

NAWAB SHAH ALAM KHAN COLLEGE OF ENGINEERING & TECHNOLOGY

DEPARTMENT OF INFORMATION TECHNOLOGY

LABORATORY IMPROVEMENT FOR FUTURE TRENDS (LIFT) - - -I

NAME OF THE LABORATORIES

S.No.	YEAR-SEM	NAME OF THE LAB
1.	II BE-IVSEM	JAVA PROGRAMMING

A Guide for execution of Lab Courses

VISION OF THE INSTITUTE:

- To impart quality technical education with strong ethics, producing technically sound engineers capable of serving the society and the nation in a responsible manner.

MISSION OF THE INSTITUTE:

- M1: To provide adequate knowledge encompassing strong technical concepts and soft skills thereby inculcating sound ethics.
- M2: To provide a conducive environment to nurture creativity in teaching- learning process.
- M3: To identify and provide facilities which create opportunities for deserving students of all communities to excel in their chosen fields.
- M4: To strive and contribute to the needs of the society and the nation by applying advanced engineering and technical concepts

DEPARTMENT OF INFORMATION **TECHNOLOGY**

VISION:

To produce quality IT professionals, with an ability to adapt to ever changing IT needs of local, national and international arena, through effective teaching & learning, interactions with alumni and industry.

MISSION:

- M1: To provide a holistic learning environment for students through ethical practices.
- M2: To provide quality infrastructure through practical exposure to the latest technology requirements.
- M3: To train the students in soft skills to excel in placements and competitive exams at higher level the industry ready.
- M4: To have a healthy Industry - Institute interaction through faculty development programs, student internships, guest lectures and using latest teaching learning methodologies.
- M5: To provide effective platform to meet the industrial requirement and provide research-oriented environment for the faculty to meet the continuous societal needs.

PROGRAM SPECIFIC OUTCOMES (PSO's)

- Develop efficient information management systems using latest development tools catering to the globally changing requirements in multi-disciplinary domains
- Manage real time IT projects with consideration of human, financial, ethical and environmental factors and an understanding of policy implications.

1. AIM OF THELIFT:

The main aim of the LIFT programme is to innovate, modify the existing facilities in labs, to create awareness among the students and develop Industry –Institution interactions and reach the standards in laboratories

2. FUNCTIONS OF THELIFT:

- I. To create better understanding concepts of LIFT and other lab related activities among the staff and lab technicians for betterimprovement.
- II. To Arrange LIFT Presentations from each department about the lab activities by the staff handling the labs. (LabPlanners)
- III. To Prepare GAP ANALYSIS: This involves collection of requirements from each lab of every department, information about expansion of labs, repairs and maintenance of labs etc.
- IV. To arrange Industrial Visits/ Industrial training programs in coordination with concerned lab staff and Heads of thedepartments.
- V. A Report on Shadow Engineering: This involves arrangement of Industrial and Practical learning, Submission of Industrial Visit report, Technical Survey reports and Market Survey of a product for development inlaboratories.
- VI. Verification of all the laboratories in every department by the LIFT Team along with the Principal and the concerned HODs, to check whether the activities are going according to LIFT guidelines, to check the Record Keeping, Lab Manuals and Viva sessionsetc.
- VII. Check for LEAD Experiments and its followup.
- VIII. Submission of proposals related to R&D, Project and Consultancy from lab staff to the Principal for furtherapprovals.

LAB IMPROVEMENT FOR **FUTURETRENDS PROGRAMME** **(LIFT)** **INDEX**

CONTENTS:

- 1. OBJECTIVES ANDRELEVANCE**
- 2. SCOPE**
- 3. PREREQUISITES**
- 4. SYLLABUS AS PERJNTUH**
- 5. LABSCHEDULE**
- 6. SUGGESTEDBOOKS**
- 7. WEBSITES (USEFULLINKS)**

1. OBJECTIVES AND RELEVANCE:

The main objective of the LIFT concept in lab course is to provide practical hands on experience for each student by providing them with good exposure to different experiments and to uplift the knowledge levels of the student, with different applications in various fields.

