

# *Chhattisgarh Swami Vivekanand Technical University*

## *Bhilai(C.G)*

### Scheme of Teaching and Examination B.E. V Semester Information Technology

S. No	Board of Study	Subject Code	Subject Name	Periods per week			Scheme of Exam			Total Marks	Credit L+(T+P)/2
				L	T	P	Theory/Practical				
							ESE	CT	TA		
1	Computer Science & Engg.	322551(22)	Microprocessor & Interfaces	3	1	-	80	20	20	120	4
2	Information Technology	333552(33)	Principles of Communication system	4	1	-	80	20	20	120	5
3	Information Technology	333553(33)	Database Management System	3	1	-	80	20	20	120	4
4	Information Technology	333554(33)	Operating System	3	1	-	80	20	20	120	4
5	Information Technology	333555(33)	Programming in Java	3	1	-	80	20	20	120	4
6	Information Technology	333556(33)	Theory of Computation	3	1	-	80	20	20	120	4
7	Information Technology	333562(33)	Principles of Communication System Lab	-	-	3	40		20	60	2
8	Information Technology	322561(22)	Microprocessor and Interfaces Lab	-	-	3	40		20	60	2
9	Information Technology	333563(33)	Database Management System Lab	-	-	3	40		20	60	2
10	Computer Science & Engg	333564(33)	Programming in Java Lab	-	-	3	40		20	60	2
11	Humanities	300565(46)	Personality Development	-	-	2			20	20	1
12	Information Technology	333566(33)	* Practical Training Evaluation & Library	-	-	1			20	20	1
<b>TOTAL</b>				<b>19</b>	<b>6</b>	<b>15</b>	<b>640</b>	<b>120</b>	<b>240</b>	<b>1000</b>	<b>35</b>

**L: Lecture**                                      **T: Tutorial**                                      **P: Practical**  
**ESE: End Semester Examination**      **CT: Class Test**                                      **TA: Teachers Assessment**

**Name of the Programme: Bachelor of Engineering ::::: Duration of the programme: Four Years**

*\* Industrial Training of eight weeks is mandatory for B.E. student. It is to be completed in two parts. The first part will be in summer after IV semester after which students have to submit a training report which will be evaluated by the college teachers during B.E. V semester.*

## Chhattisgarh Swami Vivekanand Technical University, Bhilai

Branch:	<b>Information Technology</b>	Semester:	<b>V</b>		
Subject:	Principles of Communication System	Code:	<b>333552(33)</b>		
Total Theory Periods:	<b>40</b>	Total Tutorial Periods:	<b>10</b>		
No. of class Tests to be conducted:	<b>2 (Minimum)</b>	No. of assignments to be submitted:	<b>One per Unit</b>		
ESE Duration:	<b>Three Hours</b>	Maximum Marks in ESE:	<b>80</b>	Minimum Marks in ESE:	<b>28</b>

### COURSE OBJECTIVE:

- To understand Analog and Digital Modulation Techniques
- To learn Advanced Communication Techniques & its application in different industry

### COURSE OUTCOME:

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

- Describe various modulation techniques in Analog and digital communication Techniques
- Describe working of light propagation in Optical fiber and explain Satellite Communication System
- Have an understanding of design considerations for multiple access / use spectrum and multiplexing.

- UNIT I Amplitude Modulation:** Need for Modulation, Amplitude Modulation, Amplitude Modulation Index, Modulation Index for Sinusoidal AM, Frequency spectrum for Sinusoidal AM, Average power for Sinusoidal AM, Effective voltage and current for sinusoidal AM, Balanced Modulator, The Square law demodulator, Non sinusoidal modulation, DSBSC Modulation, SSB modulation and generation, VSB, FDM.
- UNIT II Angle Modulation:** Phase and frequency modulation and their relationship. Frequency deviation, spectrum of FM Signal, BW of FM Signal, Effect of modulation on BW, constant BW, FM phasor diagram, Narrow band F.M. Armstrong and Parameter variation methods of FM generation and FM demodulators.
- UNIT III Sampling, Quantization and Coding :** Sampling theorem, Pulse Modulation: PAM, PPM, PWM. Quantization of Signals, Quantization error, TDM, Pulse Code Modulation (PCM), DPCM, DM, ADM AND their comparative performance evaluation.
- UNIT IV Digital Modulation:** Digital Modulation: Generation and detection of BASK, BPSK and BFSK; ASK, FSK, PSK performance evaluation, Fundamentals of QPSK and DPSK , generation and detection of QPSK and DPSK; Definition of MSK, M-Ary PSK and its application areas.
- UNIT V Advanced Communication Techniques:** Satellite Communication: Components and Block diagram of Satellite communication system, Transponders, Up-link and Down-link budget calculations. Fiber Optic Communication: Principles of light propagation in optical fiber, Losses in fibers, Dispersion, Connectors and splices, Fiber optic communication link.

