD-402**
Credit: **4**	Lecture: **04**	T/P: **0**
No. of Internal Exam: **02**		No. of Assignment: 01

Course Objectives: After completion of the course student will be able to

- learn Java programming languages fundamentals: its syntax, patterns and styles.
- understand file handling, networking in java
- learn GUI design using swing components and event handling

Unit I – Overview of Java

1. Features of Java, Byte-code, JVM, data types, variables and arrays, control statements,
2. Introduction to Java class and object, main() function, garbage collection
3. finalize() method, this, inheritance, method overriding, dynamic method dispatching,
4. super, final, package, interface, abstract class, class path, String and String Buffer Class.

Unit II – Exception Handling and Multithreading

1. Exception types, uncaught Exception, using try- catch, throw, throws, finally,
2. Throwable class and object, Exception classes, create own exception subclass.
3. Creating multiple threads, isAlive(), join(), Thread priorities, synchronization, Deadlock, wait(), notify(), notifyAll() methods,
4. inter-thread communication, suspend, resume and stop the threads.
5. Collection framework - HashSet, ArrayList, HashMap.

Unit III – Stream and Sockets

1. I/O classes & Interfaces, File, The Stream Classes, the Byte stream (InputStream, OutputStream, FileInputStream, FileOutputStream),
2. Serialization. Network basics, Networking classes and Interfaces,
3. InetAddress, TCP/IP Client/Server socket, URL, URLConnection, Datagram, Introduction to RMI.

Unit IV – Event Handling and Swing

1. Delegation event model, event classes, Event listener interface, Layout
2. managers, Swing: benefits of Swing over AWT,

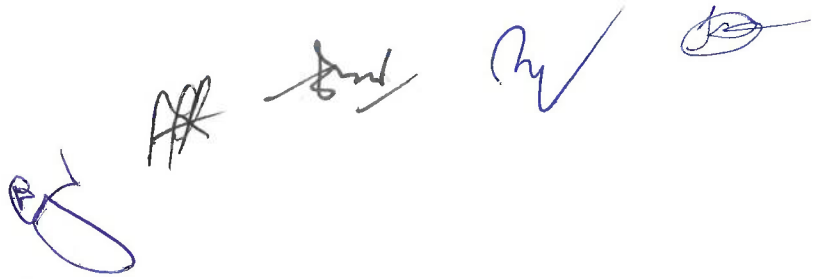
3. JFrames, JPanels, JLabels, JButtons , JTabbedPane, JScrollPane, JSplitPane, JOptionPane, JComboBox, JListBox, Text components, JMenu, JToolbar, JDialog, JTable, Database connectivity.

Unit V – Web Development

1. The Applet class, Applet Architecture, Applet skeleton, HTML APPLET Tag,
2. Passing parameter to Applet, getDocumentBase(), getCodeBase(), Applet Context, showDocument().
3. Servlet Architecture, Servlet interface, Servlet Request/ Response interface, Servlet designing, using cookies, sessionmanagement.

Suggested Readings:

1. Herbert Scheldt - The Complete Refernce Java, McGraw Hill
2. Michael Morgan - Java 2 for Professionals Developers, Techmedia



INDIRA GANDHI NATIONAL TRIBAL UNIVERSITY, AMARKANTAK
Bachelor of Vocation
(Software Development)
Fourth Semester

Title of the Paper:	**Android Application Development**	Paper Code: **SD-403**
Credit: **4**	Lecture: **04**	T/P: **0**
No. of Internal Exam: **02**		No. of Assignment: 01

Course Objectives: Be

- Exposed to technology and business trends impacting mobile application.
- Competent with the characterization and architecture of mobile application.
- Competent with understanding enterprise scale requirements of mobile application,
- Competent wit designing and developing mobile application using android studio.

Unit I – Introduction

1. Overview of android, android versions, features, android API levels.
2. Android architecture, Dalvik virtual machine, JVM vs DVM, basic building blocks.
3. Understanding intent, activities, android activity lifecycle, services, broadcast receivers, content providers, android manifest, creating first android application.
4. launching emulator, editing emulator settings, emulator shortcuts

Unit II – Android UI Design

1. Simple UI-Layouts and Layout Properties, XML
2. Push button, basic widgets, Text/Labels, Edit Text, Toggle Button, Weight Sum, Padding, Layout weight, Android-Event Handling
3. Menu, Dialogs, Toast Notification, List and Adapters
4. Styeles.xml, Colors.xml, Drawable resources for shapes, gradients, Style attribute in layout file, Applying theme

Unit III – Intents, Treads, and Multimedia Programming

1. Intents, Intents filter, Creating & Handling Intents, Explicit Intents, implicit Intents,
2. Threads running on UI thread, worker thread, Handlers & Runnable
3. Multimedia audio Formats- Creating and Playing, Multimedia audio format- Kill/ Releasing, how to associate audio in any application, how to associate video playback with an event.

