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B.Tech III-II Semester (IT)

S. No.	Course Code	Subject	L	T	P	C
1.	15A05505	Software Testing	3	1	-	3
2.	15A05702	Information Security	3	1	-	3
3.	15A10601	Web Technologies	3	1	-	3
4.	15A05601	Compiler Design	3	1	-	3
5.	15A10602	Cloud Computing	3	1	-	3
6.	15A10603 15A05608 15A01608	**CBCC-I** a. Image Processing b. System Applications & Products (SAP) c. Intellectual Property Rights	3	1	-	3
7.	15A10604	Software Testing Laboratory	-	-	4	2
8.	15A10605	Web Technologies Laboratory	-	-	4	2
9.	15A52602	Advanced English Language Communication Skills (AELCS) Laboratory (Audit Course)	-	-	2	-
10.	15A10606	Comprehensive Online Examination-II	-	-	-	1
			18	**6**	**12**	**23**

6 Theory + 2 Laboratories

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	L	**T**	**P**	**C**
B. Tech III-II Sem. (IT)	**3**	**1**	**0**	**3**

15A05505   **SOFTWARE TESTING**

Course Objectives:
- Fundamentals for various testing methodologies.
- Describe the principles and procedures for designing test cases.
- Provide supports to debugging methods.
- Acts as the reference for software testing techniques and strategies.

Course Outcomes:
- Understand the basic testing procedures.
- Able to support in generating test cases and test suites.
- Able to test the applications manually by applying different testing methods and automation tools.
- Apply tools to resolve the problems in Real time environment.

UNIT I
Introduction: Purpose of Testing, Dichotomies, Model for Testing, Consequences of Bugs, Taxonomy of Bugs.
Flow graphs and Path testing: Basics Concepts of Path Testing, Predicates, Path Predicates and Achievable Paths, Path Sensitizing, Path Instrumentation, Application of Path Testing.

UNIT II
Transaction Flow Testing: Transaction Flows, Transaction Flow Testing Techniques.
Dataflow testing: Basics of Dataflow Testing, Strategies in Dataflow Testing, Application of Dataflow Testing.

UNIT III
Domain Testing: Domains and Paths, Nice & Ugly Domains, Domain testing, Domains and Interfaces Testing, Domain and Interface Testing, Domains and Testability.

UNIT IV
Paths, Path products and Regular expressions: Path Products & Path Expression, Reduction Procedure, Applications, Regular Expressions & Flow Anomaly Detection.
Logic Based Testing: Overview, Decision Tables, Path Expressions, KV Charts, Specifications.

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UNIT V:
State, State Graphs and Transition Testing: State Graphs, Good & Bad State Graphs, State Testing, Testability Tips.
Graph Matrices and Application: Motivational Overview, Matrix of Graph, Relations, Power of a Matrix, Node Reduction Algorithm, Building Tools.

Text Books:
1. Software testing techniques – Boris Beizer, Dreamtech, second edition.

Reference Books :

1. The craft of software testing - Brian Marick, Pearson Education.

2. Software Testing- Yogesh Singh, Camebridge

3. Software Testing, 3rd edition, P.C. Jorgensen, Aurbach Publications (Dist.by SPD).
4. Software Testing, N.Chauhan, Oxford University Press.
5. Introduction to Software Testing, P.Ammann & J.Offutt, Cambridge Univ. Press.
6. Effective methods of Software Testing, Perry, John Wiley, 2nd Edition, 1999.
7. Software Testing Concepts and Tools, P.Nageswara Rao, dreamtech Press
8. Win Runner in simple steps by Hakeem Shittu,2007 Genixpress.
9. Foundations of Software Testing, D.Graham & Others, Cengage Learning.

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	L	T	P	C
B. Tech III-II Sem. (IT)	3	1	0	3

15A05702   INFORMATION SECURITY

Course Objectives:

* Extensive, thorough and significant understanding of the concepts, issues, principles and theories of computer network security
* Identifying the suitable points for applying security features for network traffic
* Understanding the various cryptographic algorithms and implementation of the same at software level
* Understanding the various attacks, security mechanisms and services

Course Outcomes:

* Protect the network from both internal and external attacks
* Design of new security approaches
* Ability to choose the appropriate security algorithm based on the requirements.

Unit-I

Computer Security concepts, The OSI Security Architecture, Security attacks, Security services and Security mechanisms, A model for Network Security

Classical encryption techniques- symmetric cipher model, substitution ciphers, transposition ciphers, Steganography.