### Text Books:

1. Principles of Communication system by H.Taub and D.L. Shilling. TMH, 2008.
2. Communication Systems by R. P. Singh and S. D. Sapre 2<sup>nd</sup> Edition TMH.

### Reference Books:

1. Electronic Communications by Roddy & Coolen, PHI, 4<sup>th</sup> Ed.
2. An Introduction to the Principle of Communication Theory by J.C. Hancock, Mc-Graw Hill.
3. Communication System-by A.B. Carlson ,Mc-Graw Hill, 3<sup>rd</sup> Ed.
4. Electronic Communication System by Kenedy & Davis, TMH, 5<sup>th</sup> Ed.

**Name of the Programme: Bachelor of Engineering :::: Duration of the programme: Four Years**

# Chhattisgarh Swami Vivekanand Technical University, Bilai

Branch: **Computer Science & Engineering**

Subject: **Microprocessor & Interfaces**

Total Theory Periods: **40**

No. of class Tests to be conducted: **2 (Minimum)**

ESE Duration: **Three Hours**

Semester: **V**

Code: **322551 (22)**

Total Tutorial Periods: **10**

No. of assignments to be submitted: **One per Unit**

Minimum Marks in ESE: **28**

Maximum Marks in ESE: **80**

**COURSE OBJECTIVE:** To introduce the basic concepts of microprocessor & assembly language programming.

## COURSE OUTCOME:

1. The student will be able to analyse, specify, design, write and test assembly language programs of moderate complexity.
2. The student will be able to select an appropriate 'architecture' or program design to apply to a particular situation; e.g. an interrupt-driven I/O handler for a responsive real-time machine. Following on from this, the student will be able to design and build the necessary programs.

**UNIT I: Introduction to Basic Microprocessors:** Historical Background, the Harvard and Princeton architecture, The Microprocessor-Based Personal Computer Systems. The Microprocessor 8085, 8088 basics and comparison (Block & Pin diagram only).

**UNIT II: Microprocessor Architecture 8086:** 8086 basic block diagram, Internal Microprocessor Architecture, Real Mode Memory Addressing, Registers, pin configuration, segmentation.  
**Data Movement Instructions:** MOV, PUSH/POP, Load-Effective Address, String Data Transfers, Miscellaneous Data Transfer Instructions, Segment Override Prefix, Assembler Details. Arithmetic and Logic Instructions: Addition, Subtraction and Comparison, Multiplication and Division, BCD and ASCII Arithmetic, Basic Logic Instructions, Shift and Rotate, String Comparisons. Program Control Instructions: The Jump Group, Controlling the Flow of the Program, Procedures, and Introduction to Interrupts, Machine Control and Miscellaneous Instructions. Assembler directives, assembler instructions, Assembly Language Programming.

**UNIT III: Assembly Language programming with C/C++, Interrupt and Timing diagrams:** Using Assembly Language with C/C++ for linking C/C++ into assembly language, Basic Programs - Use of BIOS and DOS Interrupts in assembly & C/C++, Interrupts of 8086 microprocessors, Timing diagram of 8086 microprocessor.

**UNIT IV: Memory and I/O Interfacing:** Minimum and Maximum mode configuration of 8086, Memory Interface with 8086 microprocessor, Address Decoding. Basic I/O Interface: Introduction to I/O Interface, I/O Port Address Decoding. I/O Interface using peripheral devices: The Programmable Peripheral Interface 8255, Programmable Interval Timer 8254. **Direct Memory Access:** Basic DMA Operation and Definition.

**UNIT V: Advanced Microprocessors:** 80386- Features, block diagram, data types, supported registers, memory system, real mode and protected mode operation, descriptors, cache register, control register, paging mechanism, virtual mode, and protection mechanism for operating system..  
**Comparative Study of Modern Microprocessor (Web based Reference for study):** Pentium Pro (Pentium II, Pentium III, Pentium IV), Core i3,i5,i7 and Atom processors.

## Text Book:

1. Barry B Brey: The Intel Microprocessors, 8th Edition, Pearson Education, 2009. (Listed topics only from the Chapters 1 to 13)
2. Ramesh S. Gaonkar : Microprocessor Architecture, programming and Application with 8085, 4<sup>th</sup> Edition, Wiley,2012

## Reference Books:

1. Douglas V. Hall: Microprocessors and Interfacing, Revised 2<sup>nd</sup> Edition, TMH, 2006.
2. James L. Antonakos: The Intel Microprocessor Family: Hardware and Software Principles and Applications, Cengage Learning, 2007.

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- Nilesh B. Bahadure: Microprocessors: The 8086/8088, 80186/80286, 80386/80486 and the Pentium family, 2<sup>nd</sup> edition (2014), Prentice Hall of India (PHI).
- K. Udaya Kumar & B.S. Uma Shankar: Advanced Microprocessors & IBM-PC Assembly Language Programming, TMH 2003.
- Microprocessor: Theory and Applications- Intel and Motorola, Rafiquzzaman, PHI.

