



Vidya Vikas Education Trust's
Lords Universal College, Goregaon West, Mumbai-400104
Affiliated to University of Mumbai

Bachelors In Science (Computer Science)

SEMESTER I

Course Code	Course Name	COs
1101111	Digital Systems & Architecture	Students will be able to: 1. Understand how number systems and codes help in designing computer systems. 2. Learn how Flip Flops are used in memory design and how data moves between the CPU, memory, and devices. 3. Explore the basics of instruction sets and their different types. 4. Understand the internal structure and design of a processor.
1101112	Fundamentals of Database Systems	Students will be able to: 1. Understand why database design is important. 2. Analyze the needs of a database, identify the entities, and see how they relate to each other. 3. Write simple MySQL queries using String, Math, and Date functions. 4. Create tables, manage data (insert, update, delete), and query data in a relational database using MySQL. 5. Understand normalization and its role in designing efficient databases. 6. Manage data permissions for secure access. 7. Create indexes and understand how they help improve search performance.
1101113	Practical-I (COMPUTER SCIENCE)	Students will be able to: 1. Verify truth tables of various logic gates 2. Simplify given Boolean expressions and implement them using Logisim. 3. Design and validate the operation of various combinational circuits using Logisim. 4. Understand the behaviour and applications of flip-flops in digital systems. 5. Design and implement expressions using multiplexers/demultiplexers in Logisim.

		6. Create and maintain relational databases, applying normalization principles. 7. Write simple queries to MySQL related to String, Maths and Date Functions. 8. Create tables and insert/update/delete data, and query data in a relational DBMS using mysql commands. 9. Handle data permissions.
1101411	Introduction to Programming with Python	Students will be able to: 1. Apply Python features for diverse programming tasks confidently. 2. Implement control flow statements for precise program execution. 3. Manipulate arrays, strings, and data structures with precision and ease. 4. Create modular, efficient code using functions, modules, and strings. 5. Skilfully manage files, utilize regular expressions, and work with date and time for program efficiency.
1101412	Statistics with R Programming	Students will be able to: 1. Confidently navigate Studio, R GUI, and manage data in R. 2. Fluent implementation of expressions, assignments, and loops in R. 3. Use R data structures for effective data management. 4. Efficiently manipulate and operate on character strings in R. 5. Apply statistical functions, regression analysis, and distribution functions with confidence.
1171311	Introduction to Commerce (OE)	Students will be able to: 1. Develop understanding about Commerce and Business. 2. Help understand the different forms of Business Organisations. 3. Help understand the Business Environment. 4. Understand the recent trends in Commerce
1281311	Marketing Mix I	Students will be able to: 1. Learn about the various elements of Marketing Mix. 2. Understand the key concepts and components of product and price mix strategies. 3. Analyse the factors influencing product development, pricing decisions, and brand Positioning.
2511511	Introduction to Communication Skills (B.Sc)	Students will be able to: 1. Demonstrate an understanding of essential aspects of communication skills 2. Exhibit the ability to Read a variety of written text using sub skills such as skimming and Scanning. 3. Identify and rectify common grammatical errors in English.

		<p>4. Show competence in delivering compelling presentations and engage in articulate and Effective conversations in English across different contexts.</p> <p>5. Display advanced formal writing</p>
2531511	Indian Knowledge System	<p>Students will be able to:</p> <ol style="list-style-type: none"> 1. Understand and appreciate the rich Indian Knowledge Tradition 2. Understand the contribution of Indians in various fields 3. Experience increase subject-awareness and self-esteem 4. Develop a comprehensive understanding of how all knowledge is ultimately intertwined
2541514	Fundamental of People's Skills	<p>Students will be able to:</p> <ol style="list-style-type: none"> 1. Demonstrate ethical behaviour coupled with integrity. 2. Generate new ideas and create a business plan. 3. Develop good listening skills, which are vital for demonstrating good team qualities. 4. Build sensitivity about social and cultural differences and illustrate good etiquettes. 5. Present themselves and their thoughts in front of others more confidence.
2521611	Introduction to Cultural Activities	<p>Students will be able to:</p> <ol style="list-style-type: none"> 1. Understand the significance of cultural activities. 2. Sensitize towards Indian culture and its preservation 3. Apply the knowledge and skills of the cultural activities in their practical life 4. Participate in the various cultural activities
2521612	National Service Scheme	<p>Students will be able to:</p> <ol style="list-style-type: none"> 1. Understand and Comprehend the foundations of the National Service Program. 2. Understand the unique camping program. 3. Learn about the regular activities of NSS. 4. Understand the importance of Shramadan.
2521615	Introduction to Sports, Physical Literacy, health & Fitness & Yoga	<p>Students will be able to:</p> <ol style="list-style-type: none"> 1. Be an entrepreneur (to start their own fitness center, gym, yoga studio etc.) and device appropriate fitness program for different genders and age groups at all level 2. Officiate, supervise various sports events and organize sports events. 3. Acquire the knowledge of Physical Education, Sports and Yoga and understand the purpose and its development. 4. Learns to plan, organize and execute sports events. 5. Learn theoretical and practical aspects of the game of his choice to apply at various levels for teaching, learning and coaching purposes efficiently.

