III SEMESTER

Scheme of Instruction & Examination

B. E. - Computer Science and Engineering

CSE Semester - III

S. No.	Course Code	Course Title	Scheme of Instruction				Scheme of Examination		Credits
			L	T	P/D	Contact Hours/ week	CIE	SEE	
Theory Courses									
1	3BS305HS	Probability & Statistics	3	1	0	4	40	60	4
2	3ES301EC	Switching Theory & Logic Design	3	0	0	3	40	60	3
3	3PC301CS	Database Management Systems	3	0	0	3	40	60	3
4	3PC302CS	Discrete Mathematics	3	0	0	3	40	60	3
5	3PC303CS	Computer Organization and Microprocessor	3	0	0	3	40	60	3
6	3MC302HS	Essence of Indian Traditional Knowledge	2	0	0	2	40	60	0
Practical / Laboratory Courses									
7	3PC351CS	Database Management Systems Lab	0	0	2	2	40	60	1
8	3PC352CS	Computer Organization and Microprocessor Lab	0	0	2	2	40	60	1
9	3PC353CS	Python Programming Lab	0	0	2*2	4	40	60	2
10	3PW354CS	Skill Development Course-I	0	0	2	2	40	60	1
Total Credits						**28**	**400**	**600**	**21**

Course Code	Course Title						Core/Elective
3BS305HS	PROBABILITY & STATISTICS						Core
Prerequisite	Contact Hours per Week				CIE	SEE	Credits
	L	T	D	P			
ATD	3	1	-	-	40	60	4

COURSE OBJECTIVES :

The objective of this course is to make the student to:

1. Study theconceptsof Probability and random variables
2. To provide the knowledge of discrete probability Distributions
3. To learn theoretical continuous probability distributions.
4. To provide the knowledge of correlation and regression.
5. To learn the concept of small sample tests and curve fitting

COURSE OUTCOMES :

After the completion of course the students will be able to :

1. To understand concepts of probability and random variables
2. Apply various probability distributions to solve practical problems, to estimate unknown parameters of populations
3. Find Mean, variance, moment generating function and statistical parameters of continuous probability distributions
4. To perform a regression analysis and to compute and interpret the coefficient of correlation
5. Evaluate t-distribution, F-distribution and chisquare distributions. Fitting of straight line, parabola and exponential curves.

UNIT - I

Introduction of Probability, Conditional probability, Theorem of Total probability, Baye's Theorem and its applications, Random variables, Types of random variables, Probability mass function and Probability density function, Mathematical expectations.

UNIT - II

Discrete probability distributions : Binomial and Poisson distributions, Mean, variance, moment generating function and evaluation of statistical parameters for these distributions, Moments, skewness and Kurtosis.

UNIT - III

Continuous probability distributions, Uniform, Exponential and Normal distributions, Mean, variance, moment generating function and evaluation of statistical parameters for these distributions.

UNIT - IV

Correlation, regression and Rank correlation. Test of significance: Large sample test for single proportion, difference of proportions, single mean, difference of means, and difference of standard deviations.

UNIT - V

t-Test for single mean, difference of means, f-test for ratio of variances, Chi-square test for goodness of fit and independence of attributes. Curve fitting by the method of least squares: fitting of straight lines, second degree parabolas and more general curves.

TEXT BOOKS

1. Dr.B.S. Grewal, Higher.EngineeringMathematics, KhannaPublicatins,43 Edition,2014. (unit 1-5)
2. Advance Engineering Mathematics by R.K.Jain and Iyengar,Fifth Edition, NarosaPublications (unit 1-5)
3. Engineering Mathematics, P.Sivaramakrishna Das & C. Vijaya Kumar, Pearson India Education Services Pvt. Ltd.

REFERENCE BOOKS

1. Fundamentals of Mathematical Statistics, S.C.Gupta&V.K.Kapoor, S.Chand Pub.
2. W. Feller, "An Introduction to Probability Theory and its Applications", Vol. 1, Wiley, 1968.