Unit IV – SQLite, Google Map API and Animation

1. SQLite Database, SQLite Open Helper and Creating a Database, Opening and Closing a Database, CURD operation, File I/O.
2. Using Location Based Services, finding current location and listening for changes in location, geocoder, working with Google Maps, Displaying route on map
3. Android Animation API, Android Drawable class, Android Animation Example, Android Rotate Animation, Android Fade Animation, Android Zoom Animation

Unit V – Graphics, Connectivity, Sensor, Testing

1. Graphics API, 2D Graphics, android.graphics.Canvas, android.graphics.Paint class
2. Bluetooth, List Paired Devices, working with Wi-Fi, Working with Camera
3. Sensor API Motion Sensor, Position Sensor, Environmental Sensor, Sensor Values, Sensor Manager class, Sensor Event class, Sensor Event Listener interface, Compass Accelerometer and Orientation Sensors.
4. Deploying an Android application on physical device, example illustration

Suggested Readings:

1. Barry A. Burd - Android Application Development all in one
2. A Brain - Head first android development
3. Reto Meier - Professional Android Application Development

INDIRA GANDHI NATIONAL TRIBAL UNIVERSITY, AMARKANTAK
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(Software Development)
Fourth Semester

Title of the Paper:	**UX Design & Development Lab**	Paper Code: **SDL-404**
Credit: **02**	Lecture: **0**	T/P: **4**
No. of Internal Exam: **0**		Lab File: 01

Course Objectives: To

- Understand user experience design and why it is important
- Understand how the elements of user experience work together
- Create wireframes
- Learn visual design principals and prototyping

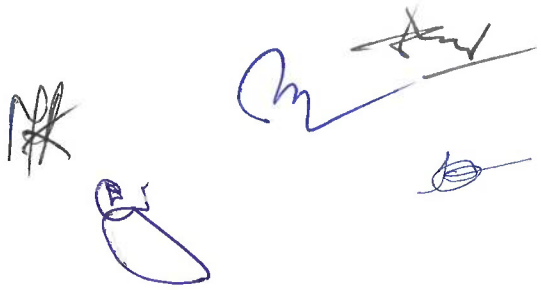
Lab Activity

1. User Interface VS User Experience
2. Wire framing in XD
3. Working with existing UI kits, type tool, fonts
4. Create forms, checkboxes buttons and free icons
5. Prototyping
6. Interactivity
7. XD app on iPhone & Android
8. Sharing wireframes
9. Mood boards & resources for high fidelity UI design
10. 12 column grid: need, how to create
11. Working with colors
12. Web safe fonts or iOS or Android specific fonts
13. Character style in XD

14. Realistic buttons with paste properties
15. Custom icons
16. Gradient & blur, mask
17. Popup model with a blurred background
18. 12 column card dashboard using repeat grid tool
19. Mobile phone mockup
20. Advance prototyping using buttons & dropdown menus
21. UX user testing

Suggested Readings:

1. Daniel Schwarz - Jump Start Adobe XD, sitepoint
2. Brian Wood - Adobe XD CC Classroom in a Book, O'Reilly



INDIRA GANDHI NATIONAL TRIBAL UNIVERSITY, AMARKANTAK
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(Software Development)
Fourth Semester

Title of the Paper:	**Advance Java Programming Lab**		Paper Code: **SDL-405**
Credit: **03**	Lecture: **0**	T/P: **06**	Lab File: **01**

Course Objective

- Use an integrated development environment development to write, compile, run and test simple object oriented java programs.
- Read and make elementary modification to java programs that's solve real world problems.
- Validate input in a java program.
- Identify and fix defects and common security issues in code.

List of experiments/programs (At least ten are to be performed/executed by each student)

1. Write a java program that accepts 10-digit string as a telephone number and extracts the 3- digit area code, 3-digit exchange and the remaining 4-digit number as a separate string and print them.
2. Write a Java program to count the number of words in a given sentences.
3. Write a java code to create a 2-D array having 5 rows, with first row having 1 element, second row having 2 elements and so on. Store numbers in these cells by taking input from user and find the sum of the numbers of each row.
4. Write a program that creates an abstract class called Shape. Create two subclasses rectangle and triangle. Include appropriate methods for both the subclasses that calculate and display the area of the rectangle and triangle.
5. Write a program to accept elements of an integer array from command line and sort the array.
6. Define an exception NegArgException that is thrown if the argument is negative. Write a program to find the factorial of a number that uses this exception when the number is negative.
7. Create an exception called "NoMatchException" that is thrown if the string is not equal to "India". Handle the exception in you java program.
8. Write Java code to see the all the IP addresses of "www.google.com" using InetAddress class.