Modern Block Ciphers: Block ciphers principles, Data encryption standard (DES), Strength of DES, linear and differential cryptanalysis, block cipher modes of operations, AES, RC4.

Unit-II

Introduction to Number theory – Integer Arithmetic, Modular Arithmetic, Matrices, Linear Congruence, Algebraic Structures, $GF(2^n)$ Fields, Primes, Primality Testing, Factorization, Chinese remainder Theorem, Quadratic Congruence, Exponentiation and Logarithm.

Public-key cryptography - Principles of public-key cryptography, RSA Algorithm, Diffie-Hellman Key Exchange, ELGamal cryptographic system, Elliptic Curve Arithmetic, Elliptic curve cryptography

Unit-III

Cryptographic Hash functions: Applications of Cryptographic Hash functions, Requirements and security, Hash functions based on Cipher Block Chaining, Secure Hash Algorithm (SHA)

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Message Authentication Codes: Message authentication Requirements, Message authentication functions, Requirements for Message authentication codes, security of MACs, HMAC, MACs based on Block Ciphers, Authenticated Encryption
Digital Signatures-RSA with SHA & DSS

Unit-IV

Key Management and distribution: Symmetric key distribution using Symmetric Encryption, Symmetric key distribution using Asymmetric, Distribution of Public keys, X.509 Certificates, Public key Infrastructure.

User Authentication: Remote user Authentication Principles, Remote user Authentication using Symmetric Encryption, Kerberos, Remote user Authentication using Asymmetric Encryption, Federated Identity Management, Electronic mail security: Pretty Good Privacy (PGP), S/MIME.

Unit-V

Security at the Transport Layer(SSL and TLS) : SSL Architecture, Four Protocols, SSL Message Formats, Transport Layer Security, HTTPS, SSH

Security at the Network layer (IPSec): Two modes, Two Security Protocols, Security Association, Security Policy, Internet Key Exchange.

System Security: Description of the system, users, Trust and Trusted Systems, Buffer Overflow and Malicious Software, Malicious Programs, worms, viruses, Intrusion Detection System(IDS), Firewalls

Text books:

1. "Cryptography and Network Security", Behrouz A. Frouzan and Debdeep
    Mukhopadhyay, Mc Graw Hill Education, 2nd edition, 2013.
2. "Cryptography and Network Security: Principals and Practice", William Stallings,
    Pearson Education , Fifth Edition, 2013.

References:

1. "Network Security and Cryptography", Bernard Menezes , Cengage Learning.
2. "Cryptography and Security", C.K. Shymala, N. Harini and Dr. T.R. Padmanabhan, Wiley-India.
3. "Applied Cryptography, Bruce Schiener, 2nd edition, John Wiley & Sons.
4. "Cryptography and Network Security", Atul Kahate, TMH.
5. 'Introduction to Cryptography", Buchmann, Springer.
6. 'Number Theory in the Spirit of Ramanujan", Bruce C.Berndt, University Press
7. "Introduction to Analytic Number Theory", Tom M.Apostol, University Press

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JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY ANANTAPUR

	L	T	P	C
B. Tech III-II Sem. (IT)	3	1	0	3

15A10601   WEB TECHNOLOGIES

Course Objectives:
- Learn the fundamentals of HTML and JavaScript
- Learn to communicate over a network using java
- Learn do design server side programs and access them from client side

Course Outcomes:
- Ability to design websites and do client side validations
- Share information over a network
- Ability to write server side programs

Unit I

Fundamentals: Introduction to the Web, Web servers and Clients, Resources, URL and its Anatomy, Message Format, Persistent and Non-persistent connections, Web Caching, Proxy, Java and the Net, Java Network Classes and Interfaces, Looking up Internet Address, Client/Server programs, Socket programming, e-mail client, POP3 programs, Remote method invocation, Example.

Unit II

HTML: HTML and its Flavors, HTML basics, Elements, Attributes and Tags, Basic Tags, Advanced Tags, Frames, Images, Meta tag, Planning of Web page, Model and Structure for a Website, Designing Web pages, Multimedia content.
Cascading style sheets: Advantages, Adding CSS, Browser compatibility, CSS and page layout, Selectors.