2. SCOPE:

The main scope of the LIFT lab course is to cover all the experiments as per the schedule given in the prescribed week wise periods. With this, a student can better understand the concepts and operating systems so that he could get better knowledge about each lab.

3. PREREQUISITES:

The basic level idea related to each experiment should be provided to the students before conducting main lab course. Following details are to be explained related to experiment:

1. Introduction to experiment – 30min
2. The Operating of the equipment/instrument/software
3. Record of Experimental Results.
4. Sample Calculations / Executable Programs

4. SYLLABUS AS PER OU:

The lab course should be planned as per the OU syllabus. In this, LEAD experiments should also be included in the cycle of experiments.

5. (A) LAB SCHEDULE:

The lab schedule should be planned once in a week. The week wise scheduled experiment should be completed.

Weeks & Batches	1	2	3	4	5	6	7	8	9	10	11	12
B1	Exp. 1&2	Exp. 3&4	Exp. 5&6	Exp. 7&8	Exp. 9&10	Exp. 11&12	Exp. 13&14	Exp. 15&16	Exp. 17&18	Exp. 19&20	Exp. 21&22	Exp. 23&24
B2	Exp. 1&2	Exp. 3&4	Exp. 5&6	Exp. 7&8	Exp. 9&10	Exp. 11&12	Exp. 13&14	Exp. 15&16	Exp. 17&18	Exp. 19&20	Exp. 21&22	Exp. 23&24

(B) Scheme of Evaluation:

The scheme of evaluation for internal and external exams as follows:

<u>LAB INTERNAL:</u>							
Day to Day Evaluation-15					Internal Exam-10		
Uniform	Observation & Record	Performance Of the Experiment	Result	Viva	Write up	Execution & Results	Viva
Marks-3	Marks-3	Marks-3	Marks-3	Marks-3	Marks-4	Marks-3	Marks-3
Total Marks-25							

<u>LAB EXTERNAL:</u>			
S.NO	Write up	Final Evaluation	Viva
1	1. Aim 2. Procedure 3. Program 4. Expected output.	Based on correctness of the program and Results	Based on understanding of Experiment and theoretical questions in the related subjects
Marks	20	20	10
Total Marks-50			

6. SUGGESTED BOOKS:

The suggested books should be recommended to the students as per the OU syllabus prescribed.

7. WEBSITES (USEFUL LINKS):

The useful links should be provided to the students, where they can get an easy access to the knowledge of the experiment.

JAVA PROGRAMMING LAB

CONTENTS:

- 1. OBJECTIVES AND RELEVANCE**
- 2. SCOPE**
- 3. PREREQUISITES**
- 4. SYLLABUS AS PER JNTUH**
- 5. LAB SCHEDULE**
- 6. SUGGESTED BOOKS**
- 7. WEBSITES (USEFUL LINKS)**

1. OBJECTIVES AND RELEVANCE

To build software development skills using java programming for real world applications and to implement frontend and backend of an application and classical problems.

2. SCOPE

The scope of this lab is to make students to acquire knowledge in different phases and passes of compiler, and specifying different types of tokens by lexical analyzer, and also able to use the compiler tools

3. PREREQUISITES

The syntax in Java is similar to the syntax of the C programming language, therefore, Knowing C language helps to get hold of Java quickly. Having introduced to object-oriented Principles before starting Java, also helps in the understanding of the language. So, having an idea on object-oriented languages such as C++ also helps. In short, if you know C or C++ it will be a little bit easier to cope with Java technology.

4. OU Syllabus:

PREAMBLE:

This lab covers the experiments in Java Programming lab. The OU has given 24 experiments in the syllabus.