## Chhattisgarh Swami Vivekanand Technical University, Bhilai

Branch: <b>Information Technology</b>	Semester: <b>V</b>	
Subject: <b>Database Management System</b>	Code: <b>333553 (33)</b>	
Total Theory Periods: <b>40</b>	Total Tutorial Periods: <b>10</b>	
No. of class Tests to be conducted: <b>2 (Minimum)</b>	No. of assignments to be submitted: <b>One per Unit</b>	
ESE Duration: <b>Three Hours</b>	Maximum Marks in ESE: <b>80</b>	Minimum Marks in ESE: <b>28</b>

### COURSE OBJECTIVE:

- To understand the role of a database management system and its users in an organization.
- To understand database concepts, including the structure and operation of the relational data model.
- To successfully apply logical database design principles, including E-R diagrams and database normalization.
- To construct simple and moderately advanced database queries using Structured Query Language (SQL).
- To understand the concept of transaction, its properties and how to persist the data in complex concurrent users environment.

### COURSE OUTCOME:

- Will be able to describe the basic concepts of RDMBS and relational data model
- Be familiar with the relational database theory, and be able to write relational algebra expressions for queries.
- Understand DML, DDL and will be able to construct queries using SQL by knowing the importance of data & its requirements in any applications.
- Be familiar with the basic issues of transaction, its processing and concurrency control.
- Able to translate DB designs from relational notation to ER notation & con Perform normalization once redundancies have been eliminated.
- Be familiar with basic db storage structures, access techniques: file / page organizations, indexing methods including B-tree, hashing.

- UNIT I INTRODUCTION TO DATA BASE:** Advantages of DBMS, Type of Data Models, Scheme and instances, DBMS Architecture and Data Independence, Entity- Relationship Model, Attributes and Keys, Relationship Types, Weak Entity, Enhanced E-R Modeling, Specialization and Generalization, Record Storage and Primary File Organizations: Introduction, Secondary Storage Devices, Buffering of Blocks, Structure of Files: Types of Single Level ordered indexes, Multilevel indexes, Dynamics Multilevel indexes using B-trees and B+- Trees.
- UNIT II THE RELATIONAL DATA MODEL:** Relational data model concepts, constraints, relational algebra, relational calculus, SQL: DDL, DML, DCL, View, Index, Cursors and Triggers
- UNIT III DATABASE DESIGN:** Function Dependencies and Normalization for Relational Databases: Informal design guidelines for relation schemes, Functional dependencies, Normal forms based on primary keys, General definitions of second and third normal forms, Boyce-codd normal form, problem related with normal forms & solutions. Multivalued & Join Dependencies, 4th & 5th Normalization.
- UNIT IV QUERY & TRANSACTION PROCESSING:** Query Processing: Query processing stages, Query interpretation, Query execution plan, Table scans, Fill factor, Multiple index access, Methods for join tables scans, Structure of a query optimizer. Transaction Processing: Types of failures, ACID property, schedules and recoverability, serialisability of schedules, Levels of transaction consistency, Deadlocks, Nested transaction, Transaction benchmarking.
- UNIT V CRASH RECOVERY:** Failure classification, Different type of Recovery techniques & their comparative analysis, deferred update, immediate update, Shadow paging, Check points, On-line backup during database updates, Concurrency Control: Different type of concurrency control techniques & their comparative analysis, Locking techniques, Time-stamp ordering, Multi-version techniques, Optimistic techniques, Multiple granularity, Integrity, Security, Non-procedural procedural integrity constraints and Integrity constraints specifications in SQL.

### Text Books:

- Database system concept, Korth & Sudarshan, TMH, 5<sup>th</sup> Ed.
- Introduction to Database Systems, C.J.Date, Pearson Education, 8<sup>th</sup> Ed.

### Reference Books

- Principles of Database Systems", 2nd Edn., Ullman, J.O, Galgotia Publications.
- Fundamentals of Database Systems, Elmasri R. & Navathe S.B., Pearson Education.

**Name of the Programme: Bachelor of Engineering :::: Duration of the programme: Four Years**

## Chhattisgarh Swami Vivekanand Technical University, Bhilai

Branch:	<b>Information Technology</b>	Semester:	<b>V</b>		
Subject:	<b>Operating System</b>	Code:	<b>333554 (33)</b>		
Total Theory Periods:	<b>40</b>	Total Tutorial Periods:	<b>10</b>		
No. of class Tests to be conducted:	<b>2 (Minimum)</b>	No. of assignments to be submitted:	<b>One per Unit</b>		
ESE Duration:	<b>Three Hours</b>	Maximum Marks in ESE:	<b>80</b>	Minimum Marks in ESE:	<b>28</b>

### Course Objectives:

- General understanding of structure of modern computers
- To understand purpose, structure and functions of operating systems
- To illustration of key OS aspects by example

### Course Outcomes:

By the end of the course you should be able to-

- Describe the general architecture of computers and operating system
- Understand and analyse theory and implementation of: processes, resource control (concurrency etc.), physical and virtual memory, scheduling, I/O and files.