9. Write Java code to see the port number, protocol name and host name of the URL http://download.oracle.com/javase/1.4.2/docs/api/java/lang/String.html.
10. Write a program that sends message to and fro between client and server using UDP protocol.
11. Write a program that sends message to and fro between client and server using TCP/IP protocol.
12. Write a java program to read a character file line by line and display its contents with line numbers.
13. Write program that display the contents of a directory passed through command line argument.
14. Write a program that illustrates how to use isDirectory() and list() methods to examine the contents of your directory.
15. Write a Java program to copy the contents of one file into other.
16. Create a class called student with roll number and name. Write two objects of student class in a file and print the contents of file.
17. Write a program to create two threads, one thread will print odd numbers and second thread will print even numbers between 1 to 20 numbers.
18. Write a java program that shows that synchronization between producer and consumer.
19. Write an applet program that accepts two input string using <param> tag and concatenate the strings and display it in the applet window.
20. Write a GUI based java program that handles mouse events

INDIRA GANDHI NATIONAL TRIBAL UNIVERSITY, AMARKANTAK
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Fourth Semester

Title of the Paper:	**Android Application Development Lab**		Paper Code: **SDL-406**
Credit: **03**	Lecture: **0**	T/P: **06**	Lab File: **01**

Course Objective

- Install and configure android application development tools.
- Design and develop user interface for android platform.
- Save state information across important operating system events.
- Apply java programming concepts to android application development.

List of experiments/programs (At least ten are to be performed/executed by each student)

1. Create application with Basic Views (Textview, Button, ListView)
2. Create application with different Layouts (Linear, Relative, Frame)
3. Create application to handle and respond on click using Click Listeners
4. Create application which will access files from Assets folder (Images, sounds, Custom Fonts)
5. Create application with one activity and display a layout created in xml.
6. Create application which will log all activity lifecycle events using Android log API.
7. Create application which should be Saving and restoring app state (eg textview text, checkbox checked state)
8. Create application which will start another activity using intent.
9. Create an activity which will pass data to second activity using intent.
10. Create activity which will start second activity and get response back from second activity.
11. Create application which can access/modify Contacts of device.
12. Create application which can access & display Images available on device.
13. Create application which can access and play Media files (Audio & Video)
14. Create application which will provide some data to other applications using Content Provider system.

15. Create application to Listen to following system events using Receivers
    - Incoming SMS
    - In and outgoing Phone Call
    - Low Battery
    - Storage state changed
16. Create application which will broadcast Custom event to custom Receivers.
17. Create application which will display following Notifications
    - Toast notification
    - Status bar notification
    - Dialog notification
18. Create app to connect and fetch data from a Http server/ website using URLConnection.
19. Create app to connect and fetch data from a Http server/ website using HTTPClient library.
20. Create app to connect and post data to Http server/ website using URLConnection.
21. Create app to connect and post data to Http server/ website using HTTPClient library.
22. Create application using Maps API, it should display marker on current location of user.
23. Create Application to take picture and save it to file storage using camera api
24. Create application to display current direction using sensor api
25. Create application to show a toast if phone is waved in air.
26. Create application to show list of paired and nearby bluetooth devices.
27. Create application which can share link on facebook using Facebook sdk.
28. Create application which can share photo on facebook using Facebook sdk

INDIRA GANDHI NATIONAL TRIBAL UNIVERSITY, AMARKANTAK
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Fourth Semester

Title of the Paper:	**End Semester Project IV**		Paper Code: **SDL-407**
Credit: **10**	Lecture: **0**	T/P: **20**	Project File: **01**

Introduction:

An end semester project IV should be done by the students based on the concept they have already learnt in the first two semester of the B.Voc in Software Development Programme. It may be primarily based on Database, Web Based, Object oriented concept.

Guidelines:

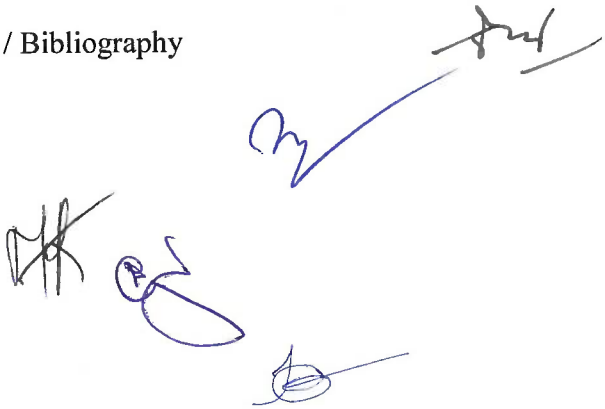
1. A student is expected to perform planning, analyzing, designing and implementing the project.
2. The initiation of project should be with the project proposal / Synopsis that is to be treated as an assignment. The synopsis approval will be given by the Faculty/ Project Guides Project Proposal should include the following:
    - Title
    - Objectives
    - Input and Output
    - Process Logic
    - Limitations of the Project
    - Tools / Platforms, Language to be used
    - Scope of Future Application

Project Report / Documentation Format:

The evaluation of the End Semester Project II will be based on the project reports submitted by the student, a presentation and a demonstration.

