

Virtual Lab Mapping for B. Tech in Information Technology

Subject Code	Subject Name	List of Experiment	V-Lab
Virtual Lab Mapping for B. Tech in Information Technology – 2nd Semester			
ES-CS 291	Programming For Problem Solving Lab	1.Numerical Representation 2.Beauty of Numbers 3.More on Numbers 4.Factorials 5.String Operations 6.Recursion 7.Advanced Arithmetic 8.Searching and Sorting	http://ps-iiith.vlabs.ac.in/
BS-CH291	Chemistry-I Laboratory	Expt.1: Determination of Critical Micelle Concentration (CMC) of a Surfactant Expt.2:Demonstration of pH Effect on Fluorescence Excitation and Emission Spectra of a Fluorophore Expt.3:Demonstration of Solvent Effects on Fluorescence Spectra of a Fluorophore Expt.4: Instrumentation and working principles of solutions infra red (IR) spectroscopy Expt.5: Conductometric titration for determination of strength of given HCl solution Expt. 6: pH metric titration for the determination of strength of	http://www.vlab.co.in/broad-area-chemical-sciences

		given HCI solution Expt. 7: Thin layer chromatography	
ES-ME291	Engineering Graphics & Design Lab	According to the content of virtual lab	http://vlabs.iitb.ac.in/vlabs-dev/labs/mit_bootcamp/egraphics_lab/labs/index.php
HM-HU291	Language Laboratory	<ol style="list-style-type: none"> 1. Teaching the students the basic pronunciation skill using the modules available in this app. 2. Practice of regular usage of English language in various situations. 3. Teaching the way of conversation in various situations with appropriate approach. 4. Online presentation 5. Online interview 	https://play.google.com/store/apps/details?id=uk.co.bbc.learningenglish
Virtual Lab Mapping for B. Tech in Information Technology – 4th Semester			
PCC CS 492	Computer Architecture Lab	<ol style="list-style-type: none"> 1. HDL introduction & Basic digital logic base programming with HDL 2. 8-bit Register & Counter design 3. 8-bit Addition, Multiplication, Division & Shifting 4. 8-bit simple ALU design 5. Memory unit design and perform memory operations. 6. Interfacing of CPU and Memory. 7. 8-bit simple CPU design 	http://vlabs.iitkgp.ernet.in/coa/exp4/index.html http://vlabs.iitkgp.ernet.in/coa/exp5/index.html http://vlabs.iitkgp.ernet.in/coa/exp7/index.html http://vlabs.iitkgp.ernet.in/coa/exp8/index.html http://vlabs.iitkgp.ernet.in/coa/exp9/index.html http://vlabs.iitkgp.ernet.in/coa/exp10/index.html http://vlabs.iitkgp.ernet.in/coa/exp11/index.html

			http://vlabs.iitkgp.ernet.in/coa/exp12/index.html
PCC-CS494	Design and Analysis of Algorithm Lab	<p>Write a C program to find the Sum of Natural Numbers Using Recursion</p> <p>Write a C program to find the Factorial of a Number Using Recursion</p> <p>Write a C program to find the GCD of Two Numbers using Recursion.</p> <p>Write a C program to calculate power using Recursion.</p> <p>Write a C program to solve the Tower of Hanoi problem using Recursion</p> <p>Write a C program to perform searching operation using Linear Search.</p> <p>Write a C program to perform searching operation using Binary Search.</p>	<p>http://ps-iiith.vlabs.ac.in/exp6/Introduction.html?domain=Computer%20Science&lab=Problem%20Solving%20Lab</p> <p>http://ps-iiith.vlabs.ac.in/exp6/Introduction.html?domain=Computer%20Science&lab=Problem%20Solving%20Lab</p> <p>http://ps-iiith.vlabs.ac.in/exp6/Introduction.html?domain=Computer%20Science&lab=Problem%20Solving%20Lab</p> <p>http://ps-iiith.vlabs.ac.in/exp6/Introduction.html?domain=Computer%20Science&lab=Problem%20Solving%20Lab</p> <p>http://cse02-iiith.vlabs.ac.in/exp9/index.html</p> <p>http://ds1-iiith.vlabs.ac.in/data-structures-1/exp/unsorted-arrays/exp.html#Unsorted%20Arrays%20vs%20Binary%20Search</p> <p>http://ds1-iiith.vlabs.ac.in/data-structures-1/exp/unsorted-arrays/exp.html#Unsorted%20Arrays%20vs%20Binary%20Search</p> <p>http://ds1-iiith.vlabs.ac.in/data-structures-1/exp/quicksort/exp.html#Quick%20Sort%20Experiment</p>