Course Code	Course Title						Core/Elective
3PC301CS	DATABASE MANAGEMENT SYSTEMS						Core
Prerequisite	Contact Hours per Week				CIE	SEE	Credits
L	T	D	P				
ATD	3	-	-	-	40	60	3

COURSE OBJECTIVES :

The objective of this course is to make the student to :

1. To get familiar with fundamental concepts of database management which includes database design, database languages, and database-system implementation.
2. To get familiar with data storage techniques and indexing.
3. To impart knowledge in transaction Management, concurrency control techniques and recovery techniques.
4. To master the basics of SQL and construct queries using SQL.
5. To become familiar with database storage structures and access techniques.

COURSE OUTCOMES :

After the completion of course the students will be able to:

1. Develop the knowledge of fundamental concepts of database management and Designing a database using ER modelling approach.
2. Implement storage of data, indexing, and hashing.
3. Apply the knowledge about transaction management, concurrency control and recovery of database systems.
4. Ability to design entity relationship model and convert entity relationship diagrams into RDBMS and formulate SQL queries on the data
5. Apply the knowledge to retrieve database from multiple table using Sql and Pl/sql.

UNIT - I

Introduction to Database and System Architecture: Database Systems and their Applications, Database Vs File System, View of Data, Data Models, Database Languages- DDL and DML, Transaction Management, Database users and Administrators, Database System Structure. Introduction to Database Design: ER Diagrams, Entities, Attributes and Entity sets, Relationships and Relationship set, Extended ER Features, Conceptual Design with the ER Model, Logical database Design.

UNIT - II

SQL Queries and Constraints : SQL Data Definition, Types of SQL Commands, Form of Basic SQL Query, SQL Operators, Set Operators, , Aggregate Operators, NULL values ,Functions, Integrity Constraints Over Relations, Joins, Nested Queries, Introduction to Views, Destroying / Altering Tables and Views, PL/SQL Functions and Stored procedures ,Cursors, Triggers and Active Databases.

UNIT - III

Relational Model: Introduction to Relational Model, Basic Structure, Database Schema, Keys, Relational Algebra and Relational Calculus. Storage and Indexing: File Organizations and Indexing-Overview of Indexes, Types of Indexes, Index Data Structures, Tree structured Indexing, Hash based Indexing.

UNIT - IV

Schema Refinement and Normal Forms: Introduction to Schema Refinement, Functional Dependencies, Reasoning about FD, Normal Forms and Normalization: INF, 2NF, 3NF, BCNF, 4NF, 5NF, Properties of Decomposition

UNIT - V

Transaction Management : Transaction Concept, Transaction State, Implementation of Atomicity and Durability, Concurrent Executions, Serializability, Recoverability, Implementation of Isolation, Testing for Serializability. Concurrency Control: Lock based Protocols, Timestamp based protocols, Recovery System: Recovery and Atomicity, Log based recovery, Shadow Paging, Recovery with concurrent Transactions, Buffer Management.

TEXT BOOKS

1. Data base Management Systems, Raghurama Krishnan, Johannes Gehrke, III Edition, TATA McGraw Hill.
2. Data base System Concepts, Silberschatz, Korth, V Edition, McGraw Hill.
3. Introduction to Database Systems, C.J.Date Pearson Education.
4. Database Systems design, Implementation, and Management, Rob & Coronel, V Edition.