Unit III

JavaScript: Introduction, Variables, Literals, Operators, Control structure, Conditional statements, Arrays, Functions, Objects, Predefined objects, Object hierarchy, Accessing objects, Events, Event handlers, Multiple windows and Frames, Form object and Element, Advanced JavaScript and HTML, Data entry and Validation, Tables and Forms, DHTML with javascript.

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Unit IV

Server side programming: Internet programming paradigm, Sever-side programming, Languages for CGI, Applications, Server environment, Environment variables, CGI building blocks,CGI scripting using C, Shell script, Writing CGI program, CGI security, Alternatives and Enhancement to CGI, Server-side Java, Advantages over Applets, Servlet alternatives, Servlet strengths, Servlet architecture, Servlet life cycle, Generic and HTTP Servelet, First servlet, Passing parameters to servlets, Retrieving parameters, Server-side include, Cookies, Fileters, Problems with servlet, Security issues, JSP and HTTP, JSP Engines, How JSP works, JSP and Servlet, Anatomy of a JSP page, JSP syntax, JSP components.

Unit – V

Sever side programming: continued: Beans, Session tracking, Users passing control and data between pages, Sharing session and Application data, Database connectivity, JDBC drivers, Basic steps, Loading a driver, Making a connection, Execute and SQL statement, SQL statements, Retrieving the result, Getting database information, Scrollable and updatable resultset, Result set metadata, Introduction to JavaBeans, Bean builder, Advantages of Java Beans, BDK introspection, Properties, BeanInfo interface, Persistence, Customizer, JavaBeans API, EJB, Introduction to Structs Framework.

Text Books:

   1. "Web Technologies", Uttam K. Roy, , Oxford Higher Education., 1st edition, 10th impression, 2015

References

   1. "Java How to program", Paul deitel, Harvey deital, PHI
   2. "Introduction to Java Programming", Y.Daniel Liang, 6th Edition, Pearson Education, 2007
   3. "The J2EE Tutorial", Stephanie Bodoff et al, 2nd Edition, Pearson Education, 2004.
   4. "Web Technologies", Roy, Oxford University Press
   5. "Web Technologies" Srinivasan, Pearson Education, 2012
   6. "Java EE 5 for Beginners", Ivan Bayross, Sharanam Shah, Cynthia Bayrossand Vaishali shai,SPD.
   7. "Programming the Worldwide Web", Robert W.Sebesta, 7th edition, 2009, Pearson Education.

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	L	T	P	C
B. Tech III-II Sem. (IT)	3	1	0	3

15A05601   COMPILER DESIGN

Course Objectives:

This course is a *de facto* capstone course in Computer Science, as it combines skills in software design, programming, data structures and algorithms, theory of computing, documentation, and machine architecture to produce a functional compiler.

*   Realize that computing science theory can be used as the basis for real applications
*   Introduce the major concept areas of language translation and compiler design.
*   Learn how a compiler works
*   Know about the powerful compiler generation tools and techniques, which are useful to the other non-compiler applications
*   Know the importance of optimization and learn how to write programs that execute faster

Course Outcomes:

*   Able to design a compiler for a simple programming language
*   Able to use the tools related to compiler design effectively and efficiently
*   Ability to write optimized code

Unit - I

Introduction: Language processors, The Structure of a Compiler, the science of building a complier
Lexical Analysis: The Role of the lexical analyzer, Input buffering, Specification of tokens, Recognition of tokens, The lexical analyzer generator Lex, Design of a Lexical Analyzer generator

Unit II
Syntax Analysis: Introduction, Context Free Grammars, Writing a grammar, TOP Down Parsing**,**
Bottom Up Parsing, Introduction to LR Parsing: Simple LR, More Powerful LR Parsers, Using ambiguous grammars, Parser Generators

UNIT III
Syntax Directed Translation: Syntax Directed Definitions, Evaluation orders for SDD's, Application of SDT, SDT schemes, Implementing L-attribute SDD's.

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Intermediate Code Generation: Variants of syntax trees, three address code, Types and declarations, Translations of expressions, Type checking, control flow statements, backpatching, switch statements, intermediate code for procedure.

UNIT IV
Run Time Environment : storage organization, , Stack allocation of space, Access to non-local data on stack , Heap management
Symbol Table: Introduction, symbol table entries, operations on the symbol table, symbol table organizations, non block structured language, block structured language.

UNIT V
Code Generation: Issues in the design of a code generator, The Target language, Basic blocks and flow graphs, optimization of basic blocks, a simple code generator, register allocation and assignment, optimal code generation for expressions, dynamic programming code generation.