List of Experiments

- 1) Write a Java program to illustrate the concept of class with method overloading
 - 2) Write a Java Program that reads a line of integers, and then displays each integer, and the sum of all the integers (Use String Tokenizer class of java. util)
 - 3) Write a Java program to illustrate the concept of Single level and Multi level Inheritance.
 - 4) Write a Java program to demonstrate the Interfaces & Abstract Classes.
 - 5) Write a Java program to implement the concept of exception handling.
 - 6) Write a Java program to illustrate the concept of threading using Thread Class and runnable Interface.
 - 7) Write a Java program to illustrate the concept of Thread synchronization.
 - 8) Write a Java program that correctly implements producer consumer problem using the concept of inter thread communication.
 - 9) Write a Java program to illustrate collection classes like Array List, Linked List, Tree map and Hash map.
 - 10) Write a Java program to illustrate Legacy classes like Vector, Hashtable, Dictionary & Enumeration interface
 - 11) Write a Java program to implement iteration over Collection using Iterator interface and List Iterator interface
 - 12) Write a Java program that reads a file name from the user, and then displays information about whether the file exists, whether the file is readable, whether the file is writable, the type of file and the length of the file in bytes.
 - 13) Write a Java program to illustrate the concept of I/O Streams
 - 14) Write a Java program to implement serialization concept
 - 15) Write a Java applet program to implement Colour and Graphics class
 - 16) Write a Java applet program for handling mouse & key events
 - 17) Write a Java applet program to implement Adapter classes
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- 18) Write a Java program that works as a simple calculator. Use a grid layout to arrange buttons for the digits and for the +, -, *, % operations. Add a text field to display the result.
 - 19) Write an example for JDBC prepared statement with Result Set
 - 20) Program to get primary key value (auto-generated keys) from inserted queries using JDBC
 - 21) Program to create a simple JList
 - 22) java Program to create a simple checkbox using JCheckBox
 - 23) Program to create a checkbox and ItemListener to it.
 - 24)
 1. Write Servlet application to print current date & time
 2. Html & Servlet Communication
 3. Auto refresh a page
 4. Demonstrate session tracking
 5. Select record from database
 6. Application for login page
 7. Insert record into database
 8. Count the visits on web page
 9. Insert teacher record in Database

CYCLE1:

Weeks & Batches	1	2	3	4	5	6	7	8	9	10	11	12
B1	Exp. 1&2	Exp. 3&4	Exp. 5&6	Exp. 7&8	Exp. 9&10	Exp. 11&12	Exp. 13&14	Exp. 15&16	Exp. 17&18	Exp. 19&20	Exp. 21&22	Exp. 23&24
B2	Exp. 1&2	Exp. 3&4	Exp. 5&6	Exp. 7&8	Exp. 9&10	Exp. 11&12	Exp. 13&14	Exp. 15&16	Exp. 17&18	Exp. 19&20	Exp. 21&22	Exp. 23&24

(B) VIVA SCHEDULE: The viva schedule should be planned prior to the lab experiment

[illegible]

(C) SCHEME OF EVALUATION OF LABS

LAB INTERNAL:

Day to Day Evaluation-15					Internal Exam-10		
Uniform	Observation & Record	Performance Of the Experiment	Result	Viva	Write up	Execution & Results	Viva
Marks-3	Marks-3	Marks-3	Marks-3	Marks-3	Marks-4	Marks-3	Marks-3
Total Marks-25							

LAB EXTERNAL:

S.NO	Write up	Final Evaluation	Viva
1	1. Aim 2. Procedure etc 3. Program 4. Result etc	Based on correctness of the program and Results	Based on understanding of Experiment and theoretical questions in the related subjects
Marks	20	20	10
Total Marks-50			

6. SUGGESTED BOOKS:

T1: Herbert Schildt, "The Complete Reference Java, 7th Edition, Tata McGraw Hill, 2006.

T2: James M Slack, Programming and Problem Solving with JAVA, Thomson Learning, 2002.

7. WEBSITES

1. <https://www.jdoodle.com/online-java-compiler/>.
2. https://www.onlinegdb.com/online_java_compilerwww.cse.hcmut.edu.vn/~hungnq/courses/nap/alp.pdf
3. <https://www.programiz.com/java-programming/online-compiler/http://youtube.com/compilerdesign>
4. <https://onecompiler.com/java>