REFERENCE BOOKS

1. Database Management System, Elmasri Navate, Pearson Education.
2. Database Management System, Mathew Leon, Leo.

Course Code	Course Title						Core/Elective
3PC302CS	DISCRETE MATHEMATICS						Core
Prerequisite	Contact Hours per Week				CIE	SEE	Credits
	L	T	D	P			
ATD	3	-	-	-	40	60	3

COURSE OBJECTIVES :

The objective of this course is to make the student to :

1. To understand the concepts of Logic, Rules of inference and Quantifiers
2. To explain with examples, the basic terminology of functions, relations, and sets.
3. To impart the knowledge on Groups, Normal subgroups, Rings and Field
4. To relate the ideas of mathematical induction to recursion and recursively defined structures.
5. To develop Graph Algorithms by using the concepts of Graphs and Trees

COURSE OUTCOMES :

After the completion of course the students will be able to :

1. Apply mathematical logic to solve problems
2. Illustrate by examples the basic terminology of functions, relations, and sets and demonstrate knowledge of their associated operations.
3. Identify structures of algebraic nature and apply basic counting techniques to solve combinatorial problems.
4. Formulate problems and solve recurrence relations.
5. Apply Graph Theory in solving computer science problems.

UNIT - I

Mathematical Logic : Statements and notations, Connectives, Well-formed formulas, Truth Tables, tautology, equivalence implication, Normal forms, Quantifiers, universal quantifiers.

Predicates : Predicative logic, Free & Bound variables, Rules of inference, Consistency, proof of contradiction, Automatic Theorem Proving.

UNIT - II

Set Theory and Relations : Basic Concepts of Set Theory, Relations and Ordering, Properties of Binary Relations, equivalence, transitive closure, compatibility and partial ordering relations Hasse Diagram.

Functions : Composition of functions, Inverse Functions, Recursive Functions, Lattice and its Properties.

UNIT - III

Algebraic structures : Algebraic Systems-Examples and General Properties, Semi groups and Monoids, groups, sub groups, homomorphism, Isomorphism, Fields, Rings, Integral domains.

Elementary Combinatory : Basis of counting, Combinations & Permutations, with repetitions, Constrained repetitions, Binomial Coefficients, Binomial Multinomial theorems, the principles of Inclusion – Exclusion. Pigeon hole principles and its application.

UNIT - IV

Recurrence Relations : Recurrence Relations, Solving Linear Recurrence Relations, Divide-and-Conquer Algorithms and Recurrence Relations, Generating Functions, Inclusion-Exclusion, Applications of Inclusion-Exclusion.

UNIT - V

Graphs : Graphs and Graph Models, Graph Terminology and Special Types of Graphs, Representing Graphs and Graph Isomorphism, Connectivity, Euler and Hamilton Paths, Shortest-Path Problems, Planar Graphs, Graph Colouring.

Trees : Introduction to Trees, Applications of Trees, Tree Traversal, Spanning Trees, Minimum Spanning Trees.

TEXT BOOKS

1. Discrete Mathematics and its Applications, Kenneth H. Rosen, Fifth Edition. TMH .
2. Elements of Discrete Mathematics- A Computer Oriented Approach- C L Liu, D P Mohapatra. Third Edition, Tata McGrawHill.
3. Discrete Mathematics for Computer Scientists & Mathematicians, J.L. Mott, A. Kandel, T.P. Baker, Second Edition, PHI.

REFERENCE BOOKS

1. Discrete Mathematical Structures Theory and Application- Malik & Sen, First Edition,Cengage Learning.
2. Discrete Mathematics with Applications, Thomas Koshy, First Edition, Elsevier.

Course Code	Course Title						Core/Elective
3PC303CS	COMPUTER ORGANIZATION AND MICROPROCESSOR						Core
Prerequisite	Contact Hours per Week				CIE	SEE	Credits
	L	T	D	P			
ATD	3	-	-	-	40	60	3

COURSE OBJECTIVES :

The objective of this course is to make the student to :

1. To explore the I/O organizations in depth.
2. To learn the fundamentals of computer organization and its relevance to classical and modern problems of computer design.
3. To be familiarized with the hardware components and concepts related to the memory organization.
4. To be familiarized with the hardware components and concepts related to the input-output organization
5. Understand the concepts and applications of Internet of Things, Building blocks of Internet of Things and characteristics

COURSE OUTCOMES :

After the completion of course the students will be able to :

1. Recall and apply a basic concept of block diagram of computer (CPU) with Microprocessor processor UNIT (MPU)
2. Understand the internal architecture and register organization of 8086
3. Apply knowledge and demonstrate programming proficiency using the various addressing modes and instruction sets of 8086
4. Identify and compare different methods for computer I/O mechanisms
5. Categorize memory organization and explain the function of each element of a memory hierarchy.