Code Optimization: Introduction, where and how to optimize, principle source of optimization, function preserving transformations, loop optimizations, global flow analysis, machine dependent optimization

Text Books :

1. "Compilers Principles, Techniques and Tools", Second Edition, Alfred V. Aho, Monica S. Lam, Ravi Sethi, Jeffrey D. Ullman., Pearson,2014.
2. "Compiler Construction", K.V.N Sunitha, Pearson, 2013

Reference Books :

1. Compiler Design", K. Muneeswaran., Oxford University Press, 2012
2. "Engineering A Compiler", Second Edition, Keith D. Cooper & Linda Torczon., MK(Morgan Kaufmann) (ELSEVIER)
3. "Compilers Principles and Practice", Parag H. Dave, Himanshu B. Dave.,PEARSON
4. "Compiler Design", SandeepSaxena, Rajkumar Singh Rathore., S.Chand publications
5. "Compiler Design", SantanuChattopadhyay., PHI
6. "Principals of Compiler Design", Nadhni Prasad, Elsevier

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B. Tech III-II Sem. (IT)	3	1	0	3

15A10602   CLOUD COMPUTING

Course Objectives:
- To explain the evolving computer model called cloud computing.
- To introduce the various levels of services that can be achieved by cloud.
- To describe the security aspects in cloud.

Course Outcomes:
- Ability to create cloud computing environment
- Ability to design applications for Cloud environment

Unit-1
Introduction to cloud computing: Introduction, Characteristics of cloud computing, Cloud Models, Cloud Services Examples, Cloud Based services and applications
Cloud concepts and Technologies: Virtualization, Load balancing, Scalability and Elasticity, Deployment, Replication, Monitoring, Software defined, Network function virtualization, Map Reduce, Identity and Access Management, services level Agreements, Billing.
Cloud Services and Platforms : Compute Services, Storage Services, Database Services, Application services, Content delivery services, Analytics Services, Deployment and Management Services, Identity & and Access Management services, Open Source Private Cloud software.

Unit-2
Hadoop & MapReduce: Apache Hadoop, Hadoop MapReduce Job Execution, Hadoop Schedulers, Hadoop Cluster setup.
Cloud Application Design: Reference Architecture for Cloud Applications, Cloud Application Design Methodologies, Data Storage Approaches.
Python Basics : Introduction, Installing Python, Python data Types & Data Structures, Control flow, Function, Modules, Packages, File handling, Date/Time Operations, Classes.

Unit-3
Python for Cloud: Python for Amazon web services, Python for Google Cloud Platform, Python for windows Azure, Python for MapReduce, Python packages of Interest, Python web Application Frame work, Designing a RESTful web API.

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Cloud Application Development in Python: Design Approaches, Image Processing APP, Document Storage App, MapReduce App, Social Media Analytics App.

Unit-4

Big Data Analytics: Introduction, Clustering Big Data, Classification of Big data, Recommendation of Systems.

Multimedia Cloud: Introduction, Case Study: Live video Streaming App, Streaming Protocols, case Study: Video Transcoding App.

Cloud Application Benchmarking and Tuning: Introduction, Workload Characteristics, Application Performance Metrics, Design Considerations for a Benchmarking Methodology, Benchmarking Tools, Deployment Prototyping, Load Testing & Bottleneck Detection case Study, Hadoop benchmarking case Study.

Unit-5

Cloud Security: Introduction, CSA Cloud Security Architecture, Authentication, Authorization, Identity & Access Management, Data Security, Key Management, Auditing.

Cloud for Industry, Healthcare & Education: Cloud Computing for Healthcare, Cloud computing for Energy Systems, Cloud Computing for Transportation Systems, Cloud Computing for Manufacturing Industry, Cloud computing for Education.

Migrating into a Cloud: Introduction, Broad Approaches to migrating into the cloud, the seven –step model of migration into a cloud.

Organizational readiness and Change Management in The Cloud Age : Introduction, Basic concepts of Organizational Readiness, Drivers for changes : A frame work to comprehend the competitive environment , common change management models, change management maturity models, Organizational readiness self – assessment.

