

## Virtual Lab mapping For B. Tech. In Biotechnology-4<sup>th</sup> Semester

Subject Code	Subject Name	List of Experiment	V-Lab
<b>OE-BT491</b>	<b>Numerical Methods and Biostatistics Lab</b>	1. Assignments on Newton forward /backward interpolation.	Done in Class
		2. Assignments on numerical integration using Trapezoidal rule, Simpson's 1/3 rule	Done in Class
		3. Assignments on numerical solution of a system of linear equations using Gauss elimination and Gauss-Seidel iterations.	<a href="https://www.codewithc.com/c-program-for-gauss-seidel-method/">https://www.codewithc.com/c-program-for-gauss-seidel-method/</a>
		4. Assignments on numerical solution of Algebraic Equation by Regular-falsi and Newton Raphson methods.	1. <a href="https://www.codewithc.com/c-program-for-regula-falsi-method/">https://www.codewithc.com/c-program-for-regula-falsi-method/</a> 2. <a href="https://www.codewithc.com/c-program-for-newton-raphsoni-method/">https://www.codewithc.com/c-program-for-newton-raphsoni-method/</a>
		5. Assignments on ordinary differential equation: Euler's and Runga-Kutta methods.	1. <a href="https://www.codewithc.com/c-program-for-eulers-method/">https://www.codewithc.com/c-program-for-eulers-method/</a> 2. <a href="https://www.codewithc.com/c-program-for-runga-kutta-method/">https://www.codewithc.com/c-program-for-runga-kutta-method/</a>
		6. Calculate descriptive statistics and draw different type of graphs.	Using Excel

**Virtual Lab mapping For B. Tech. In Biotechnology-4<sup>th</sup> Semester**

<b>Paper Code</b>	<b>Paper Name</b>	<b>List of Experiments</b>	<b>V-Lab</b>
<b>PC-BT 491</b>	<b>Molecular Biology Lab</b>	<ol style="list-style-type: none"><li>1. Spectroscopic analysis of DNA/RNA</li><li>2. Isolation of Genomic DNA from blood, plant cell and bacteria (any one)</li><li>3. Isolation of RNA</li><li>4. Isolation of Plasmids</li><li>5. Preparation of Agarose Gel and electrophoresis</li><li>6. Formaldehyde gel electrophoresis of RNA</li><li>7. Induced mutation by: Chemical agent</li><li>8. Induced mutation by physical agent like Ultraviolet light</li></ol> <p>Mini Project: Relevant to the techniques taught</p>	<p><a href="http://mbvi-au.vlabs.ac.in/">http://mbvi-au.vlabs.ac.in/</a></p> <p><a href="http://vlab.amrita.edu/?sub=3&amp;brch=186">http://vlab.amrita.edu/?sub=3&amp;brch=186</a></p>