UNIT - I

Basic Computer Organization : Functions of CPU, I/O UNITs, Memory: Instruction: Instruction Formats- One address, two addresses, zero addresses and three addresses and comparison; addressing modes with numeric examples: Program Control- Status

bit conditions, conditional branch instructions, Program Interrupts: Types of Interrupts.

UNIT - II

8086 CPU Pin Diagram : Special functions of general purpose registers, Segment register, concept of pipelining, 8086 Flag register, Addressing modes of 8086

Pipelining : Introduction, processors, performance, hazards, super scalar operations and performance considerations.

UNIT - III

8086-Instruction formats : assembly Language Programs involving branch & Call instructions, sorting, evaluation of arithmetic expressions.

UNIT - IV

Input-Output Organizations I/O Vs Memory Bus, Isolated Vs Memory - Mapped I/O, Asynchronous data Transfer Techniques, Asynchronous Serial transfer-Asynchronous Communication interface (8251), Modes of transfer Programmed I/O, Interrupt Initiated I/O, DMA; DMA Controller (8257), IOP-CPU-IOP Communication, Intel 8089 IOP.

UNIT - V

Memory Organizations: Memory hierarchy, Main Memory, RAM, ROM Chips, Memory Address Map, Memory Connection to CPU, associate memory, Cache Memory, Data Cache, Instruction cache, Miss and Hit ratio, Access time, associative, set associative, mapping, waiting into cache, Introduction to virtual memory.

TEXT BOOKS

1. Computer system Architecture: Morris Mano, Third Edition,
2. Computer Organization and Architecture–William Stallings, Sixth Edition, Pearson/PHI.
3. Advanced Micro Processor and Peripherals- Hall/ A K Ray.

REFERENCE BOOKS

1. Computer Organization V. Carl Hamacher, Safwat G. Zaky, ZvonkoVranesic, Zvonko G Vranesic, Fifth Edition
2. Microprocessor Architecture, Programming, Applications with 8085, Ramesh S Gaonkar, Fifth Edition, Prentice Hall, 2002.

Course Code	Course Title						Core/Elective
3MC302HS	ESSENCE OF INDIAN TRADITIONAL KNOWLEDGE						Core
Prerequisite	Contact Hours per Week				CIE	SEE	Credits
	L	T	D	P			
ATD	2	-	-	-	40	60	-

COURSE OBJECTIVES :

The objective of this course is to make the student to :

1. To reinforce the students understanding with the Pan-Indian heritage in terms of culture, traditions and knowledge.
2. To impart understanding of the importance of the roots of the traditional knowledge and types.
3. To impart basic knowledge on the evolution of the multiple languages that highlight India's diversity.
4. To know Indian Languages, Philosophies, Religion, Literature, Fine arts and Technology.
5. To explore the Ancient Science, Scientists, in Medieval and Modern India; the education system.

COURSE OUTCOMES :

After the completion of course the students will be able to :

1. Understand the concepts of Indian culture and Traditions and their importance.
2. Distinguish the Indian languages and literature
3. Learn the philosophy of ancient, medieval and modern India.
4. Acquire the information about the fine arts in India
5. Know the contribution of scientists of different eras, interpret the concepts and the importance to protect Intellectual property of the nation.

UNIT - I

Dawn of human civilization and evolution of various cultures, Introduction to Culture: Civilization, Culture and heritage,General characteristics of culture, importance of culture in human literature,Indian Culture, Ancient India, Medieval India, Modern India.