The format of the project report should be as under:

- Abstract
- List of Tables
- List of Figures
- List of Abbreviations / Symbols
- Methodology
- System Analysis and Design
- Summary and Conclusions
- Reference / Bibliography



Semester- V

INDIRA GANDHI NATIONAL TRIBAL UNIVERSITY, AMARKANTAK
Bachelor of Vocation
(Software Development)
Fifth Semester

Title of the Paper:	**Startup Management**	Paper Code: **SD-501**
Credit: **04**	Lecture: **04**	T/P: **0**
No. of Internal Exam: **02**		No. of Assignment: 01

Unit-I

1. Enterprenur and entreprenurship
2. Entreprenurial competencies
3. Factor affecting enterpreneurial growth : Economic, Non-economic
4. EDP Program, Training

Unit-II

1. Opportinity / Indentification and Product Selection
2. Criteria to select a product
3. Conducting feasibility studies
4. Entry strategies, intellectual property

Unit-III

1. Small Entreprises and enterprise launching formalities
2. Project report preparation
3. Machinenry and equipment selection

Unit-IV

1. Laws for Startup
2. Shops and Establishment Act
3. Industry Act etc.

Unit-5

1. Case studies

Reference Books:

1. Managening small business - Moore, Petty and Palich
2. The dynamics of Entreprenurial development & management- Desai, vasant, Himalaya Publishing

INDIRA GANDHI NATIONAL TRIBAL UNIVERSITY, AMARKANTAK
Bachelor of Vocation
(Software Development)
Fifth Semester

Title of the Paper:	**System Analysis and Design**	Paper Code: **SD-502**
Credit: **04**	Lecture: **04**	T/P: **0**
No. of Internal Exam: **02**		No. of Assignment: 01

Course Objectives: After completion of the course student will be able to

- gather data to analyses and specify the requirement of a system.
- design system component and environments.
- build general and detailed models that assist programmers in implementing a system.

Unit I – System Analysis

1. System: Definition, Constraints, Properties, Elements, Types
2. Systems Models ,Categories of Information , Systems Analysis, Systems Design,
3. System Development Life Cycle (SDLC),
4. Feasibility Study or Planning, Types of Feasibilities, Analysis and Specification, System Design Implementation, Maintenance/Support,
5. Life Cycle of System Analysis and Design, Role of System Analyst, Attributes of Systems Analyst, System Planning,

Unit II – Structured Analysis

1. Structured Analysis, Analysis Tools, Data Flow Diagrams(DFD) or Bubble Chart,
2. Data Dictionary, Decision Trees, Decision Tables, Structured English, Pseudo code, Guidelines for Selecting Appropriate Tools,
3. System Design : Input Output for system design, Types of System Design,
4. File Organization, File Access, Documentation Control, Types of Documentations

Unit III – Design Strategies

1. Top-Down Strategy , Bottom-Up Strategy , Structured Design ,Modularization, Structured Charts, Factors Affecting System Complexity,
2. Coupling, Type of Coupling, Cohesion, Input Design, Data Input Methods ,Output Design , Forms Design,
3. Testing: Definition, Characteristics, Stages, Types, Rules,

4. Quality Assurance, System Implementation and Maintenance , System Security and Audit

Unit IV – Object Oriented Approach

1. Object-Oriented System: Elements, Features
2. Structured Approach Vs. Object-Oriented Approach,
3. Unified Modeling Language (UML): Operations, Uses of UML,
4. Static Models, Dynamic Models, Component-based development (CBD)
5. Rapid Application Development (RAD), Incremental Testing.

Unit V – Website Design Testing Tools

1. Ideas for Testing E-commerce Websites, Testing Shopping Cart,
2. Search Form, Sorting, Filtering, Pagination, Create Account and Login,
3. Payments, Post Purchase Test,
4. Web Services Testing, Performance Testing, Cross-browser Web Testing,
5. Test Automation, Analyzing HTTP Traffic, Responsive Websites and Mobile Testing,
6. Web Services Testing, Testing Methods for Web Application Testing

Suggested Readings:

1. Dennis, Wixom, Roth - System Analysis and Design

INDIRA GANDHI NATIONAL TRIBAL UNIVERSITY, AMARKANTAK
Bachelor of Vocation
(Software Development)
Fifth Semester

Title of the Paper:	**Application Development with Python**	Paper Code: **SD-503**
Credit: **04**	Lecture: **04**	T/P: **02**
No. of Internal Exam: **02**		No. of Assignment: 01

Course Objectives: After completion of the course student will be able to

- identify/ characterize/define a problem in python
- create executable code
- learn advance python features, like the collections module

Unit I – Introduction to Python

1. Installation and working with python, understanding python variables, python basic operators, understanding python blocks
2. Declaring and using numeric data types: int, float, complex, Using string data type and string operations, Define list and list slicing, Use of Tuple data type
3. Conditional blocks using if, else and elif
4. Loops

Unit II – Python Functions, Modules and Packages

1. Organizing Python codes using functions
2. Organizing python projects into modules
3. Importing own module as well as external modules
4. Understanding packages, modules and external packages

