Karnatak Law Society's



## VISHWANATHRAO DESHPANDE INSTITUTE OF TECHNOLOGY, HALIYAL

Approved by AICTE, New Delhi, Affiliated to V. T. U., Belagavi
Udyog Vidyanagar, Dandeli Road, Haliyai - 581 329, Dist; Uttara Kannada, Karnataka
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## DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

#### ADD-ON COURSE SYLLABUS

## TITLE: INTRODUCTION TO CLOUD COMPUTING

Sem: 7th

Total Hours:30

#### MODULES

#### MODULE1:

Cloud Computing Overview: Definition and essential characteristics, Benefits of Cloud Computing, History and Evolution, Different service providers and services, Types of cloud, Deployment models, centralized versus Distributed Systems, Accessing and Managing Cloud Services.

#### MODULE2:

Cloud Infrastructure: Virtualizations, Components of Cloud Infrastructure, Cloud OS Image management, Cloud Computing Architectures, Spine and leaf architecture, HA and redundancy.

Cloud Virtualization: Benefits, Models of compute virtualization. NFV and VNF's, Virtual Machines, Hypervisors, Containers and Microservices 10 Hours

#### MODULE3:

Cloud Networking: Networking Devices, Overlay Network, Cloud traffic flow, SDN, NFV components, Types of cloud storage, Storage Area Networks.

Cloud Security: Cloud risks and threats, Cloud security features, Cloud Security Components.
Cloud Automation Concepts: Benefits of Automation, Devops and Netops, APIs.

10 Hours

#### Text Book:

T1: Dan C. Marinescu, CloudComputingTheoryAndPractice, Elsevier Inc

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#### DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

#### ADD-ON COURSE SYLLABUS

#### TITLE: BASICS OF MACHINE LEARNING

Sem: 5th

Total Hours:30

#### MODULES

#### MODULE1:

Introduction: Objective, scope and validation techniques, Principal components analysis (Eigen values, Eigen vectors, Orthogonality), Distance measures Ÿ Different clustering methods (Distance, Density, Hierarchical)

10 Hours

#### MODULE2:

PRELIMINARIES OF MACHINE LEARNING: What is machine learning; varieties of machine learning, learning input/output functions, Sample application. Boolean functions and their classes, CNF, DNF, decision lists. Version spaces for learning, version graphs, learning search of a version space, candidate elimination methods.

10 Hours

#### MODULE3:

Statistical Learning: Background and general method, learning belief networks, nearest neighbour. Decision-trees, supervised learning of uni-variance decision trees, network equivalent of decision trees, over fitting and evaluation Inductive Logic Programming, notation and definitions, introducing recursive programs, inductive logic programming versus decision tree induction.

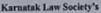
10 Hours

#### Text Book:

T1: Introduction to Machine learning, Nils J.Nilsson

T2: Machine learning for dummies, IBM Limited ed, by Judith Hurwitz and Daniel Kirsch

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## DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

#### ADD-ON COURSE SYLLABUS

## TITLE: ALGORITHMIC APPROACH TO SOLVE COMPLEX PROBLEMS

Sem: 3rd

Total Hours:30

#### MODULES

## MODULE1:

Problem solving aspect: Top-down approach, Implementation of Algorithms, Program Verification, Efficiency of Algorithms, Analysis of Algorithms

10 Hours

#### MODULE2:

Fundamental Algorithms: Enhancing the values of two variables, Counting, Summation of set of numbers, Factorial Computation 10 Hours

## MODULE3:

Sorting Techniques: Sorting by selection, Sorting by exchange, Sorting by insertion methods
10 Hours

#### Text Book:

T1: "How to solve it by Computer", 1st Edition, R G Droomy

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## KLS Vishwanathrao Deshpande Institute of Technology

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

#### ADD-ON COURSE SYLLABUS

## TITLE: FUNDAMENTALS OF NETWORK SECURITY

Sem: 4th

Total Hours:30

#### MODULES

#### MODULE 1:

Introduction: Network security, Examples of security violations, Computer security concepts: confidentiality-Integrity-Availability-Accountability, Challenges of computer security, Hacking-Vulnerability-threats, Attacks-types: Active attacks, Passive attacks Denial of service attacks, Model for network security.

10 Hours

#### MODULE 2:

Cryptography: Concepts and Techniques: Introduction, plain text and cipher text, substitution techniques, transposition techniques, encryption and decryption, symmetric and asymmetric key cryptography, steganography.

10 Hours

#### MODULE 3:

Web Security: Secure Sockets Layer, Secure Sockets Layer, Transport Layer Security, HTTPS, Secure Shell (SSH), Intruders, Intrusion detection, Malicious Softwares, Firewalls

10 Hours

Text Book: Cryptography and Network Security Principles and Practice!, Pearson Education Inc., William Stallings, 5th Edition, 2014, ISBN: 978-81-317-6166-3.

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Total Hours: 30Hrs

## DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

#### Add-on Course Syllabus

Title: Design Strategies of Integrated Circuits

Semester: 6th

#### Modules

#### Introduction to VLSI Design:

Introduction, Basic concepts of MOS, Schematic Design of Combinational Circuits using CMOS - NOT Gate, AND Gate, NAND Gate, OR Gate, NOR Gate, XOR Gate, XNOR Gate, Transmission Gate, Decoder, MUX, Memory - Basic Concepts and Working

10Hrs

#### Module-2

#### Layout Design Concepts:

Introduction, Lambda based Layout Design Rules, Do's and Dont's in Layout Design, CMOS Inverter layout design, CMOS NAND Gate Layout Design 10Hrs

#### Module-3

#### Circuit Design using Cadence:

Introduction to Cadence, Designing Circuits in Cadence using Virtuoso tool, Simulation, Analysis, Layout Design, Verification – DRC, ERC, LVS, RC Extraction, Post Layout Simulation, GDS II Generation 10Hrs

Text Books: T1: CMOS VLSI Design A circuits and System Perspective: Neil H. E. Weste and David M. Harris, 4<sup>th</sup> edition, Pearson Publication, 2011

T2: Basic VLSI Design Pucknell, 2nd edition Prentice Hall of India Publication, 1995.

R1: Digital Systems Design using VHDL - Charles H Roth, Jr. Thomson Publications, 2004

R2: HDL with digital design Nazeih Botros, Mercury Learning and Information, 2015

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

# ADD-ON COURSE SYLLABUS TITLE: CAREER OPPORTUNITIES IN VLSI (INDUSTRY PERSPECTIVE)

Sem:8th

Total Hours:30

#### MODULES

#### Module 1:

Introduction to VLSI System: History and evolution of VLSI technology and system, VLSI Design flow, VLSI design style-FPGA, Role of VLSI Engineer, Application of VLSI Knowledge, List of reputed VLSI companies, Career opportunities in VLSI industry as engineer.

10Hrs

#### Module 2:

Layout Design: CMOS Inverter layout design, Modelling combinational circuits, Implementation and Verification of Basic Gates and Registers.

10Hrs

#### Module 3:

Sequential Circuit Design: Modelling Sequential Circuits, Implementation and verification of sequential circuits and Real time Circuits.

#### Text Books:

T1: CMOS VLSI Design A circuits and System Perspective: Neil H. E. Weste and David M. Harris, 4<sup>th</sup> edition, Pearson Publication,2011

T2: Basic VLSI Design Pucknell, 2<sup>nd</sup> edition Prentice Hall of India Publication, 1995.

#### Reference Books:

R1: Digital Systems Design using VHDL - Charles H Roth, Jr. Thomson Publications, 2004

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