Legal Issues in Cloud Computing : Introduction, Data Privacy and security Issues, cloud contracting models, Jurisdictional issues raised by virtualization and data location, commercial and business considerations , Special Topics

Text Books:

1. "Cloud computing A hands-on Approach" By ArshdeepBahga, Vijay Madisetti, Universities Press, 2016

2."Cloud Computing Principles and Paradigms: By Raj kumar Buyya, James Broberg, Andrzej Goscinski, wiley, 2016

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References:
1. Mastering Cloud Computing by Rajkumar Buyya, Christian Vecchiola,S Thamarai Selvi, TMH
2. Cloud computing A hands-On Approach by Arshdeep Bahga and Vijay Madisetti.
3. Cloud Computing : A Practical Approach, Anthony T.Velte, Toby J.Velte, Robert Elsenpeter, TataMcGraw Hill, rp2011.
4. Enterprise Cloud Computing, GautamShroff, Cambridge University Press, 2010.
5. Cloud Application Architectures: Building Applications and Infrastructure in the Cloud, George Reese, O'Reilly, SPD, rp2011.
6. Essentials of Cloud Computing by K. Chandrasekaran. CRC Press

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B. Tech III-II Sem. (IT)	**3**	**1**	**0**	**3**

15A10603   IMAGE PROCESSING
(CBCC-I)

Course Objectives:

- Develop an overview of the field of image processing.
- Understand the Image segmentation, enhancement, compression etc., approaches and how to implement them.
- Prepare to read the current image processing research literature.
- Gain experience in applying image processing algorithms to real problems

Course Outcomes:

At the end of the course the students will be assessed to determine whether they are able to

- Analyze general terminology of digital image processing.
- Examine various types of images, intensity transformations and spatial filtering.
- Develop Fourier transform for image processing in frequency domain.
- Evaluate the methodologies for image segmentation, restoration, topology, etc.
- Implement image process and analysis algorithms.
- Apply image processing algorithms in practical applications

UNIT I

Digital Image Fundamentals: What is Digital Image Processing, examples of fields that use digital image processing, fundamental Steps in Digital Image Processing, Components of an Image processing system, Image Sampling and Quantization, Some Basic Relationships between Pixels, Linear and Nonlinear Operations, Probabilistic Methods

UNIT II

Image Enhancement: Image Enhancement in the spatial domain: some basic gray level transformations, histogram processing, enhancement using arithmetic and logic operations, basics of spatial filters, smoothening and sharpening spatial filters, combining spatial enhancement methods. Image enhancement in the frequency domain: introduction to Fourier transform and the frequency domain, smoothing and sharpening frequency domain filters, homomorphic filtering.

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UNIT III

Segmentation: Thresholding, Edge Based Segmentation: Edge Image Thresholding, Region Based Segmentation, Matching, Shape Representation and Description: Region Identification, Contour Based Shape, Representation and Description

UNIT IV

Image Compression: Fundamentals, image compression models, elements of information theory, error-free compression, lossy compression, Shape representation: region identification, contour-based shape representation and description, region based shape representation and description.

UNIT V

Morphological Image Processing: Preliminaries, dilation, erosion, open and closing, hit transformation, basic morphologic algorithms. Color Image Processing: Color fundamentals, Color Models and basics of full-color image processing

Text Books :

1. Digital Image Processing, Rafael C.Gonzalez and Richard E. Woods, Third Edition, Pearson
Education, 2007
2. Digital Image Processing, S.Sridhar, Oxford University Press

Reference Books :

1. Fundamentals of Digital Image Processing, S. Annadurai, Pearson Edun, 2001.
2. Digital Image Processing and Analysis, B. Chanda and D. Dutta Majumdar, PHI, 2003.
3. Image Processing, Analysis and Machine Vision, Milan Sonka, Vaclav Hlavac and Roger Boyle,2nd Edition, Thomson Learning, 2001.
4. Digital Image Processing, Vipula Singh, Elsevier

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B. Tech III-II Sem. (IT)	3	1	0	3

15A05608   SYSTEM APPLICATIONS & PRODUCT (SAP)
(CBCC-I)

Course Objectives:
1. Understand the role of enterprise systems in supporting business processes.
2. Identify key integration points between financial accounting and other processes.
3. Understand the role of the credit management process in fulfillment.
4. Analyze the key concepts associated with material planning.

Course Outcomes:
1. Adopt and apply an integrated perspective to business processes
2. Effectively use SAP® ERP to execute the key steps in the procurement process.
3. Ability to use SAP ERP to extract meaningful information about the production process.
4. Extract and evaluate meaningful information about the material planning process using the SAP ERP system.