Unit III – Python String, List and Dictionary Manipulations

1. Building blocks of python programs, strings in build methods
2. List manipulation using in build methods
3. Dictionary manipulation
4. Programming using string, list and dictionary

Unit IV – Python Exception Handling

1. Avoiding code break using exception handling
2. Safe guarding file operation using exception handling
3. Handling and helping developer with error code

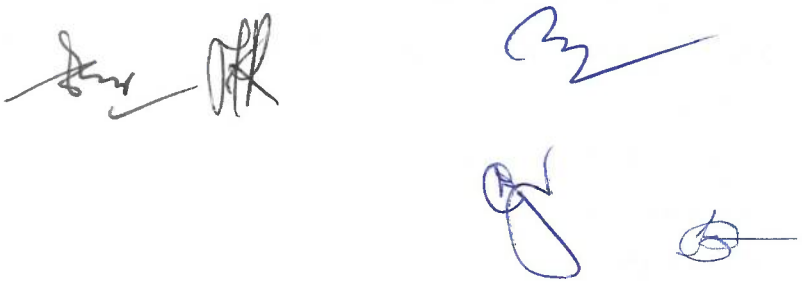
4. Programming using exception handling

Unit V – GUI Programming with Database in Python

1. SQL Database connection using python
2. Creating and searching tables, reading and storing config information on database
3. Writing python program for GUI application
4. Creating menus and accessing files

Suggested Readings:

1. Kenneth A, Lambert - The Fundamentals of Python: First Programs, Cengage Learning



INDIRA GANDHI NATIONAL TRIBAL UNIVERSITY, AMARKANTAK
Bachelor of Vocation
(Software Development)
Fifth Semester

Title of the Paper:	**.Net Application Development Lab**		Paper Code: **SDL-504**
Credit: **02**	Lecture: **4**	T/P: **02**	Lab File:01

List of Lab Exercise / Experiment

1. Accept a character from console and check the case of the character.
2. Write a program to accept any character from keyboard and display whether it is vowel or not.
3. Write a VB.Net program to accept a string and convert the case of the characters.
4. Develop a menu based VB.Net application to implement a text editor with cut, copy, paste, save and close operations.
5. Write a program to implement a calculator with memory and recall operations.
6. Develop a form in VB.NET to pick a date from Calendar control and display the day, month, and year details in separate text boxes.
7. Develop a VB.Net application to perform timer based quiz of 10 questions.
8. Develop a VB.Net application using the File and Directory controls to implement a common dialog box.
9. Develop a database application to store the details of students using ADO.NET
10. Develop a database application using ADO.NET to insert, modify, update and delete operations.
11. Develop a VB.Net application using Datagrid to display records.
12. Develop a VB.Net application using Datagrid to add, edit and modify records.

INDIRA GANDHI NATIONAL TRIBAL UNIVERSITY, AMARKANTAK
Bachelor of Vocation
(Software Development)
Fifth Semester

Title of the Paper:	**Python Programming Lab**		Paper Code: **SDL-505**
Credit: **03**	Lecture:	T/P: **06**	Lab File:01

List of Lab Exercise / Experiment

1. Compute the GCD of two numbers.
2. Find the square root of number (Newton method).
3. Exponentiation (Power of a number).
4. Find the maximum of a list of numbers.
5. Linear search
6. Binary Search
7. Selection sort
8. Insertion sort
9. Merge sort
10. Multiply matrices
11. Find N Prime Numbers
12. Program that take command line argument.
13. Simulate elliptical orbit in PyGame
14. Simulate bouncing boll using PyGame

INDIRA GANDHI NATIONAL TRIBAL UNIVERSITY, AMARKANTAK
Bachelor of Vocation
(Software Development)
Fifth Semester

Title of the Paper:	**Industrial Training**	Paper Code:	**SDL-506**
Credit: **03**	Lecture: **0**	T/P: **6**	

Guidelines for students for undergoing industrial training

1. The students of 5th semester have to undergo the industrial training for 45 or 60 days as per the syllabus.
2. Before proceeding on Industrial Training, student must seek instructions from the Class in- charge or the Teacher, who is the in-charge of Industrial Training.
3. The student must go through the syllabus of the subject. Carry a copy of the syllabus with him/her.
4. He / she must collect the confirmation letter for the training from the T.P.O. and the Daily diary from the HoD/ Class Teacher.
5. The instructions for filling the daily diary are given in the Diary itself.
6. Once the student has reached the training place, he/ she must send a mail to class teacher or the in charge training that he/she has joined the training from_____in the industry (Name)_____and forward his contact nos. email ID and the contact nos. of the company representative.
7. The purpose of the Industrial Training is not to observe the processes being performed but to develop the work process being performed and apprise them.
8. Industrial Training must give exposure in solving the open ended problems in real work setting so as to cause college base knowledge and skill into practical problems as envisaged during the training.
9. The practical training note book (daily diary and the final report book) must include the following:
    a) The basic history/introduction of the industry/company/agency.
    b) The product in terms of productivity and types of product and in case of Software Company, the software packages being used for the designing and assembly of the objects.
    c) The sequence of operations followed/ systems introduced for the production.
    d) The major equipment used for the production / computer configuration required for the loading the used software's.

e) The infrastructure available.

f) Analysis of the data, steps required and commands used in case of software industry.

g) Suggestions made based on the analysis of the data.

h) Recommendations.