		<p>6. Acquires the knowledge of opted games, sports and yoga and also learns the technical and tactical experience of it.</p> <p>7. Learn to apply knowledge of Physical fitness and exercise management to lead a better quality life.</p> <p>8. Understand and learn different dimensions of active lifestyle.</p> <p>9. Learn the knowledge of nutrition and diet.</p> <p>10. Assess physical fitness in a scientific way.</p> <p>11. Continue professional courses and research in Physical Education, sports and yoga.</p> <p>12. Understand theory and practical aspects of physical literacy. These aspects include the role of motivation and confidence, how to focus on positive experience, new styles of teaching, inclusive session planning, and review the progress in physical activities.</p>
2521616	Extension Work	<p>Students will be able to:</p> <p>1.Explain the concepts of lifelong learning and the role of extension education in community development.</p> <p>2.Recognize the importance of social responsibility and active citizenship.</p> <p>3.Develop communication, leadership, and teamwork skills through practical projects.</p> <p>4.Gain hands-on experience in social work, research, and project management.</p> <p>5.Identify and analyse social issues such as education, health, gender equality, and environmental sustainability.</p> <p>6.Implement projects that address real-world community problems and promote social change.</p> <p>7.Conduct surveys and research to understand community needs and propose solutions.</p> <p>8. Interpret data and present findings effectively in reports and presentations.</p> <p>9.Learn the basics of entrepreneurship, financial literacy, and self-employment.</p> <p>10.Develop innovative ideas for social enterprises and small businesses.</p> <p>11.Foster empathy, teamwork, and respect for diverse cultures and perspectives.</p> <p>12.Plan, execute, and evaluate extension activities such as awareness campaigns, surveys, and training programs.</p> <p>13.Collaborate with NGOs, schools, and local communities for impactful outreach..</p>

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SEMESTER II

Course Code	Course Name	COs
1102111	Design and Analysis of Algorithms	Students will be able to: 1. Understand and evaluate efficiency of the programs that they write based on performance of the algorithms used. 2. Appreciate the use of various data structures as per need 3. Select, decide and apply appropriate design principle by understanding the requirements of any real-life problems.
1102112	Object Oriented Programming	Students will be able to: 1. Understand, remember, demonstrate, explain and describe concept of OOP 2. Design UML based diagrams 3. Illustrate the different types of control statements in C++ 4. Analyze and implement concept of OOP 5. Write and create programs relating to OOP concepts
1102113	Computer Science Practical 2	Students will be able to: 1. Design and implement algorithms for various problem domains. 2. Evaluate and compare the time and space complexities of algorithms. 3. Apply divide and conquer strategies to solve computational problems. 4. Utilize dynamic programming techniques for optimization problems. 5. Implement and analyze algorithms based on greedy strategies. 6. Design and implement classes and objects in C++. 7. Apply inheritance and polymorphism concepts in program development. 8. Implement operator overloading for enhanced class functionality. 9. Utilize advanced features like friend functions, inline functions, and this pointer. 10. Understand the impact of scope specifiers on class members.

1052211	Calculus-I	<p>Students will be able to:</p> <ol style="list-style-type: none"> 1. Learn graphical representation of functions and understand the concepts of limits and continuity of functions. 2. Explain the concept of limit and continuity of real valued functions and order, degree of differential equation. 3. Apply differential equations to solve real life problems. 4. Verify the existence of limits, continuity of functions and solutions of differential equations. 5. Find the limits of various functions and integrating factors along with general solutions of differential equations. 6. Construct counter examples related to continuous and discontinuous functions etc.
1172311	Principles & Practices of Management	<p>Students will be able to:</p> <ol style="list-style-type: none"> 1. Understand the concept of management. 2. Manage functions.
1282311	Marketing Mix - II	<p>Students will be able to:</p> <ol style="list-style-type: none"> 1. Understand how place and promotion work in marketing to solve marketing problems. 2. Apply place and promotion strategies like a marketing manager. 3. Evaluate and create marketing strategies using place and promotion as key elements.
1102411	Web Technologies	<p>Students will be able to:</p> <ol style="list-style-type: none"> 1. Design valid, well-formed, scalable, and meaningful pages using emerging technologies. 2. Understand the various platforms, devices, display resolutions, viewports, and browsers that render websites 3. Develop and implement client-side and server-side scripting language programs. 4. Develop and implement Database Driven Websites. 5. Design and apply XML to create a markup language for data and document centric applications.
1102413	Advanced Python Programming	<p>Students will be able to:</p> <ol style="list-style-type: none"> 1. Demonstrate comprehensive OOPs proficiency, apply principles effectively. 2. Develop efficient, reusable classes, successfully transfer members. 3. Ability to implement inheritance and apply advanced polymorphism. 4. Ability to implement abstract classes, demonstrate

		<p>flexibility through interfaces.</p> <p>5. Ability to thread creation, synchronization, and effective deadlock resolution.</p>
2512517	Hindi Bhasha - Kaushal Ke Adhar	<p>Students will be able to:</p> <ol style="list-style-type: none"> 1. विद्यार्थियों को लेखन, वाचन कौशल के ज्ञान प्राप्त के साथ मौलिक अभिव्यक्ति में बदलाव आएगा। 2. विद्यार्थियों का लेखन, वाचन कौशल द्वारा मानसिक विकास होगा, पठन-शैली का विकास होगा। 3. विद्यार्थियों को लेखन, भाषण कौशल से भाषिक-शक्ति, शैलियों का सिंविन होगा हवशेषज्ञता आएगी। । 4. विद्यार्थियों को लेखन, वाचन, श्रवण, भाषण कौशल की विशेषताओं और उपयोगिता का ज्ञान प्राप्त होगा।
2542520	Foundation of Behavioral Skills (Basic-Level)	<p>Students will be able to:</p> <ol style="list-style-type: none"> 1. Define and Identify different life skills required in personal and professional life 2. Develop an awareness of the self and apply well-defined techniques to cope with emotions and stress. 3. Explain the basic mechanics of effective communication and demonstrate these through presentations and take part in group discussions. 4. Use appropriate thinking and problem-solving techniques to solve new problems
2522614	Foundation and Exploration of Performing and Fine Arts	<p>Students will be able to:</p> <ol style="list-style-type: none"> 1. Identify and trace the historical evolution of Indian performing and fine arts. 2. Analyze the transition from traditional to modern art forms in performing arts. 3. Identify and describe a range of career paths in the fine and performing arts.
2522617	National Service Scheme	<p>Students will be able to:</p> <ol style="list-style-type: none"> 1. Understand and Comprehend the foundations of the National Service Program. 2. Understand the unique camping program. 3. Learn about the regular activities of NSS. 4. Understand the importance of Shramadan.

2522620	Sports, Physical literacy, Health & Fitness & Yog	<p>Students will be able to:</p> <ol style="list-style-type: none"> 1. Participate in various games, sports and physical activities and they will also learn the technical and tactical experience of it. 2. Understand the importance and benefits of participation in any fitness activity or sports. 3. Own choice based activities that will inculcate healthy habits in the students 4. Organize, plan activities, and will develop administrative qualities through these events 5. Acquire the knowledge of Physical Education, Sports and Yoga and understand the purpose and its development. 6. Learn to plan, organize and execute sports events. 7. Learn theoretical and practical aspects of the game of his choice to apply at various levels for teaching, learning and coaching purposes efficiently. 8. Acquires the knowledge of opted games, sports and yoga and also learns the technical and tactical experience of it. 9. Learn to apply knowledge of Physical fitness and exercise management to lead a better quality life. 10. Understand and learn different dimensions of an active lifestyle.
2522621	Extension Work	<p>Students will be able to:</p> <ol style="list-style-type: none"> 1.Explain the concepts of lifelong learning and the role of extension education in community development. 2.Recognize the importance of social responsibility and active citizenship. 3.Develop communication, leadership, and teamwork skills through practical projects. 4.Gain hands-on experience in social work, research, and project management. 5.Identify and analyse social issues such as education, health, gender equality, and environmental sustainability. 6.Implement projects that address real-world community problems and promote social change. 7.Conduct surveys and research to understand community needs and propose solutions.

		<p>8. Interpret data and present findings effectively in reports and presentations.</p> <p>9. Learn the basics of entrepreneurship, financial literacy, and self-employment.</p> <p>10. Develop innovative ideas for social enterprises and small businesses.</p> <p>11. Foster empathy, teamwork, and respect for diverse cultures and perspectives.</p> <p>12. Plan, execute, and evaluate extension activities such as awareness campaigns, surveys, and training programs.</p> <p>13. Collaborate with NGOs, schools, and local communities for impactful outreach..</p>
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