UNIT - II

Indian Languages, Culture and Literature: Indian Languages and Literature-I: the evolution and role of Sanskrit, significance of scriptures to current society -Indian philosophies, other Sanskrit literature, literature of south India. Indian Languages and Literature-II: -Northern Indian languages & literature.

UNIT - III

Religion and Philosophy: Religion and Philosophy in ancient India -Religion and Philosophy in medieval India -Religious reform movements in modern India (selected movements only).

UNITI - V

Fine Arts in India (Art, Technology& Engineering) : Indian Painting, Indian handicrafts, Music : Divisions of Indian classic music, modern Indian music, Dance and Drama, Indian Architecture (ancient, medieval and modern),Science and Technology in India: development of science in ancient, medieval and modern India. Their relation in terms of modern scientific perspective, Protection of traditional knowledge, significance, value to economy, role of government in protection of indigenous knowledge and technology, protection of traditional knowledge bill, 2016.

UNIT - V

Education System in India: Education in ancient, medieval and modern India,Aims of education, subjects, languages, Science and Scientists of Ancient India, Science and Scientists of Medieval India, Scientists of Modern India.

TEXT BOOKS

1. Indian Knowledge Systems (2 Vols-Set), Kapil Kapoor and Avadhesh KumarSingh; ISBN 10: 8124603367 / ISBN 13: 9788124603369, Published by D K Printworld, Publication Date: 2007.
2. Science in Samskrit, SamskritaBharati, Published by SamskritaBharati, NewDelhi, India, 2007; ISBN 10: 8187276339 / ISBN 13: 9788187276333.
3. Traditional Knowledge System and Technology in India, Book by Basanta KumarMohanta and Vipin K. Singh, originally published: 2012 Publication Date: 2012;ISBN 10: 8177023101ISBN 13: 9788177023107.
4. 1.7-Position paper, National Focus Group on Arts, Music, Dance and TheatreNCERT, March 2006, ISBN 81-7450-494-X, NCERT, New Delhi, 2010.

5. Indian Art and Culture, 4th Edition, By Nitin Singhania, ISBN:9354601804 • 9789354601804, © 2022 | Published: December 20, 2021.
6. 'Education and Examination Systems in Ancient India, written/authored/edited byS. Narain', published 2017, English-Hardcover, ISBN 9789351282518 publisher:Kalpaz Publications.
7. Satya Prakash, Founders of Sciences in Ancient India, Vijay Kumar Publisher, NewDelhi, 1989.
8. M. Hiriyanna, Essentials of Indian Philosophy, MotilalBanarsidass Publishers, New Delhi, 2005.

Course Code	Course Title						Core/Elective
1PC351CS	DATABASE MANAGEMENT SYSTEMS LAB						Core
Prerequisite	Contact Hours per Week				CIE	SEE	Credits
	L	T	D	P			
ATD	-	-	-	2	40	60	1

COURSE OBJECTIVES :

The objective of this course is to make the student to :

1. To practice various DDL, DML commands in SQL.
2. To write simple and Complex queries in SQL.
3. To practice various Functions, Joins &sub queries in SQL.
4. To write PL/SQLusing cursors and collections.
5. To write PL/SQL using Stored Procedures.

COURSE OUTCOMES :

After the completion of course the students will be able to:

1. Design and implement a database schema for a given problem.
2. Develop the query statements with the help of structured query language.
3. Populate and query a database using SQL and PL/SQL.
4. Develop multi-user database application.
5. Design and implement E-R model for the given requirements.

List of Programs:

1. Creation of database Tables (exercising the all SQL commands).
2. Simple and complex condition query creation using SQL Plus.
3. Creation of database Tables using Integrity constraints and Functions.
4. Simple and complex condition query creation using Joins.
5. Simple and complex condition query creation using Sub queries and set operators.
6. Creation of Views (exercising the all types of views).
7. Writing PL/SQL function and cursors.
8. Writing PL/SQL stored procedure and triggers.
9. Creation of Forms and reports for student Information, library information, Pay roll etc.
10. Case Study: Design Database for Bank.
    - => Collect the information Related with Bank organization.
    - => Draw E-R Diagrams for Bank.
    - => Reduce E-R Diagrams to tables.
    - => Normalize your Database up to 3rd Normal form.
    - => Retrieve Bank information using SQL commands.