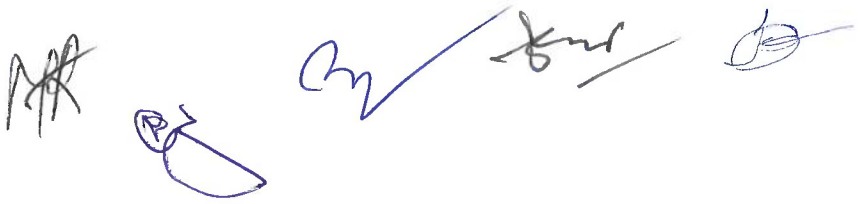
i) Certificate from the industry for the period of training undergone.

j) Every day the student must write 5 to 6 pages on the study carried out every day in the industry.

k) The final report must be at-least 100 to 150 pages.

l) In case no. of students undergoing training in the same industry are more than one, each student will prepare his/her report separately and it should be copy of the same report.

10. The report and the required documents must be submitted to HoD on the date and time announced. The above information will be displaced on the web site.
11. Non adherence of the above instructions will force the administration to review the training status of the student.



INDIRA GANDHI NATIONAL TRIBAL UNIVERSITY, AMARKANTAK
Bachelor of Vocation
(Software Development)
Fifth Semester

Title of the Paper: **Minor Project**		Paper Code: **SDL-507**
Credit: **10**	Lecture: **0**	T/P: **20**

A minor-project should be done by the students based on concepts they have already learnt in the first four semesters of the B.Voc programme. It may be primarily based on database concepts, object oriented concepts, .NET etc.

Guidelines:

1. A student is expected to perform planning, analyzing, designing and implementing the project.

2. The initiation of project should be with the project proposal/Synopsis that is to be treated as an assignment. The synopsis approval will be given by Faculty/Project Guides. Project Proposal should include the following:

Title
Objectives
Input and Output
Process Logic
Limitations of the
Project
Tools/Platforms, Languages to be
used Scope of Future Application.

Guidelines for the Preparation of Project Reports

- **Printing Area:** The margins should be: Left: 1.25", Right: 1.00", Top and Bottom- 1.00". The text should be justified to occupy the full line width, so that the right margin is not ragged, with words hyphenated as appropriate. Please fill pages so that the length of the text runs to the right margin.

  The report must be printed on one side only. Please use a high-resolution printer, preferably a laser printer with at least 300 dpi. Project reports must be printed neatly on one side of the paper on a A4 size bond paper. The reports submitted to the department/guide(s) must be hard bounded with black cover with golden color alphabets.

- **Abstract:** The abstract should summarize the contents of the report and should contain at least 150 and at most 300 words. It should be set in 11-point font size. There should be two blank (10-point) lines before and after the title ABSTRACT.
- Layout, Typeface, Font Sizes, and Numbering: For the main text, please use 11-point type and 1.5 line spacing. We recommend using Times New Roman fonts. Italic type may be used to emphasize words in running text. **Bold type and underlining should be avoided.**
- **Headings:** The chapter headings should be in capitals and must be separated from the other text by 24 point line space. Headings should be in the form where each word is capitalized (i.e., nouns, verbs, and all other words except articles, prepositions, and conjunctions should be set with an initial capital) and should, with the exception of the title, be aligned to the left. The font sizes are given in Table 1.

Table 1: Font sizes of headings. Table captions should always be positioned above the tables. The final sentence of a table caption should end without a period.

Heading	Example	Font Size and Style
Title	Chapter 1 Introduction	16 Point Bold
First Level Heading	1.1. Preamble	14 Point Bold
Second Level Heading	2.3.1. Mandatory	12 Point Bold
Third Level Heading	Creation of database	12 Point Bold Italicized

- **Figures and Photographs:** Check that in line drawings, lines are not interrupted and have constant width. Grids and details within the figures must be clearly readable and may not be written one on top of the other. The lettering in figures should have a height of 2 mm (10-point type). Figures should be scaled up or down accordingly.

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- Example of an Algorithm is

Algorithm-1: Database Creation (Mean and Standard Deviation based approach)

Input: Static images of potential traffic sign **Output:** Database created.

Methodology:

For each input image do

Step1: Preprocess the image as explained in section 4.3.1

Step2: Calculate the number of components in a sign as explained in section 4.3.1.

Step3: calculate a feature vector as mentioned in section 4.3.2.1.

Step4: Store the feature vector computed in step 3 in the corresponding database, based on number of components present in the sign.

Algorithm End.

- **Footnotes/ Header:** Footnotes/Header should appear at the bottom of the normal text area, with a line of about 5 cm in Word set immediately below/above the text.