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Subject Code	Subject Name	List of Experiment	V Lab
OE-BT 402	Data Structure and Algorithm	Stack - Implementation, adding and deleting element	<a href="http://ds1-iiith.vlabs.ac.in/data-structures-1/exp/sq/exp.html#Stacks">http://ds1-iiith.vlabs.ac.in/data-structures-1/exp/sq/exp.html#Stacks</a>
		Queue - Implementation, adding and deleting element	<a href="http://ds1-iiith.vlabs.ac.in/data-structures-1/exp/sq/exp.html#Queues">http://ds1-iiith.vlabs.ac.in/data-structures-1/exp/sq/exp.html#Queues</a>
		Linked List - Implementation, adding and deleting element	<a href="http://ds1-iiith.vlabs.ac.in/data-structures-1/exp/linkedlists/exp.html#Linked List">http://ds1-iiith.vlabs.ac.in/data-structures-1/exp/linkedlists/exp.html#Linked List</a>
		Bubble sort algorithm	<a href="http://ds1-iiith.vlabs.ac.in/data-structures-1/exp/bubble-sort/exp.html#Bubble Sort Experiment">http://ds1-iiith.vlabs.ac.in/data-structures-1/exp/bubble-sort/exp.html#Bubble Sort Experiment</a>
		Merge sort Algorithm	<a href="http://ds1-iiith.vlabs.ac.in/data-structures-1/exp/mergesort/exp.html#Merge Sort">http://ds1-iiith.vlabs.ac.in/data-structures-1/exp/mergesort/exp.html#Merge Sort</a>
		Heap Sort Algorithm	<a href="http://ds1-iiith.vlabs.ac.in/data-structures-1/exp/heapsort/exp.html#Heapsort">http://ds1-iiith.vlabs.ac.in/data-structures-1/exp/heapsort/exp.html#Heapsort</a>
		Quick Sort Algorithm	<a href="http://ds1-iiith.vlabs.ac.in/data-structures-1/exp/quicksort/exp.html#Quick Sort Experiment">http://ds1-iiith.vlabs.ac.in/data-structures-1/exp/quicksort/exp.html#Quick Sort Experiment</a>
		Linear Search and Binary Search	<a href="http://ds1-iiith.vlabs.ac.in/data-structures-1/exp/unsorted-arrays/exp.html#Unsorted Arrays vs Binary Search">http://ds1-iiith.vlabs.ac.in/data-structures-1/exp/unsorted-arrays/exp.html#Unsorted Arrays vs Binary Search</a>
		Depth First Search	<a href="http://ds1-iiith.vlabs.ac.in/data-structures-1/exp/unsorted-arrays/exp.html#Unsorted Arrays vs Binary Search">http://ds1-iiith.vlabs.ac.in/data-structures-1/exp/unsorted-arrays/exp.html#Unsorted Arrays vs Binary Search</a>
		Breadth First Search	<a href="http://ds1-iiith.vlabs.ac.in/data-structures-1/exp/bfs/exp.html#Breadth First Search">http://ds1-iiith.vlabs.ac.in/data-structures-1/exp/bfs/exp.html#Breadth First Search</a>
		Spanning Tree in graph (Prims and Kruskal algo)	<a href="http://cse01-iiith.vlabs.ac.in/exp9/Theory.html?domain=Computer%20Science&amp;lab=Data%20Structures">http://cse01-iiith.vlabs.ac.in/exp9/Theory.html?domain=Computer%20Science&amp;lab=Data%20Structures</a>
		Shortest path in graph (Dijkstra)	<a href="http://cse01-iiith.vlabs.ac.in/exp8/Theory.html?domain=Computer%20Science&amp;lab=Data%20Structures">http://cse01-iiith.vlabs.ac.in/exp8/Theory.html?domain=Computer%20Science&amp;lab=Data%20Structures</a>

## Virtual Lab Mapping for B. Tech in Bio Technology – 6<sup>th</sup> Semester

### CS 684: Database & Computer Networking Lab

Subject Code	Subject Name	List of Experiments	V-Lab
CS 684	Database & Computer Networking Lab	<p><b>Creating Database</b></p> <ul style="list-style-type: none"> <li>• Creating a Database</li> <li>• Creating a Table</li> <li>• Specifying Relational Data Types</li> <li>• Specifying Constraints</li> <li>• Creating Indexes</li> </ul> <p><b>Table and Record Handling</b></p> <ul style="list-style-type: none"> <li>• INSERT statement</li> <li>• Using SELECT and INSERT together</li> <li>• DELETE, UPDATE, TRUNCATE statements</li> <li>• DROP, ALTER statements</li> </ul> <p><b>Retrieving Data from a Database</b></p> <ul style="list-style-type: none"> <li>• The SELECT statement</li> <li>• Using the WHERE clause</li> <li>• Using Logical Operators in the WHERE clause</li> <li>• Using IN, BETWEEN, LIKE , ORDER BY, GROUP BY and HAVING Clause</li> <li>• Using Aggregate Functions</li> <li>• Combining Tables Using JOINS</li> <li>• Subqueries</li> </ul>	<a href="http://vlabs.iitb.ac.in/vlabs-dev/labs/dblab/labs/index.php">http://vlabs.iitb.ac.in/vlabs-dev/labs/dblab/labs/index.php</a>
		<p><b>Networking</b></p> <ul style="list-style-type: none"> <li>• Sharing resources in a LAN</li> <li>• Internet Connection</li> <li>• Web – browsing</li> <li>• Search Engines</li> <li>• Downloading</li> </ul>	<a href="http://vlabs.iitb.ac.in/vlabs-dev/labs/computer-network/index.php">http://vlabs.iitb.ac.in/vlabs-dev/labs/computer-network/index.php</a>