Course Code	Course Title						Core/Elective
3PC352 CS	COMPUTER ORGANIZATION AND MICROPROCESSOR LAB						Core
Prerequisite	Contact Hours per Week				CIE	SEE	Credits
	L	T	D	P			
ATD	-	-	-	2	40	60	1

COURSE OBJECTIVES :

The objective of this course is to make the student to :

1. Provide practical hands on experience with Assembly Language Programming.
2. Familiar with the architecture and Instruction set of Intel 8086 microprocessor.
3. Familiarize the students with interfacing of various peripheral devices with 8086 microprocessors.
4. Identify a detailed s/w & h/w structure of the Microprocessor.
5. Develop the programs for microprocessor based applications.

COURSE OUTCOMES :

After the completion of course the students will be able to:

1. Interpret the principles of Assembly Language Programming, instruction set in developing microprocessor based applications.
2. Develop Applications such as:8-bit Addition, Multiplication, and Division, array operations, swapping, negative and positive numbers.
3. Build interfaces of Input-output and other units.
4. Understand working of instruction set and addressing modes.
5. Analyze the function of traffic light controller.

List of Programs :

1. Tutorials with 8086 kit/MASM software tool (Data transfer instructions).
2. Arithmetic operations.
3. Addressing modes.
4. Branch instructions.
5. Logical instructions.
6. Searching.
7. Sorting
8. Display a string of characters using 8279.
9. Inter facing seven-segment LED using 8255.
10. A case study on trafficlight signal controller.

Course Code	Course Title						Core/Elective
3PC3523CS	PYTHON PROGRAMMING LAB						Core
Prerequisite	Contact Hours per Week				CIE	SEE	Credits
	L	T	D	P			
ATD	-	-	-	4	40	60	2

COURSE OBJECTIVES:

The objective of this course is to make the student to

1. To learn how to design and program using lists, tuples, and dictionaries.
2. To learn how to use indexing and slicing to access data in Python programs.
3. To learn structure and components of a Python and to read and write files.
4. To learn how to design object-oriented programs with Python classes and Exception handling techniques.
5. To learn how to design and build the GUI applications using python.

COURSE OUTCOMES :

After the completion of course the students will be able to :

1. Develop solutions to simple computational problems using Python programs.
2. Solve problems using conditionals and loops in Python.
3. Develop Python programs by defining functions and calling them.
4. Use Python lists, tuples and dictionaries for representing compound data.
5. Develop Python programs for GUI applications.

List of Programs

1. Develop program to demonstrate different number datatypes in python.
2. Develop program to understand the control structures of python.
3. Develop program on String manipulation.
4. Develop program to perform various operations on files.
5. Develop programs to learn different types of structures (list, dictionary, tuples) in python.
6. Develop programs to learn concept of functions scoping, recursion and list mutability.

7. Develop program to demonstrate classes and OOP principles.
8. Develop programs to understand working of exception handling and assertions.
9. Develop event driven GUI programs.
10. Explore different debugging methods in Python: A Case Study.

TEXT BOOKS

1. Kenneth A. Lambert, The Fundamentals of Python: First Programs, 2nd Edition, 2017, Cengage Learning.
2. John V Guttag. "Introduction to Computation and Programming Using Python", Prentice Hall of India.