Header sample: (Project title is left aligned and page number is right aligned)

<<Project Title>> <<Page Number>>

Sample Footer:

<IGNTU> B.VOC Department 2019-2020

- **References:** The list of references is headed "References" and is assigned a number with square brackets in the decimal system of headings. The list should be set in small print and placed at the end of the dissertation, in front of the appendix, if any exists. Please do not insert a page break before the list of references if the page is not completely filled.

For citations in the text please use square brackets and consecutive numbers: [1], [2], [3]

- **Page Numbering:** Reports must be printed with page numbers on the top right corner. One CD's having soft copy of Project report (for department purpose) is also submitted. Before taking the final printout, the approval of the concerned guide is mandatory and Suggested corrections, if any, must be incorporated.

  Every copy of the report must contain:

  - Project Cover Page
  - Certificate in the format enclosed, only certificate will be signed by following:
    - HOD, Internal guide and External guide.

  The organization of the report should be as follows Project Cover Page

  Approval Certificate

  Declaration (by student)

  Acknowledgement

  Abstract

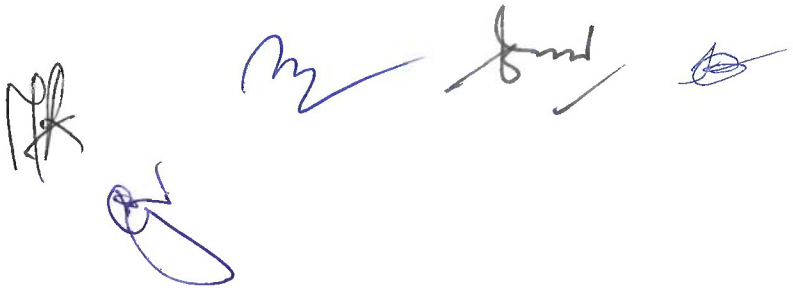
  Table of Contents

  List of table and figures

  Main body of project

  References

- Proper attention is to be paid to the technical contents as well as to the organization of the report and clarity of the expression. Care should be taken to avoid spelling and typing errors.
- The student should note that report (write-up) forms the important component in the overall evaluation of the project. The respective guides can decide how the content of the project report must be organized if the project is research oriented, as a specific format cannot be defined for various domains of research problems.



CONTENTS

CERTIFICATE OF APPROVAL

This is to Certify that the project the entitled **"Project Title "**, carried out by **"Name of the Student"** a student of fifth semester, B.Voc (Software Development / Theater Stage Craft, Film Production and Media Technology) at **Indira Gandhi National Tribal University,** is hereby approved after proper examination and evaluation as a creditable work for the partial fulfillment of the requirement minor project of Bachelor of Vocational (B.VOC) in Software Development/Theater Stage Craft, Film Production and Media Technology from Indira Gandhi National Tribal University, Amarkantak (M.P.)

(Internal Examiner)
Name:
Designation:
Date:

(External Examiner)
Name:
Designation:
Date:

ACKNOWLEGEMENT

I have great pleasure in the submission of this project report entitled **Project Title** for **Name of the Company** in partial fulfillment for **Minor Project of Bachelor of Vocation in Software Development/ Theater, Stage Craft, Film Production and Media Technology**. While submitting this Project report, I take this opportunity to thank those directly or indirectly related to project work.

I would like to thank my guide **Name of the guide in Company** who has provided the opportunity and organizing project for me. I also thank to **Name of the guide in Department** Without his/her active co-operation and guidance, it would have become very difficult to complete task in time.

I would like to express sincere thanks and gratitude to **Name of the Dean** (Dean).

While Submission of the project, I also like to thanks to **Name of Project Coordinator** (Project Coordinator, B.Voc) and the staff of B.Voc for their continuous help and guidance throughout the course of project.

Acknowledgement is due to our parents, family members, friends and all those persons who have helped us directly or indirectly in the successful completion of the project work.

Name of the Student

Enrollment

Semester-VI

INDIRA GANDHI NATIONAL TRIBAL UNIVERSITY, AMARKANTAK
Bachelor of Vocation
(Software Development)
Sixth Semester

Title of the Paper:	**Entrepreneurship and Skill Development**	Paper Code:	**SD-601**
Credit: **04**	Lecture: **04**	T/P: **0**	
No. of Internal Exam: **02**		No. of Assignment: 01	

Course Objectives:

- To develop and strengthen entrepreneurial quality and motivation in students and to impart basic entrepreneurial skills and understanding to run a business efficiently and effectively.

UNIT I: ENTREPRENEURSHIP

1. Entrepreneur , Types of Entrepreneurs
2. Difference between Entrepreneur and Intrapreneur
3. Entrepreneurship in Economic Growth, Factors Affecting Entrepreneurial Growth.

UNIT II: MOTIVATION

1. Major Motives Influencing an Entrepreneur
2. Achievement Motivation Training, Self Rating, Business Games,
3. Thematic Apperception Test – Stress Management,
4. Entrepreneurship Development Programs – Need, Objectives.

