



Pradnya Niketan Education Society, Pune's
**N. K. ORCHID COLLEGE OF ENGINEERING
& TECHNOLOGY, SOLAPUR**

NAAC Accredited, Approved by AICTE, New Delhi & Affiliated to DBATU, Lonere
E-mail : office@orchidengg.ac.in, Website : www.orchidengg.ac.in, Phone No. 9423084363
Post Box No. 154, Gut No. 16, Solapur-Tuljapur Road, Tale Hipparaga, Solapur- 413 002.

Department of Artificial Intelligence and Data Science

Course outcomes of all courses

Second Year-I

| Course no. | Course code | Course name |
|------------|---|--|
| C301 | BTES301 | Engineering Mathematics – III |
| COs | After the successful completion of this course student will be able to: | |
| 1 | Understand the concept of LT & ILT. | |
| 2 | Solve problems related to Fourier transform to Deep Learning, Signal & Image processing. | |
| 3 | Understand the concepts of linear algebra and apply Linear Programming, Computer Graphics and Cryptography. | |
| 4 | Understand the concepts of PDE and apply it in data analysis. | |
| 5 | Analyze function of complex variables. | |
| Course no. | Course code | Course name |
| C302 | BTAIC302 | An Introduction to Artificial Intelligence |
| COs | After the successful completion of this course student will be able to: | |
| 1 | Discuss Meaning, Scope and Stages of Artificial Intelligence | |
| 2 | Understand and Implement Problem Space and Search Strategies for Solving problems. | |





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| | |
|---|---|
| 3 | Discuss the Search Techniques and Knowledge Representation. |
| 4 | Apply search for solving Constraint Satisfaction Problems and Game-playing. |
| 5 | Discover the Application of Artificial Intelligence and Analyze Impact of AI on Society |

| Course no. | Course code | Course name |
|------------|-------------|---|
| C303 | BTAIC303 | Data Structure and Algorithm using Python |

| | |
|-----|--|
| COs | After the successful completion of this course student will be able to: |
| 1 | Write programs using basic concepts of Python Programming |
| 2 | Implement algorithms for arrays, linked structures, stacks, queues, trees, and graphs |
| 3 | Write programs that use arrays, linked structures, stacks, queues, trees, and graphs |
| 4 | Compare and contrast the benefits of dynamic and static data structures implementation |
| 5 | Discuss the computational efficiency of the principal algorithms for sorting, searching, and hashing |

| Course no. | Course code | Course name |
|------------|-------------|---|
| C304 | BTESC304 | Computer Architecture & Operating Systems |

| | |
|-----|---|
| COs | After the successful completion of this course student will be able to: |
| 1 | To learn how computer works |



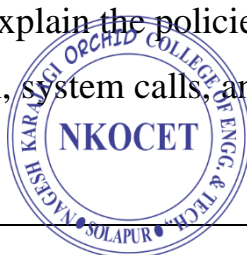


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| 2 | To learn the basic instruction set | |
|------------|---|-----------------------------------|
| 3 | Analyze the performance of Computer | |
| 4 | Understand the designing of computer | |
| 5 | Understand the design of control unit | |
| Course no. | Course code | Course name |
| C305 | BTESC305 | Digital Logic & Signal Processing |
| COs | After the successful completion of this course student will be able to: | |
| 1 | Understand the theory and architecture of central processing unit & Analyze some of the design issues in terms of speed, technology, cost, performance | |
| 2 | Use appropriate tools to design verify and test the CPU architecture & Learn the concepts of parallel processing, pipelining and inter processor communication. | |
| 3 | Understand the architecture and functionality of central processing unit & Exemplify in a better way the I/O and memory organization, Memory management systems, Virtual Memory | |
| 4 | Describe and explain the fundamental components of a computer operating system | |
| 5 | Define, restate, discuss, and explain the policies for scheduling, deadlocks, memory management, synchronization, system calls, and file systems. | |



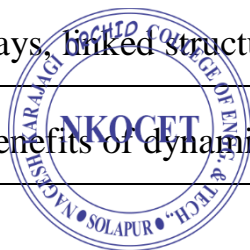


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| Course no. | Course code | Course name |
|--|---|--|
| C306 | BTAIL306 | Artificial Intelligence Lab & Data Structure and Algorithm using Python Lab |
| BTAIL306(a) : Artificial Intelligence Lab | | |
| COs | After the successful completion of this course student will be able to: | |
| 1 | Discuss Meaning, Scope and Stages of Artificial Intelligence | |
| 2 | Understand and Implement Problem Space and Search Strategies for Solving problems. | |
| 3 | Discuss the Search Techniques and Knowledge Representation. | |
| 4 | Apply search for solving Constraint Satisfaction Problems and Game-playing. | |
| 5 | Discover the Application of Artificial Intelligence and Analyze Impact of AI on Society | |
| BTAIL306(b) : Data Structure and Algorithm using Python Lab | | |
| COs | After the successful completion of this course student will be able to: | |
| 1 | Write programs using basic concepts of Python Programming | |
| 2 | Implement algorithms for arrays, linked structures, stacks, queues, trees, and graphs | |
| 3 | Write programs that use arrays, linked structures, stacks, queues, trees, and graphs | |
| 4 | Compare and contrast the benefits of dynamic and static data structures implementation | |





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| 5 | Discuss the computational efficiency of the principal algorithms for sorting, searching, and hashing | |
|------------|--|--|
| Course no. | Course code | Course name |
| C307 | BTAIS307 | Seminar – I |
| COs | After the successful completion of this course student will be able to: | |
| 1 | TO Demonstrate a sound technical knowledge of their selected seminar topic | |
| 2 | To Undertake problem identification, | |
| 3 | TO formulate and solution for a Problem | |
| 4 | To Design engineering solutions to complex problems utilizing a systems approach | |
| 5 | To Provide Effective presentation and improve soft skills | |
| Course no. | Course code | Course name |
| C308 | BTES211P | Field Training / Internship / Industrial Training Evaluation |
| COs | After the successful completion of this course student will be able to: | |
| 1 | Integrate theory and practice. | |
| 2 | Apply various soft skills such as time management, positive attitude and communication skills during performance of the tasks assigned in internship organization. | |





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| | |
|----------|--|
| 3 | Determine the challenges and potential for his / her internship organization in particular and the sector in general. |
| 4 | Construct the company profile by compiling the brief history, management structure, products / services offered, key achievements and market performance for his / her organization of internship. |

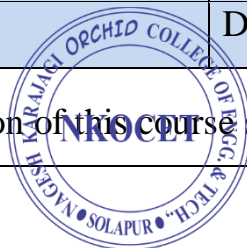
Second Year-II

| Course no. | Course code | Course name |
|------------|-------------|---------------|
| C401 | BTAIC401 | Data Analysis |

| | |
|------------|---|
| COs | After the successful completion of this course student will be able to: |
| 1 | Apply preprocessing techniques to convert raw data so as to enable further analysis |
| 2 | Apply exploratory data analysis and create insightful visualizations to identify patterns |
| 3 | Understand how to derive the probability density function of transformations of random variables and use these techniques to generate data from various distributions |
| 4 | Understand the statistical foundations of data science and analyze the degree of certainty of predictions using statistical test and models |
| 5 | Introduce machine learning algorithms for prediction and to derive insights |

| Course no. | Course code | Course name |
|------------|-------------|----------------------------|
| C402 | BTAIC402 | Database Management System |

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|------------|---|
| COs | After the successful completion of this course student will be able to: |
|------------|---|





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| 1 | Master the basic concepts of relational DBMS and its types. | |
|------------|---|--------------------|
| 2 | Perform various types of operations on relational databases using DDL, DML, DCL in SQL | |
| 3 | Understand the concept of how non-relational databases differ from relational databases from a practical perspective. | |
| 4 | Master the basic concepts of designing NoSQL database management system. | |
| 5 | Able to Identify what type of NoSQL database to implement based on business requirements | |
| Course no. | Course code | Course name |
| C403 | BTHM403 | Basic Human Rights |
| COs | After the successful completion of this course student will be able to: | |
| 1 | Students will be able to understand the history of human rights. | |
| 2 | Students will learn to respect others caste, religion, region and culture. | |
| 3 | Students will be aware of their rights as Indian citizen. | |
| 4 | Students will be able to understand the importance of groups and communities in the society. | |
| 5 | Students will be able to realize the philosophical and cultural basis and historical perspectives of human rights. | |





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| Course no. | Course code | Course name |
|------------|---|---|
| C404 | BTBS404 | Probability Theory and Random Processes |
| COs | After the successful completion of this course student will be able to: | |
| 1 | Understand the fundamental knowledge of the concepts of probability and have knowledge of standard distributions which can describe real life phenomenon | |
| 2 | Understand the basic concepts of one and two dimensional random variables and apply in engineering applications | |
| 3 | Apply the concept random processes in engineering disciplines | |
| 4 | Understand and apply the concept of correlation and spectral densities | |
| 5 | The students will have an exposure of various distribution functions and help in acquiring skills in handling situations involving more than one variable. Able to analyze the response of random inputs to linear time invariant systems | |
| Course no. | Course code | Course name |
| C405 | BTAIPE405D | Programming in JAVA |
| COs | After the successful completion of this course student will be able to: | |
| 1 | To understand basics of JAVA | |
| 2 | To use Packages & interfaces | |





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| 3 | To apply Exception Handling & Multithreaded Programming | |
|---|---|--|
| 4 | To acquire Java Database Connectivity | |
| 5 | To recognize Applet, Event Handling and AWT | |
| Course no. | Course code | Course name |
| C406 | BTAIL406 | Data Analysis Lab and Database Management System Lab |
| BTAIL406(a) : Data Analysis Lab | | |
| COs | After the successful completion of this course student will be able to: | |
| 1 | Apply preprocessing techniques to convert raw data so as to enable further analysis | |
| 2 | Apply exploratory data analysis and create insightful visualizations to identify patterns | |
| 3 | Understand how to derive the probability density function of transformations of random variables and use these techniques to generate data from various distributions | |
| 4 | Understand the statistical foundations of data science and analyze the degree of certainty of predictions using statistical test and models | |
| 5 | Introduce machine learning algorithms for prediction and to derive insights | |
| BTAIL406(b) : Database Management System Lab | | |
| 1 | Master the basic concepts of relational DBMS and its types. | |





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| 2 | Perform various types of operations on relational databases using DDL, DML, DCL in SQL | |
|------------|---|--------------|
| 3 | Understand the concept of how non-relational databases differ from relational databases from a practical perspective. | |
| 4 | Master the basic concepts of designing NoSQL database management system. | |
| 5 | Able to Identify what type of NoSQL database to implement based on business requirements | |
| Course no. | Course code | Course name |
| C407 | BTCOS407 | Seminar – II |
| COs | After the successful completion of this course student will be able to: | |
| 1 | To Establish motivation for any topic of interest and develop a thought process for Technical presentation. | |
| 2 | To Organize a detailed literature survey and build a document with respect to technical publications. | |
| 3 | To perform Analysis and comprehension of available data | |
| 4 | TO Make use of new and recent technology (e.g. Latex) for creating technical reports | |
| 5 | Effective presentation and improve soft skill | |





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| Course no. | Course code | Course name |
|------------|--|--|
| C408 | BTCOF408 | Field Training / Internship / Industrial Training Evaluation |
| COs | After the successful completion of this course student will be able to: | |
| 1 | Integrate theory and practice. | |
| 2 | Apply various soft skills such as time management, positive attitude and communication skills during performance of the tasks assigned in internship organization. | |
| 3 | Determine the challenges and potential for his / her internship organization in particular and the sector in general. | |
| 4 | Construct the company profile by compiling the brief history, management structure, products / services offered, key achievements and market performance for his / her organization of internship. | |