REFERENCE BOOKS / LINKS

1. Mark Summerfield. Programming in Python 3: A Complete introduction to the Python Language, Addison-Wesley Professional, 2009.
2. Allen B. Downey, ``Think Python : How to Think Like a Computer Scientist, 2nd edition, Updated for Python 3, Shroff/O, Reilly Publishers, 2016
3. NPTEL Course, Programming, Data Structures and Algorithms using Python, Link: https://nptel.ac.in/courses/106106145
4. NPTEL Course, The Joy of Computing using Python,
   Link: https://nptel.ac.in/courses/106106182
5. FOSSEE, Python, Link: https://python.fossee.in/

SKILL DEVELOPMENT COURSE-I

Semester III	L	T	P	Credits
Subject code – 3PW354 CS	0	0	2	1

Guidelines for Evaluation of Skill Development

1. Continuous Evaluation method is adopted for skill development courses of all semesters and 40 marks are allocated for CIE.

   At the end of each module, the student is evaluated by allocating marks as given under.

   Observation- 10 marks.

   Continuous Performance and Execution -20 marks.

   Viva-Voce - 10 marks.

   Average of marks obtained in all experiments is considered as the marks obtained in CIE.

2. The Semester End Examination shall be conducted with an external examiner and the internal examiner for 60 marks. The external examiner shall be appointed by the Principal from the panel of examiners recommended by Controller of Evaluation and Board of Studies.

   Quiz/ Skill Test/Assignment/ Mini Project– 40 marks.

   Viva-voce-20 marks.

Course Code	Course Title						Core/Elective
3PW354CS	CISCO INTRODUCTION TO INTERNET OF THINGS (IOT)						Core
Prerequisite	Contact Hours per Week				CIE	SEE	Credits
	L	T	D	P			
ATD	-	-	-	2	40	60	1

COURSE OBJECTIVES :

The objective of this course is to make the student to :

1. Learn how digital transformation turns information into action, creating unprecedented economic opportunity.
2. Understand how the IoT brings together operational technology and information technology systems.
3. Discover how business processes for evaluating and solving problems are being transformed.
4. Learn the security concerns that must be considered when implementing IoT solutions.
5. Practice what you learn using Cisco Packet Tracer, a network configuration simulation tool.

COURSE OUTCOMES :

After the completion of course the students will be able to:

1. Explain the meaning and impact of Digital Transformation. •
2. Apply basic programming to support IoT devices.
3. Explain how data provides value to Digital Business and Society.
4. Explain the benefits of automation in the digitized world.
5. Explain the need for enhanced security in the digitized world and discover opportunities provided by digital transformation.

MODULE 1: Everything is Connected

Digital Transformation: Explain how digital transformation affects business, industry, and our daily lives, explain how digital transformation enables innovation, explain how networks provide the platform for Digital Business and society.

Devices that Connect to the IoT: Configure an IoT device to connect to the network, describe the exponential growth of connected IoT devices, configure devices to communicate in the IoT.

MODULE 2: Everything Becomes Programmable

Apply Basic Programming to Support IoT Devices: Use Python to create programs that accept user input and read and write to external files, Describe basic programming variables and fundamentals. Apply basic programming variables and fundamentals in Blockly. Apply basic programming variables and fundamentals using Python

Prototyping Your Idea: Explain prototyping and its purpose,Describe Prototyping, Describe the various tools and materials to use to prototype.

MODULE 3: Everything Generates Data

Big Data: Explain the concept of Big Data, Describe the sources of Big Data, Explain the challenges and solutions to Big Data storage, Explain how Big Data analytics are used to support Business.

MODULE 4: Everything Can be Automated

What Can be Automated?: Explain how digitization allows business processes to embrace automation, Describe automation Explain how artificial intelligence and machine learning impact automation. Explain how intent-based networking adapts to changing business needs.

MODULE 5: Everything Needs to be Secured

Security in the Digitized World : Explain why security is important in the digitized world. Explain the need for security in the digitized world, explain how to help secure the corporate world, and explain how to secure personal data and devices.

REFERENCES

1. Introduction to IoT by CISCO Network Academy, Version 2.0, July 2018.

IV - SEMESTER