UNIT III: BUSINESS

1. Small Enterprises – Definition, Classification , Characteristics, Ownership Structures
2. Project Formulation – Steps involved in setting up a Business – identifying, selecting a Good Business opportunity, Market Survey and Research,
3. Techno Economic Feasibility Assessment – Preparation of Preliminary Project Reports
4. Project Appraisal – Sources of Information – Classification of Needs and Agencies.

UNIT IV: FINANCING AND ACCOUNTING

1. Need – Sources of Finance, Term Loans, Capital Structure,
2. Financial Institution, Management of working Capital, Costing,
3. Break Even Analysis, Taxation – Income Tax, Excise Duty – Sales Tax.

UNIT V: SUPPORT TO ENTREPRENEURS

1. Sickness in small Business – Concept, Magnitude, Causes and Consequences,
2. Corrective Measures, Business Incubators, Government Policy for Small Scale Enterprises
3. Growth Strategies in small industry
4. Expansion, Diversification, Joint Venture, Merger and Sub Contracting.

INDIRA GANDHI NATIONAL TRIBAL UNIVERSITY, AMARKANTAK
Bachelor of Vocation
(Software Development)
Sixth Semester

Title of the Paper:	**IT Infrastructure Management**	Paper Code: **SD-602**
Credit: **04**	Lecture: **04**	T/P: **0**
No. of Internal Exam: **02**		No. of Assignment: 01

Course Objectives: To

- Reduce duplication of work
- Enhance information flow all through the information system.
- Ensure adherence to standards.
- Promote adaptability that is required for a changeable environment.

Unit I – IT Infrastructure: Overview

1. Definition, infrastructure management activities, evolutions of systems since 1960
2. Growth of internet, current business demand and IT system issues,
3. Complexity of today's computing environment, total cost of complexity issues
4. Value of systems management for business

Unit II – IT Infrastructure Management

1. Factors to consider in designing IT organizations and IT infrastructure
2. Determining customer's requirement, Identifying System Components to manage,
3. Exist Processes, Data, applications, Tools and their integration,
4. Patterns for IT systems management, design process for information systems,
5. Models, Information Technology Infrastructure Library (ITIL).

Unit III – Current Computing Environment

1. Complexity of current computing,
2. Multiple technologies, multiple vendors, multiple users,
3. E- Waste disposal, Total cost of ownership.

Unit IV – IT System Management

1. Common tasks in IT system management, approaches for organization Management,
2. Models in IT system design, IT management systems context diagram,
3. patterns for IT system Management

Unit V – Service Delivery processes, Service Support Management, Storage Management, and Security management

1. Service-level management, financial management and advantages of financial management
2. Service support process, configuration management, incident management
3. Types of storage management, Benefits of storage management, backups, Archive, recovery, disaster recovery
4. Basics of network security, LDAP fundamentals, intrusion detection, firewall, security information management.

Suggested Readings:

1. Anita Sengar - IT Infrastructure Management,
2. S. Sharma - IT Infrastructure and Its

INDIRA GANDHI NATIONAL TRIBAL UNIVERSITY, AMARKANTAK
Bachelor of Vocation
(Software Development)
Sixth Semester

Title of the Paper:	**Major Project**	Paper Code:	**SDL-603**
Credit: **10**	Lecture: **0**	T/P: **20**	

General Guidelines for B.VOC VI semester

- Students are required to take up individual project in companies/Organizations/PSU/Govt.
- EDP Cell other than the mini project standards already taken up during previous semesters.
- Project should be real time work.
- Project work may be application oriented or research oriented as per student interest. Therefore the project reports will vary depending on whether it is application oriented project or research based project.
- Regular project work weekly dairy should be maintained by the students, signed by the internal guide in order to verify the regularity of the student.
- Seminars / presentation should be given at Project Completion levels.
- If project report is not as per the format and not a real time project, external guides will have every right to reject the project
- Students are encouraged and appreciated to show their project code demo along with their power point slide show during their viva-voce exams as an added advantage.

Guidelines for the Preparation of Project Reports

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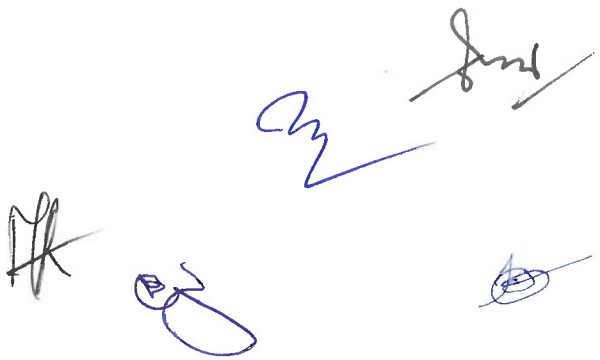

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(Internal Examiner)

Name:
Designation:
Date:

(External Examiner)

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Date:

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Name of the Student

Enrollment: