Karnatak Law Society's
VISHWANATHRAO DESHPANDE
INSTITUTE OF TECHNOLOGY, HALIYAL
(Recognized Under Section 2(f) of UGC Act, 1956)
Approved by AICTE, New Delhi, Affiliated to V. T. U., Belagavi
Udyog Vidyanagar, Dandeli Road, Haliyal - 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. 10 Hours
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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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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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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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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Add-on Course Syllabus

Title: Design Strategies of Integrated Circuits

Semester: 6th **Total Hours: 30Hrs**

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, 4th 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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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. 10Hrs

Text Books:

T1: CMOS VLSI Design A circuits and System Perspective: Neil H. E. Weste and David M. Harris, 4th edition, Pearson Publication,2011
T2: Basic VLSI Design Pucknell, 2nd edition Prentice Hall of India Publication, 1995.

Reference Books:

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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