- UNIT I INTRODUCTION:** Operating System objective and function. The Evolution of Operating Systems, Batch, interactive, time – sharing and real time systems. Protection. Operating System Structure: System COMPONENTS, operating system service, System structure. Distributed Computing, The Key Architecture Trend: Parallel Computation, Input-Output Trends.
- UNIT II CONCURRENT PROCESSES:** Process concept: - Introduction Definitions of “Process”, Process States, Process State Transitions, The process Control Block, Operations on Processes, Suspend and Resume, Interrupt Processing, The Nucleus of the Operating System. Asynchronous Concurrent Process: - Introduction, Parallel Processing, A Control Structure for Indicating Parallelism, Mutual Exclusion, The Producer / consumer problem, the critical section problem, semaphores, Classical problems in concurrency, Inter process Communication, Process generation, Process Scheduling. CPU Scheduling: Scheduling concepts, Performance criteria, and scheduling algorithms. Algorithm evaluation, Multiprocessor scheduling.
- UNIT III DEAD LOCKS:** System model. Deadlock characterization. Prevention, avoidance and detection, Recovery from dead lock Combined approach.
- UNIT IV MEMORY MANAGEMENT:** Base machine, resident Monitor, Multiprogramming with fixed partitions. Multiprogramming with variable partitions. Multiple Base Registers. Paging, segmentation paged segmentation, Virtual Memory concept, Demand Paging, Performance, Page Replacement algorithms, Allocation of frames, Thrashing, Cache memory organization impact on performance.
- UNIT V I/O MANAGEMENT & DISK SCHEDULING:** I/O Devices and the organization of the I/O function. I/O Buffering, Disk I/O, Operating System Design issues. File System: File concept- File organization and Access mechanism, File Directories, File sharing. Implementation issues. Case Studies: - Unix System, MVS, OS/2, A Virtual Machine Operating System.

### Text Books

1. Operating System Concepts, Silberschatz A. and Peterson, J. L., Wiley, 8<sup>th</sup> Ed.
2. An Introduction to Operating Systems, Dietel, H. N., Addison Wesley, 2<sup>nd</sup> Ed.

### References Books

1. Operating System: Concept & Design, Milenkovic M., and McGraw Hill.

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2. Operating System, Stalling, William, Maxwell McMillan International Editons, 1992.
3. Operating System Design & Implementation, Tanenbaum, A. S., Prectice Hall NJ

## Chhattisgarh Swami Vivekanand Technical University, Bhilai

Branch: <b>Information Technology</b>	Semester: <b>V</b>
Subject: <b>Programming in Java</b>	Code: <b>333555 (33)</b>
Total Theory Periods: <b>40</b>	Total Tutorial Periods: <b>10</b>
No. of class Tests to be conducted: <b>2 (Minimum)</b>	No. of assignments to be submitted: <b>One per Unit</b>
ESE Duration: <b>Three Hours</b>	Maximum Marks in ESE: <b>80</b> Minimum Marks in ESE: <b>28</b>

### COURSE OBJECTIVE:

1. Make them learn about Java programming concepts, graphical user interfaces, basic data structures.

### COURSE OUTCOME:

- Can develop solutions for a range of problems using object-oriented programming.
- Be able to implement, compile, test and run Java programs comprising more than one class, to address a particular software problem.
- Demonstrate the ability to use simple data structures like arrays in a Java program.

<b>UNIT I</b>	<b>INTRODUCTION:</b> History of Java, Features of Java, data types, variables, literals, expressions, operators, programming constructs, Enhanced for loop, Comparison with C++, Java program Compilation and Execution, JVM as an interpreter and emulator, class File Format, Class loaders, Verification, Class Area, Java Stack, Heap, Security Promises of the JVM, Garbage Collection.
<b>UNIT II</b>	<b>CLASSES AND OBJECTS:</b> Classes, Objects and References, "this" keyword, Methods, Accessors and Mutators, overloading method, static keyword, Access specifiers, Arrays, Command line arguments. Constructors and finalizers, overloading constructors, Inner classes, Wrapper Classes, Cloning objects, Shallow and Deep Cloning, Type compatibility and conversion. Inheritance; definition and advantages, overriding, Super, final and abstract classes, Interface, Package: Defining package, interfaces in package, importing packages.
<b>UNIT III</b>	<b>EXCEPTION HANDLING, STRINGS AND COLLECTION API:</b> Basics of exception handling, Checked and Unchecked Exceptions, default Exception handling, try and catch, Multiple catch statements, try-catch-finally, uses of throw and throws, Strings: string constructor, string arithmetic, string methods, StringBuffer and methods. Overview of Collections Framework.
<b>UNIT IV</b>	<b>MULTI THREADING AND FILE HANDLING:</b> Thread Concepts, Thread life cycle, Runnable Vs Thread Class, Thread Priority, Thread Methods, Thread Synchronization: Concept of Monitor, Synchronized methods & Synchronized blocks, Deadlocks. File Handling using Java, Streams, Byte and Character Streams, Various operations with files.
<b>UNIT V</b>	<b>GUI APPLICATION AND APPLLET DEVELOPMENT:</b> Overview of AWT , applets and application, applet life cycle, User interfacing components, Layout Managers, Event Driven programming in java, Event delegation model, Event types and classes, Listeners, Overview of Swing Components. Introduction to JDBC, ODBC, JDBC drivers: Type I, Type II, Type III, Type IV. JDBC Architecture, executing DDL, DML, DCL commands.