### Virtual Lab mapping For B. Tech. In Biotechnology-6th Semester

Paper Code	Paper Name	List of Experiments	V-Lab
<b>PC-BT 691</b>	<b>Recombinant DNA Technology Lab</b>	<ol style="list-style-type: none"><li>1. Restriction Digestion of Genomic/Plasmid DNA</li><li>2. Agarose Gel Electrophoresis</li><li>3. Ligation of Insert and plasmid</li><li>4. Transformation</li><li>5. Screening of recombinants</li><li>6. Primer designing</li><li>7. PCR</li><li>8. Southern Blotting</li></ol>	<p><a href="http://mbvi-au.vlabs.ac.in/">http://mbvi-au.vlabs.ac.in/</a></p> <p><a href="http://vlab.amrita.edu/?sub=3&amp;brch=186">http://vlab.amrita.edu/?sub=3&amp;brch=186</a></p> <p><a href="https://youtu.be/EzjbM1v3Bxs">https://youtu.be/EzjbM1v3Bxs</a></p> <p><a href="https://youtu.be/1WfkQOxa-7g">https://youtu.be/1WfkQOxa-7g</a></p> <p><a href="https://youtu.be/Lnv4iQXJD81">https://youtu.be/Lnv4iQXJD81</a></p>

# Plant Biotechnology Lab (PC-BT-693)

Experiment	URL
Laboratory organization and aseptic culture techniques	<a href="https://www.youtube.com/watch?v=TORRxwbz7aY">https://www.youtube.com/watch?v=TORRxwbz7aY</a> <a href="https://www.youtube.com/watch?v=7ba-hqLrgf8&amp;t=137s">https://www.youtube.com/watch?v=7ba-hqLrgf8&amp;t=137s</a> <a href="https://www.youtube.com/watch?v=K1m-4BxroD4">https://www.youtube.com/watch?v=K1m-4BxroD4</a> <a href="https://www.youtube.com/watch?v=LB6aJLJ5JmE">https://www.youtube.com/watch?v=LB6aJLJ5JmE</a> <a href="https://www.youtube.com/watch?v=33IWFrojeBQ">https://www.youtube.com/watch?v=33IWFrojeBQ</a> <a href="https://www.youtube.com/watch?v=zd0iVJrQwyY">https://www.youtube.com/watch?v=zd0iVJrQwyY</a>
Preparation of ms media for plant tissue culture	<a href="https://www.youtube.com/watch?v=eMv_PMNPYMc">https://www.youtube.com/watch?v=eMv_PMNPYMc</a> <a href="https://www.youtube.com/watch?v=ltbdM3boWmU&amp;t=236s">https://www.youtube.com/watch?v=ltbdM3boWmU&amp;t=236s</a>
Protocol for seed germination & plant establishment	<a href="https://www.youtube.com/watch?v=IVwzcww0-S4">https://www.youtube.com/watch?v=IVwzcww0-S4</a> <a href="https://www.youtube.com/watch?v=BBOPJhq5ygM">https://www.youtube.com/watch?v=BBOPJhq5ygM</a>
To initiate and establish a callus culture	<a href="https://www.youtube.com/watch?v=LXE-Lu_YD2g&amp;t=22s">https://www.youtube.com/watch?v=LXE-Lu_YD2g&amp;t=22s</a> <a href="https://www.youtube.com/watch?v=eGLaLCBz2o0">https://www.youtube.com/watch?v=eGLaLCBz2o0</a>
Agrobacterium mediated plant transformation	<a href="https://www.youtube.com/watch?v=NXNFR4cj68U">https://www.youtube.com/watch?v=NXNFR4cj68U</a>
To demonstrate organogenesis in plant tissue culture	<a href="https://www.youtube.com/watch?v=0svFGiDJPhg">https://www.youtube.com/watch?v=0svFGiDJPhg</a> <a href="https://www.youtube.com/watch?v=g8pJ4prQ09c">https://www.youtube.com/watch?v=g8pJ4prQ09c</a> <a href="https://www.youtube.com/watch?v=deB0KTPneal">https://www.youtube.com/watch?v=deB0KTPneal</a> <a href="https://www.youtube.com/watch?v=mS60jCekrNo">https://www.youtube.com/watch?v=mS60jCekrNo</a>