		<p>Write a C program to implement Quick Sort algorithm</p> <p>Write a C program to implement Merge Sort algorithm.</p> <p>Write a C program to solve N-Queens problem.</p> <p>Write a C program to implement All Pair Shortest Path algorithm</p> <p>Write a C program to find the minimum spanning tree to implement Prim’s algorithm/ Kruskal’s algorithm using greedy method.</p> <p>Write a C program to implement graph traversal using Breadth First Search/ Depth First Search algorithm</p>	<p>http://ds1-iiith.vlabs.ac.in/data-structures-1/exp/mergesort/exp.html#Merge%20Sort</p> <p>http://vlabs.iitb.ac.in/vlabs-dev/labs/mit_bootcamp/comp_networks/labs/exp1/index.php</p> <p>https://cse01-iiith.vlabs.ac.in/exp8/Simulation.html?domain=Computer%20Science&lab=Data%20Structures#</p> <p>http://ds2-iiith.vlabs.ac.in/data-structures-2/exp/mst/exp.html#Kruskal's%20Algorithm</p> <p>http://ds1-iiith.vlabs.ac.in/data-structures-1/exp/bfs/exp.html#Breadth%20First%20Search</p> <p>http://ds1-iiith.vlabs.ac.in/data-structures-1/exp/dfs/exp.html#Depth%20First%20Traversal</p>
Virtual Lab Mapping for B. Tech in Information Technology – 6th Semester			
IT691	Data Base Management System Lab	<ol style="list-style-type: none"> 1. Create the following table: STUDENT and display structure 2. Write SQL command to add primary key to the table STUDENT with RegNo as Primary Key 	<p>For SQL :</p> <p>https://livesql.oracle.com/apex/f?p=590:1000:::NO::: and http://vlabs.iitb.ac.in/bootcamp/labs/dbms/exp8/index.php</p>

		<ol style="list-style-type: none"> 3. Display all student records 4. Display name, address and year of admission of each student 5. List the name and year of students who are in Computer Science. 6. List the names and departments of students belonging to 1st year. 7. Display names of students with 'a' as the second letter in their names. 8. Display names of students in descending alphabetical order. 9. Display names and addresses of students who took admission in the year 2004. 10. List the names of students who does not have a phone number. 11. List names of student and their departments whose date of birth is after 1st June 1991. 12. Create a CHECK constraint on this table for the field Year such that Year should be 	<p>http://vlabs.iitb.ac.in/vlabs-dev/labs/dblab/index.php</p> <p>http://vlabs.iitb.ac.in/vlabs-dev/labs/dblab/index.php</p> <p>http://vlabs.iitb.ac.in/vlabs-dev/labs/dblab/index.php</p>
--	--	---	--

		<p>between 1&4.</p> <p>13. Update final year students to make Year=5. Observe and note the message.</p> <p>14. Alter the table Faculty and add check constraint such that FacultyCode starts with 'F'</p> <p>15. Alter the table Faculty and add check constraint such DeptCode is either CSE,IT, BIO,NS</p> <p>16. Add constraint : DeptCode of Faculty is foreign key and references DeptCode in Department.</p> <p>17. Add Constraint: HOD of Department table is foreign key and references FacultyCode of Faculty.</p> <p>18. Find the names of faculties of CSE Department.</p> <p>19. Find the number of faculties in the IT department</p> <p>20. Show the names of the heads of departments with department name.</p> <p>1. Find the number of faculties who joined in August.</p> <p>2. Add an extra attribute to the faculty table - Salary</p>	<p>http://vlabs.iitb.ac.in/vlabs-dev/labs/dblab/index.php</p>
--	--	--	--

		<p>Number(8,2)</p> <p>23. Insert values into the corresponding field Salary Number(8,2) (Enter distinct values).</p> <p>24. Find the Department having more than one faculty.</p> <p>5. Find the name, department of the faculties who earn between 8000 and 12000.</p> <p>6. Find the name of the department with maximum faculties.</p> <p>Find the senior most faculty</p> <p>.Find the number of students in each department with their department name.</p> <p>2. Increment the salary of each faculty by Rs 500.</p> <p>3. Find the names of students and faculties whose name start with 'S'.</p> <p>4. Find the students who stay in Kaikhali</p> <p>5. Find the names of faculties who take classes in the IT department.</p> <p>6. Find the names of all faculties whose HOD is given.</p>	<p>http://vlabs.iitb.ac.in/vlabs-dev/labs/dblab/index.php</p>
--	--	--	--

		<p>7. Add extra attribute to the Subject table - department varchar2(4), year varchar2(1)</p> <p>8. Insert values into the fields - department, year.</p> <p>9. Find the names of faculties who earn more than the average of all faculties.</p> <p>10. List the names of faculties of CSE department who earn more than the average salary of the department.</p> <p>11. Find the maximum and minimum salaries among faculties.</p> <p>12. Find the second maximum samary among all faculties.</p> <p>13. Find the names of faculties who are not the HOD's of any department.</p> <p>14. Find the names of subjects for students of CSE 3rd year.</p> <p>15. Name the departments having highest number of faculties and display the names of faculties.</p> <p>Create a view on the STUDENT table named V_STD selecting all</p>	<p>http://vlabs.iitb.ac.in/vlabs-dev/labs/dblab/index.php</p>
--	--	--	--

		<p>the columns. Run the following queries on the view.</p> <ol style="list-style-type: none">1. Display all data from the view.2. Display data from student table to verify that the row has been inserted into the table.3. Update the address of Bishakh to "SectorV" & verify the change in the table. <p>II. Create a view on student table named V_STD_2 selecting the columns – RegNo, Name, Year, Deptcode.</p> <ol style="list-style-type: none">1. Display data from the view.2. Try to insert data into table through view.3. Update the Dept code of 'Kamal' to 'IT' through view.4. Delete records of students of 4th year through view. <p>III. Create a view named V_FACULTY consisting of columns FacultyName, DeptCode from FACULTY table and HOD from Department table.</p> <ol style="list-style-type: none">1. Display data from V_FACULTY2. Try to insert a new row into this view V_FACULTY.	<p>http://vlabs.iitb.ac.in/vlabs-dev/labs/dblab/index.php</p>
--	--	--	--

IT692	Computer Networking lab	<ol style="list-style-type: none"> 1.Fabricaton of Cables 2.Peer to Peer Topology 3.Star Topology 4.IPv4 Addressing 5.IPv4 Subnetting 6.Windows File Sharing 	http://vlabs.iitb.ac.in/vlabs-dev/labs_local/computer-networks/labs/explicit.php
IT-693	Software Engineering Lab	<ol style="list-style-type: none"> 1. Identifying the Requirements from Problem Statements 2. Estimation of Project Metrics 3. Modeling UML Use Case Diagrams and Capturing Use Case Scenarios 4. Identifying Domain Classes from the Problem Statements 5. Statechart and Activity Modeling 6. Modeling UML Class Diagrams and Sequence diagrams 7. Modeling Data Flow Diagrams 8. Estimation of Test Coverage Metrics and Structural Complexity 9. Designing Test Suites 	http://vlabs.iitkgp.ernet.in/se/1/ http://vlabs.iitkgp.ernet.in/se/2/ http://vlabs.iitkgp.ernet.in/se/3/ http://vlabs.iitkgp.ernet.in/se/5/ http://vlabs.iitkgp.ernet.in/se/6/ http://vlabs.iitkgp.ernet.in/se/7/ http://vlabs.iitkgp.ernet.in/se/8/ http://vlabs.iitkgp.ernet.in/se/9/ http://vlabs.iitkgp.ernet.in/se/10/
Virtual Lab Mapping for B. Tech in Information Technology – 8th Semester			
IT891	Design Lab	<p>Module 1: Assignments on C and C++ ; Basic and Intermediate Levels</p> <p style="text-align: center;">or</p> <p>Module 2: Assignments on Python</p> <p style="text-align: center;">or</p> <p>Module 3: Assignments on PHP & MySQL</p>	http://www.spoken-tutorial.org