### TEXT BOOKS:

1. Introduction to Java Programming: Liang, Pearson Education, 7<sup>th</sup> Edition.
2. Java The complete reference: Herbert Schildt, TMH, 5<sup>th</sup> Edition.

### REFERENCE BOOKS:

1. Balguruswamy, Programming with JAVA, TMH.
2. "Head first Java" by Kathy Sierra, Bert Bates , O'Reilly Media Publication.
3. Big Java: Horstman, Willey India, 2<sup>nd</sup> Edition.
4. Java Programming Advanced Topics: Wigglesworth, Cengage Learning.
5. Java How to Program: H.M. Deitel & Paul J. Deitel, PHI, 8<sup>th</sup> Edition.

**Name of the Programme: Bachelor of Engineering :::: Duration of the programme: Four Years**

# Chhattisgarh Swami Vivekanand Technical University, Bhilai

Branch:	<b>Information Technology</b>	Semester:	<b>V</b>
Subject:	<b>Theory of Computation</b>	Code:	<b>333556 (33)</b>
Total Theory Periods:	<b>40</b>	Total Tutorial Periods:	<b>10</b>
No. of class Tests to be conducted:	<b>2 (Minimum)</b>	No. of assignments to be submitted:	<b>One per Unit</b>
ESE Duration:	<b>Three Hours</b>	Maximum Marks in ESE:	<b>80</b>
		Minimum Marks in ESE:	<b>28</b>

## COURSE OBJECTIVE:

- Students will learn about a variety of issues in the mathematical development of computer science theory, particularly finite representations for languages and machines,
- Students will gain a more formal understanding of algorithms and procedures.

## COURSE OUTCOME:

At the end of this course students will:

- Be able to construct finite state machines and the equivalent regular expressions.
- Be able to prove the equivalence of languages described by finite state machines and regular expressions.
- Be able to construct pushdown automata and the equivalent context free grammars.
- Be able to prove the equivalence of languages described by pushdown automata and context free grammars.
- Be able to construct Turing machines and Post machines.

- UNIT I THE THEORY OF AUTOMATA :** Introduction to automata theory, Examples of automata machine, Finite automata as a language acceptor and translator. Deterministic finite automata. Non deterministic finite automata, finite automata with output (Mealy Machine. Moore machine). Finite automata with ? moves, Conversion of NFA to DFA by Arden's method, Minimizing number of states of a DFA. Myhill Nerode theorem, Properties and limitation of FSM. Two way finite automata. Application of finite automata.
- UNIT II REGULAR EXPRESSIONS :** Regular expression, Properties of Regular Expression. Finite automata and Regular expressions. Regular Expression to DFA conversion & vice versa. Pumping lemma for regular sets. Application of pumping lemma, Regular sets and Regular grammar. Closure properties of regular sets. Decision algorithm for regular sets and regular grammar.
- UNIT III GRAMMARS:** Definition and types of grammar. Chomsky hierarchy of grammar. Relation between types of grammars. Role and application areas of grammars. Context free grammar. Left most linear & right most derivation trees. Ambiguity in grammar. Simplification of context free grammar. Chomsky normal form. Greibach normal form, properties of context free language. Pumping lemma from context free language. Decision algorithm for context tree language.
- UNIT IV PUSH DOWN AUTOMATA AND TURING MACHINE:** Basic definitions. Deterministic push down automata and non deterministic push down automata. Acceptance of push down automata. Push down automata and context free language. Turing machine model. Representation of Turing Machine Construction of Turing Machine for simple problem's. Universal Turing machine and other modifications. Church's Hypothesis. Post correspondence problem. Halting problem of Turing Machine
- UNIT V COMPUTABILITY:** Introduction and Basic concepts. Recursive function. Partial recursive function. Partial recursive function. Initial functions, computability, A Turing model for computation. Turing computable functions, Construction of Turing machine for computation. Space and time complexity. Recursive enumerable language and sets.

## Text Books :

1. Theory of Computer Science (Automata Language & Computation), K.L.P. Mishra and N. Chandrasekran, PHI.
2. Introduction to Automata theory. Language and Computation, John E. Hopcroft & Jeffery D. Ullman, Narosa Publishing House.

## Reference Books :

1. Finite Automata and Formal Languages: A Simple Approach, A.M. Padma Reddy, Pearson Education, India.
2. Theory of Automata and Formal Language, R.B. Patel & P. Nath, Umesh Publication.
3. An Introduction and finite automata theory, Adesh K. Pandey, TMH.
4. Theory of Computation, AM Natrajan. Tamarilasi, Bilasubramani, New Age International Publishers.

**Name of the Programme: Bachelor of Engineering :::: Duration of the programme: Four Years**

# Chhattisgarh Swami Vivekanand Technical University, Bilai

Branch: **Information Technology**  
Subject: **Principles of Communication System  
Laboratory**

Semester: **V**  
Code: **333562(33)**

Total Lab Periods: **36**  
Maximum Marks: **40**

Batch Size: **30**  
Minimum Marks: **20**

## **Suggested List of Experiments (but should not be limited to):**

1. To Draw the O/P waveform of Amplitude Modulation & Demodulation & Calculate Modulation Index.
2. To Draw the O/P waveform of Frequency Modulation & Demodulation & Calculate Modulation Index.
3. To Study DSB Transmitter & Receiver.
4. To Study SSB Transmitter & Receiver.
5. To Study FM Transmitter & Receiver.
6. To Observe & plot the Graph of PAM Modulation & Demodulation.
7. To Observe & plot the Graph of PPM Modulation & Demodulation.
8. To Observe & plot the Graph of PWM Modulation & Demodulation.
9. To Perform Sampling & Reconstruction of original signal & to calculate the Sampling Frequency.
10. To Perform Amplitude Shift Keying(ASK) thereby determining relative change in Amplitude.
11. To Perform Frequency Shift Keying(FSK) thereby determining relative change in Frequency.
12. To Perform Phase Shift Keying(PSK) thereby determining relative change in Phase
13. To Perform Quadrature Phase Shift Keying(QPSK) thereby determining relative change in Phase.
14. To Perform Quadrature Amplitude Modulation(QAM).
15. To perform Adaptive Delta Modulation , Demodulation .
16. To perform Delta Modulation & Compare it with Adaptive Delta Modulation (ADM).
17. To study & perform Transmission & Reception of signal using TDM Technique.

## **Text Book:**

1. Electronic Communications by R.P.Singh & S.D.Sapre, TMH.
2. Electronic Communication System by Kenedy & Davis, TMH, 5<sup>th</sup> Ed.

## **Reference Books:**

1. Principles of Communication system by H.Taub and D.L. Shiling, TMH, 2008.
2. An Introduction to the Principle of Communication Theory by J.C. Hancock, Mc-Graw Hill.
3. Signal Processing, Modulation and Noise -by Betts, English University Press, London.
4. Communication System-by A.B. Carlson, Mc-Graw Hill, 3<sup>rd</sup> Ed.

**Name of the Programme: Bachelor of Engineering ::::: Duration of the programme: Four Years**



# Chhattisgarh Swami Vivekanand Technical University, Bhilai

Branch: **Computer Science & Engineering**  
Subject: **Microprocessor & Interfaces Laboratory**  
Total Lab Periods: **36**  
Maximum Marks: **40**

Semester: **V**  
Code: **322561(22)**  
Batch Size: **30**  
Minimum Marks: **20**

## List of Experiment to be performed

1. To perform addition & subtraction of two 8 – bit hexadecimal numbers.
2. To perform addition & subtraction 16 – bit hexadecimal numbers.
3. To perform addition & subtraction 32 – bit hexadecimal numbers.
4. To perform addition & subtraction of two 8 – bit decimal numbers and store the result in DX register.
5. To perform addition & subtraction of two decimal digits 9 and 7 using ASCII code store the result in ASCII format.
6. To perform addition & subtraction of two decimal digits 97 and 25 using ASCII code store the result in ASCII format in CX-BX register.
7. To perform multiplication of 4 and 5 .
8. To perform division of 16 – bit number with 8-bit number.
9. To perform multiplication of two 8-bit numbers using ASCII code store the result in ASCII form in DX.
10. To perform division of two 8-bit numbers using ASCII code store the result in ASCII form in DX register.
11. To solve Arithmetic equation  $3AX+5DX+BP$  and store the result in CX register.
12. To solve Arithmetic equation  $(P*Q)+(R*S)$ .
13. To add only positive number from 100 data bytes.
14. To write a program to add series of 20 bytes.
15. To find positive & negative byte from 100 data bytes.
16. To find largest & smallest byte from block of data.

- List of Equipment's/Machine Required: 8086 based microprocessor kit, MASM assembler, 8086 simulator, PCs.

## Reference Books:

1. IBM PC Assembly Language and Programming, P. Abel, 5th Edition, PHI/Pearson Education.
2. Introduction To Assembly Language Programming, SivaramaP.Dandamudi, Springer Int. Edition,2003.
3. The 8088 and 8086 Microprocessors: Programming , Interfacing,Software,Hardware and Application,4th edition,W.A.Triebel,A.Singh,N.K.Srinath,Pearson Education

**Name of the Programme: Bachelor of Engineering ::::: Duration of the programme: Four Years**

# Chhattisgarh Swami Vivekanand Technical University, Bhilai

Branch: **Information Technology**  
Subject: **Database Management System Laboratory**  
Total Lab Periods: **36**  
Maximum Marks: **40**

Semester: **V**  
Code: **333563(33)**  
Batch Size: **30**  
Minimum Marks: **20**

## List of experiments:

### 1. To implement Data Definition language

- 1.1. Create, alter, drop, truncate
- 1.2. To implement Constraints.
  - 1.2.1. (a). Primary key, (b).Foreign Key, (c). Check, (d). Unique, (e). Null, (f). Not null , (g) . Default, (h). Enable Constraints, (i). Disable Constraints (j). Drop Constraints

### 2. To implementation of DML, DCL commands in RDBMS

- 2.1. (a).Insert, (b).Select, (c).Update, (d).Delete, (e).commit, (f).rollback, (g).save point, (i). Like'%' , (j).Relational Operator.

### 3. To implement Nested Queries & Join Queries

- 3.1.(a). To implementation of Nested Queries
- 3.2.(b). (a) Inner join, (b).Left join, (c).Right join (d).Full join

### 4. To implement Views

- 4.1. (a). View, (b).joint view, (c).force view, (d). View with check option

### 5. (a) Control Structure

- 5.1. To write a PL/SQL block for Addition of Two Numbers
- 5.2. To write a PL/SQL block for IF Condition
- 5.3. To write a PL/SQL block for IF and else condition
- 5.4. To write a PL/SQL block for greatest of three numbers using IF AND ELSEIF
- 5.5. To write a PL/SQL block for summation of odd numbers using for LOOP

### 5. (b) Procedures

- 5.6. To write a PL/SQL Procedure using Positional Parameters
- 5.7. To write a PL/SQL Procedure using notational parameters
- 5.8. To write a PL/SQL Procedure for GCD Numbers
- 5.9. To write a PL/SQL Procedure for cursor implementation
- 5.10. To write a PL/SQL Procedure for explicit cursors implementation
- 5.11. To write a PL/SQL Procedure for implicit cursors implementation

### 5. (c) Functions:

- 5.12. To write a PL/SQL block to implementation of factorial using function
- 5.13. To write a PL/SQL function to search an address from the given database

### 6. Triggers:

- 6.1. To write a Trigger to pop-up the DML operations
- 6.2. To write a Trigger to check the age valid or not Using Message Alert.
- 6.3. Create a Trigger for Raise appropriate error code and error message.
- 6.4. Create a Trigger for a table it will update another table while inserting values

# Chhattisgarh Swami Vivekanand Technical University, Bhilai

Branch: **Information Technology**  
Subject: **Programming in Java Laboratory**  
Total Lab Periods: **36**  
Maximum Marks: **40**

Semester: **V**  
Code: **333564(33)**  
Batch Size: **30**  
Minimum Marks: **20**

## **List of Experiments (but should not be limited to):**

1. Write a program to perform multiplication of two matrices.
2. Write a program to find the volume of a box having its side w,h,d means width ,height and depth. Its volume is  $v=w*h*d$  and also find the surface area given by the formula  $s=2(w*h+h*d+d*w)$ . use appropriate constructors for the above.
3. Develop a program to illustrate a copy constructor so that a string may be duplicated into another variable either by assignment or copying.
4. Create a base class called shape. Apart from Constructors, It contains two methods get xyvalue() and show xyvalue() for accepting co-ordinates and to display the same. Create the sub class Called Rectangle which contains a method to display the length and breadth of the rectangle called showxyvalue().Illustrate the concepts of Overriding and Constructor call sequence.
5. Write a program that creates an abstract class called dimension, create two subclasses, rectangle and triangle. Include appropriate methods for both the subclass that calculate and display the area of the rectangle and triangle.
6. Write a program, which throws Arithmetic Exception. Write another class (in a different file) that handles the Exception.
7. Create a user defined Exception class which throws Exception when the user inputs the marks greater than 100 Catch it and again rethrow it.
8. Write a program to sort a stream of Strings.
9. Write a program to illustrate various String class methods.
10. Write a program to illustrate various String Buffer methods.
11. Write a program in which a Mythread class is created by extending the Thread class. In another class, create objects of the Mythread class and run them. In the run method print "CSVTU" 10 times. Identify each thread by setting the name.
12. Write a program to illustrate various Thread methods.
13. Write a Program to implement Bank Account Class which illustrates the concept of Thread Synchronization.
14. To write a program to create a text file using Byte Stream class.
15. To write a program to copy contents of one file to another.
16. Write a program to find numbers of occurrence of vowels in a file.
17. Write a program, which illustrates capturing of Mouse Events. Use Applet for this.
18. Write a program using swing components which simulates simple calculator.
19. Write a JDBC program for Student Mark List Processing.
20. Design a text editor, which is having some of the features of notepad.