Unit 1:
Introduction to Business Processes: The Functional Organizational Structure, Business Processes, Global Bike Incorporated (GBI). **Introduction to Enterprise Systems:** Enterprise Systems, Data in an Enterprise System, Reporting. **Introduction to Accounting:** Organizational Data, Master Data, Key Concepts, Processes, Reporting.

Unit 2:
The Procurement Process: Organizational Data, Master Data, Key Concepts, Process, Reporting.

Unit 3:
The Fulfillment Process: Organizational Data, Master Data, Process, Credit Management Process, Reporting.

Unit 4:
The Production Process: Master Data, Process, Reporting. **Inventory and Warehouse Management Processes:** Inventory Management, Organizational Data in warehouse Management, Master Data in Warehouse Management, Processes in Warehouse Management, Reporting.

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Unit 5:

The Material Planning Process: Master Data, Process, Reporting, **Process Integration:** Procurement, Fulfillment, and IWM Processes, Procurement, Fulfillment, Production, and IWM Processes.

Text Book:

1. "Integrated Business Processes with ERP systems" Simha R.Magal, Jeffery word, JOHN WILEY & SON S, INC.

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B. Tech III-II Sem. (IT)	3	1	0	3

15A01608   INTELLECTUAL PROPERTY RIGHTS
(CBCC– I)

Course Objectives:
This course introduces the student to the basics of Intellectual Property Rights, Copy Right Laws Trade Marks and Issues related to Patents. The overall idea of the course is to help and encourage the student for startups and innovations.

Course Outcomes:
On completion of this course, the student will have an understanding of the following:
   a) *Intellectual Property Rights and what they mean*
   b) *Trade Marks and Patents and how to register them*
   c) *Laws Protecting the Trade Marks and Patents*
   d) *Copy Right and laws related to it.*

UNIT – I
Introduction To Intellectual Property: Introduction, Types Of Intellectual Property, International Organizations, Agencies And Treaties, Importance Of Intellectual Property Rights.

UNIT – II
Trade Marks : Purpose And Function Of Trade Marks, Acquisition Of Trade Mark Rights, Protectable Matter, Selecting And Evaluating Trade Mark, Trade Mark Registration Processes.

UNIT – III
Law Of Copy Rights : Fundamental Of Copy Right Law, Originality Of Material, Rights Of Reproduction, Rights To Perform The Work Publicly, Copy Right Ownership Issues, Copy Right Registration, Notice Of Copy Right, International Copy Right Law.
Law Of Patents : Foundation Of Patent Law, Patent Searching Process, Ownership Rights And Transfer

UNIT – IV
Trade Secrets : Trade Secrete Law, Determination Of Trade Secrete Status, Liability For Misappropriations Of Trade Secrets, Protection For Submission, Trade Secrete Litigation.
Unfair Competition : Misappropriation Right Of Publicity, False Advertising.

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UNIT – V

New Developments Of Intellectual Property: New Developments In Trade Mark Law ;
Copy Right Law, Patent Law, Intellectual Property Audits.
International Overview On Intellectual Property, International – Trade Mark Law, Copy
Right Law, International Patent Law, International Development In Trade Secrets Law.

TEXT BOOKS & REFERENCES:

1. Intellectual Property Rights, Deborah. E. Bouchoux, Cengage Learing.
2. Intellectual Property Rights– Unleashmy The Knowledge Economy, Prabuddha
   Ganguli, Tate Mc Graw Hill Publishing Company Ltd.,

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B. Tech III-II Sem. (IT)	0	0	4	2

15A10604   SOFTWARE TESTING LABORATORY

Course Objectives:

To learn to use the following (or Similar) automated testing tools to automate testing:
* Win Runner/QTP for functional testing.
* Load Runner for Load/Stress testing.
* Test Director for test management.
* JUnit, HTMLUnit, CPPUnit.
* To study state-of-art tools for software testing and Middleware technologies

Course Outcomes:
* Test the   software applications using standard tools available in the market

Sample problems on testing:
1. Write programs in 'C' Language to demonstrate the working of the following constructs:
   i) do...while ii) while….do iii) if…else iv) switch v) for
2. "A program written in 'C' language for Matrix Multiplication fails" Introspect the causes for its failure and write down the possible reasons for its failure.
3. Take any system (e.g. ATM system) and study its system specifications and report the various bugs.
4. Write the test cases for any known application (e.g. Banking application)
5. Create a test plan document for any application (e.g. Library Management System)
6. Study of any testing tool (e.g. Win runner)
7. Study of any web testing tool (e.g. Selenium)
8. Study of any bug tracking tool (e.g. Bugzilla, bugbit)
9. Study of any test management tool (e.g. Test Director)
10. Study of any open source-testing tool (e.g. Test Link)
11. Take a mini project (e.g. University admission, Placement Portal) and execute it. During the Life cycle of the mini project create the various testing documents* and final test report document.

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Additional problems on testing:

1. Test the following using JUnit and CPPUnit:
   i)Sorting problems ii)Searching problems iii)Finding gcd of two integers
   iv) Findingfactorial of a number.
2. Test web based forms using HTMLUnit.
3. Test database stored procedures using SQLUnit.
   (Use sufficient number of test cases in solving above Problems)

*Note: To create the various testing related documents refer to the text "Effective Software Testing Methodologies by William E. Perry"

REFERENCE BOOKS:

1. Software Testing Concepts and Tools,P.Nageswara Rao,dreamtech press.
2. Software Testing Tools,Dr.K.V.K.K.Prasad,dreamtech Press.
3. Software Testing with Visual Studio Team System 2008, S.Subashini, N.Satheesh kumar,SPD.
4. Learning UML 2.0,Russ Miles and Kim Hamilton,O'Reilly,SPD.
5. Mastering UML with Rational Rose,W.Boggs&M.Boggs,Wiley India.

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		L	**T**	**P**	**C**
B. Tech III-II Sem. (IT)		**0**	**0**	**4**	**2**

15A10605   WEB TECHNOLOGIES LABORATORY

Course Objectives:
- Learn the fundamentals of HTML and JavaScript
- Learn to communicate over a network using java
- Learn do design server side programs and access them from client side

Course Outcomes:
- Ability to design websites and do client side validations
- Share information over a network
- Ability to write server side programs

1) Write a Java program which stores the user login information in database in a server, creates user interface for inserting, deleting, retrieving information from the database, accepts user login information and verifies it.
2) Write a JAVA program which establishes a connection between client and server and transfers data. Transfer the data without establishing the connection.
3) Write a Java Program to create an Employee class with the data members Emp_id, name, Department and create a member function to get the employee information, display the details.
4) Write a java program to create a package for simple arithmetic operations
5) Write a Java Program to create a user defined Exception called ―StringNotMatchException‖ when the user entered input is not equal to ―INDIA‖
6) Write a HTML to create user registration form with following constraints; Validate the registration, user login, user profile and payment by credit card pages using Java Script
7) Create and save an XML document at the server, which contains 10 users information. Write a program which takes User ID as input and returns the user details by taking the user information from the XML document.
8) Write a XHTML form for Employee Information like Emp_id, Name, Department Name, Phone, E-mail. using java script check the validation for each Fields(The First Character of Emp_id character followed by number, name should accept 20 characters, phone max 8 digits, email)
9) Write a Java Servlet Program to display the Current time on the server.
10) To write html and servlet to demonstrate invoking a servlet from a html

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11) Write a Java servlet program to change the Background color of the page by the color selected by the user from the list box.
12) Write a Java servlet to get the personal details about the user(Like name, Address, City, Age, Email id) and check whether the user is Eligible to vote or not.
13) Write a Java servlet Program to create a Cookie and keep it alive on the client for 30 minutes.
14) Write a java servlet program to display the various client information like Connection, Host, Accept-Encoding, User Agent.
15) To write java servlet programs to conduct online examination and to display student mark list available in a database
16) Write a Java servlet Program to implement the Book Information using JDBC
17) Write a Java Servlet Program to create a Session and display the various information like, Last accessed time, Modified time, Expiration)
18) Write a JSP Program to Display the number of visitors visited the page.
19) Write a JSP Program to implement the Book Information using Database.
20) Write a JSP Program to implement the Telephone Directory

References
1) Web Technologies, Uttam K Roy, Oxford University Press
1. The Complete Reference PHP – Steven Holzner, Tata McGraw-Hill
2. Web Programming, building internet applications, Chris Bates 2nd edition, Wiley Dreamtech
3. Java Server Pages –Hans Bergsten, SPD O"Reilly
4. Java Script, D.Flanagan, O"Reilly, SPD.
5. Beginning Web Programming-Jon Duckett WROX.
6. Programming World Wide Web, R.W.Sebesta, Fourth Edition, Pearson.
7. Internet and World Wide Web – How to program, Dietel and Nieto, Pearson