# Chhattisgarh Swami Vivekanand Technical University, Bhilai

Name of Program:	<b>Bachelor of Engineering</b>	Semester:	<b>V</b>
Branch:	<b>Common to All Branches</b>	Code:	<b>300565 (46)</b>
Subject:	<b>Personality Development</b>	Tutorial Period:	<b>NIL</b>
No. of Lectures:	<b>2/Week</b>	Marks in TA:	<b>20</b>
Total Marks in ESE:	<b>NIL</b>	Minimum number of Class Tests to be conducted:	<b>Two</b>

**Objective:** The course is introduced to develop one's outer and inner personality tremendously and enrich the abilities to enable one to meet the challenges associated with different job levels. Personality Development is essential for overall development of an individual apart from gaining technical knowledge in the subject.

## Course Objectives

Upon completion of this course, the student shall be able

- To understand the concept of personality and image;
- To develop leadership, listening and interacting skills;
- To develop attitudinal changes;
- To develop decision-making qualities; and
- To communication skill.

**UNIT I Personality concepts:** What is Personality – its physical and psychic aspects. How to develop a positive self-image. How to aim at Excellence. How to apply the cosmic laws that govern life and personality. How to improve Memory – How to develop successful learning skills. How to develop and effectively use one's creative power. How to apply the individual MOTIVATORS that make you a self-power personality.

**UNIT II Interpersonal Skills: Leadership:** Leaders who make a difference, Leadership: your idea, What do we know about leadership? If you are serious about Excellence. Concepts of leadership, Two important keys to effective leadership, Principles of leadership, Factors of leadership, Attributes. Listening: Listening skills, How to listen, Saying a lot- just by listening, The words and the music, How to talk to a disturbed person, Listening and sometimes challenging. How to win friends and influence people, How to get along with others. How to develop art of convincing others. How can one make the difference. How to deal with others particularly elders. Conflicts and cooperation.

**UNIT III Attitudinal Changes: Meaning of attitude,** benefits of positive attitudes, How to develop the habit of positive thinking.

**Negative attitude and wining:** What is FEAR and how to win it. How to win loneliness. How to win over FAILURE. How to win over PAIN. How to win over one's ANGER and others anger. What is stress and how to cope up with it? The art of self-motivation. How to acquire mental well-being. How to acquire physical well-being.

**UNIT IV Decision Making:** How to make your own LUCK. How to plan goals/objectives and action plan to achieve them. How to make RIGHT DECISION and overcome problems. How to make a Decision. Decision making: A question of style. Which style, when? People decisions: The key decisions. What do we know about group decision making? General aids towards improving group decision making.

**UNIT V Communication Skills: Public Speaking:** Importance of Public speaking for professionals. The art of Speaking - Forget the fear of presentation, Symptoms of stage fear, Main reason for speech failure, Stop failures by acquiring Information; Preparation & designing of speech, Skills to impress in public speaking & Conversation, Use of presentation aids & media.

**Study & Examination:** How to tackle examination, How to develop successful study skills.

**Group discussions:** Purpose of GD, What factors contribute to group worthiness, Roles to be played in GD.

## Course Outcomes:

- The students will be able to develop inner and outer personality exposure;
- The students will be able to develop effective leadership qualities and interacting skills;
- The students will be able to develop positive attitude, motivating skills and develop winning philosophies;
- The students will be able to develop decision-making tools; and
- The students will be able to develop group presentation, public speaking and impressive conversation.

## Text Books:

1. Basic Managerial Skills for all by E. H. McGrawth, prentice Hall India Pvt. Ltd., 2006
2. Basic Employability Skills by P. B. Deshmukh, BSP Books Pvt. Ltd., Hyderabad, 2014

## Reference Books:

1. How to Develop a Pleasing Personality by Atul John Rego, Better Yourself Books, Mumbai, 2000
2. How to Succeed by Brain Adams, Better Yourself Books, Mumbai, 1969
3. Personality: Classic Theories & Modern Research; Friedman ; Pearson Education, 2006
4. How to Win Friends and Influence People by Dale Carnegie, A. H. Wheeler 2006

**Name of the Programme: Bachelor of Engineering :::: Duration of the programme: Four Years**