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**15A52602   ADVANCED ENGLISH LANGUAGE COMMUNICATION SKILLS
(AELCS) LAB (Audit Course)**

1. INTRODUCTION

With increased globalization and rapidly changing industry expectations, employers are looking for the wide cluster of skills to cater to the changing demand. The introduction of the Advanced Communication Skills Lab is considered essential at 3rd year level. At this stage, the students need to prepare themselves for their careers which may require them to listen to, read, speak and write in English both for their professional and interpersonal communication in the globalised context.

The proposed course should be a laboratory course to enable students to use 'good' English and perform the following:

- Gathering ideas and information and to organise ideas relevantly and coherently.
- Engaging in debates.
- Participating in group discussions.
- Facing interviews.
- Writing project/research reports/technical reports.
- Making oral presentations.
- Taking part in social and professional communication.

2 OBJECTIVES:

This Lab focuses on using multi-media instruction for language development to meet the following targets:

- To improve the students' fluency in English, through a well-developed vocabulary and enable them to listen to English spoken at normal conversational speed by educated English speakers and respond appropriately in different socio-cultural and professional contexts.
- Further, they would be required to communicate their ideas relevantly and coherently in writing.
- To prepare all the students for their placements.

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3. SYLLABUS:

The following course content to conduct the activities is prescribed for the Advanced English Communication Skills (AECS) Lab:

UNIT-I: COMMUNICATION SKILLS
1. Reading Comprehension
2. Listening comprehension
3. Vocabulary Development
4. Common Errors

UNIT-II: WRITING SKILLS
1. Report writing
2. Resume Preparation
3. E-mail Writing

UNIT-III: PRESENTATION SKILLS
1. Oral presentation
2. Power point presentation
3. Poster presentation

UNIT-IV: GETTING READY FOR JOB
1. Debates
2. Group discussions
3. Job Interviews

UNIT-V: INTERPERSONAL SKILLS
1. Time Management
2. Problem Solving & Decision Making
3. Etiquettes

4. LEARNING OUTCOMES:
- Accomplishment of sound vocabulary and its proper use contextually
- Flair in Writing and felicity in written expression.
- Enhanced job prospects.
- Effective Speaking Abilities

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5. MINIMUM REQUIREMENT:

The Advanced English Communication Skills (AECS) Laboratory shall have the following infra-structural facilities to accommodate at least 60 students in the lab:

- Spacious room with appropriate acoustics.
- Round Tables with movable chairs
- Audio-visual aids
- LCD Projector
- Public Address system
- P – IV Processor, Hard Disk – 80 GB, RAM–512 MB Minimum, Speed – 2.8 GHZ
- T. V, a digital stereo & Camcorder
- Headphones of High quality

6. SUGGESTED SOFTWARE:

The software consisting of the prescribed topics elaborated above should be procured and G

1. **Walden Infotech: Advanced English Communication Skills Lab**
2. K-VAN SOLUTIONS-Advanced English Language Communication Skills lab
3. **DELTA's key to the Next Generation TOEFL Test: Advanced Skills Practice.**
4. **TOEFL & GRE**(KAPLAN, AARCO & BARRONS, USA, Cracking GRE by CLIFFS)
5. **Train2success.com**

7. BOOKS RECOMMENDED:

1. **Objective English for Competitive Exams**, Hari Mohana Prasad, 4th edition, Tata Mc Graw Hill.
2. **Technical Communication** by Meenakshi Raman & Sangeeta Sharma, O U Press 3rd Edn. 2015.
3. **Essay Writing for Exams, Audrone Raskauskiene, Irena Ragaisience & Ramute Zemaitience,OUP, 2016**
4. **Soft Skills for Everyone,** Butterfield Jeff, Cengage Publications, 2011.
5. **Management Shapers Series** by Universities Press (India) Pvt Ltd., Himayatnagar, Hyderabad 2008.
6. **Campus to Corporate,** Gangadhar Joshi, Sage Publications, 2015
7. **Communicative English,**E Suresh Kumar & P.Sreehari, Orient Blackswan, 2009.
8. **English for Success in Competitive Exams,** Philip Sunil Solomon OUP, 2015