SEMESTER V

15UCS541 Linux and PHP

No. of credits: 3

No. of instructional hours per week: 3

1. AIM:
- > To introduce Linux and PHP

2. OBJECTIVES:
At the end of this course, the students will be able to
- ✓ Explain the features of free &open source software
- ✓ Familiarization with LINUX
- ✓ Work with PHP

3. SYLLABUS

Module I : Overview of Linux, features, advantages, Booting process, kernel, simple commands-ls, cd, pwd, cp, mv, rm, rmdir, date-file permissions chmod- Editing files using vi editor, shell variables-shell types-filters pr, head, tail, cut, paste, sort, grep, pipe, tee- Communication &Scheduling commands- mail, wall, write, talk, at, cron, crontab..

Module II : Shell Programming-control structures, operators, simple shell programs.

Module III :System Administration-creating and deleting users-mounting file systems-mount, umount-changing passwords-passwd-network administration netstat, ping, ifconfig, traceroute-remote login-telnet, ssh, file transfer-ftp. process related commands- ps, kill- archiving- tar, gzip, Installation of packages using rpm command-Understanding various servers-DHCP,DNS, Apache, squid.

Module IV :Introduction to PHP- Advantages features-PHP syntax-variables-PHP tags and styles -data types, variables, operators-type casting- array operators-control structures-arrays-sorting arrays-file functions-string functions-functions in PHP. Object Oriented Concepts in PHP classes, objects, inheritance, overloading and overriding interfaces-exception handling techniques. MySQL

Book of study

1. Linux (Fedora)Bible , Christopher Negus, Wiley India Edition,2007
2. Linux Administration A beginners guide 2nd Edition.
3. Beginning PHP5, Apache, MYSQL, web development Wrox publication.

4. REFERENCES

4.1 Core

Leland L. Beck, System Software – An Introduction to Systems Programming, 3rd Edition, Pearson Education Asia, 2006.

4.2 Additional

D. M. Dhamdhere, Systems Programming and Operating Systems, Second Revised Edition, Tata McGraw-Hill, 2000.

15UCS543 INTERNET PROGRAMMING

No. of credits: 3

No. of instructional hours per week: 3

1. AIM:

> To Expose students to technology of web sites and to introduce various tools and languages required for technical and creative design of state-of-the-art web sites

2. OBJECTIVES:

To impart basic skills in moderately complex use of the following tools/scripts/languages:
HTML, DHTML, CGI Script, Perl, CSS, Javascript, ASP and JSP.
To impart necessary ability to choose the appropriate web tools/ languages for creating state-of-the art websites
To Expose students to current trends and styles in web design and applications

3. SYLLABUS

Module–I: HTML: General Introduction to Internet and WWW; Text tags; Graphics, Video and Sound Tags; Link and Anchor Tags; Table Tags; Frame Tags; Miscellaneous tags (layers, image maps etc); CSS; DHTML; Example Applications; simple introduction to XML and VRML

Module–II: CGI Programming: HTML Forms and Fields; Perl: Basic control structures, data types and basic features; CGI Programs: GET & POST methods; simple applications; Cookies; Server Side Includes; Example Applications;

Module–III : Javascript: Basic data types; control structures; standard functions; arrays and objects, event driven programming in Javascript; Example Applications;

15UCS561.3 TRENDS IN COMPUTING

No. of credits: 3

No. of instructional hours per week: 4

1. AIM:

➤ Introduce advanced computing technologies and their application areas

2. OBJECTIVES:

✓ Understand the concepts of grid computing

✓ Basic idea on how users can log into different systems in the cloud and access software and hardware resources

✓ How problems with uncertainty, imprecision and partial truth could be solved using soft computing techniques

3. SYLLABUS

Module I: Grid Computing: Basic Concepts: Application areas, Grid Layered Architecture; Distributed Computing; Data Grids – Resource Sharing; Pathway to Grid Computing; **Cloud Computing** – Overview, Web 2.0 and the cloud, Cloud Types, Uses of Cloud, Components of Cloud Computing - Software as a Service, Platform as a Service, Infrastructure as a Service, Identity as a Service **(Concepts only)**;

Module II:Data storage in the cloud: Understanding, Advantages and Disadvantages of Cloud-Based Data Storage; Disaster Recovery – understanding threats; Service-Oriented Architecture – understanding SOA, Web services;

Module III:Soft Computing: Soft Computing VS Hard Computing; Introduction to Neural Networks – Intelligence, Neurons, Artificial Neural Networks, Application Scope of Neural Network, Brain VS Computer, Problem areas, Training of Artificial Neural Networks – Supervised and Unsupervised; From ordinary sets to Fuzzy sets – Basics of Fuzzy Logic Theory, Foundations of fuzzy logic – Fuzzy Sets , MembershipFunctions;

Module IV:Evolutionary Algorithm: Traditional Algorithm VS GeneticAlgorithm; Genetic Algorithm Operators – Reproduction (Roulette Wheel Selection, Tournament Selection), Crossover (one point crossover, two point crossover, uniform crossover), Mutation; Comparison of Operators; Genetic Algorithm Cycle; Applications;

Activities and Assignments: Study of different Grid Projects, Migrating to Cloud, Mobile Cloud Computing, Cloud-based applications, Engineering and Industrial applications of Soft Computing, Support Vector Machine

15UCS641 INTRODUCTION TO INFORMATION SECURITY

No. of credits: 4

No. of instructional hours per week: 4

1. AIM:

➤ To introduce internetworking and the issues and methods of information security over internetworks.

2. OBJECTIVES:

On completion of this course student shall:

- ✓ Be aware of principles and protocols of internetworks
- ✓ understand the basic issues in information security
- ✓ understand the concept of ciphers and cryptography.
- ✓ To impart an idea on various ciphers
- ✓ understand the concept of digital signatures and e-mail security policies
- ✓ to impart an idea on malicious softwares and remedies.

3. SYLLABUS s

Module I: Information Security: Network security, Confidentiality, integrity, authentication, security policy, basic network security terminology, cryptography, symmetric encryption, substitution ciphers, transposition ciphers, steganography, Block ciphers, modes of operation, Data Encryption Standard, Public key cryptography, applications, strength and weakness, RSA algorithm, key distribution (concepts only).

Module II:Authentication, authentication methods, message digest, digital signatures, digital signature algorithm, DSS, E-mail security: Pretty Good Privacy, working of PGP, S/MIME, MIME, IP Security, Architecture, IPSec: strengths and benefits, IPv4, IPv6, ESP protocol, Web Security: Secure Socket layer, SSL session and connection.

Module III:Malicious Software, viruses, working of anti-virus software, worms, Trojans, spyware, firewall, characteristics of firewall, packet filters, application level gateways, firewall architecture, trusted systems.

Module IV: Security and Law:- Regulations in India. Information Technology Act 2000/2008. Cyber Crime and the IT Act 2000/2008. Indian Contract Act 1872, Indian Penal Code, Indian Copyright Act, Consumer Protection Act. Future Trends – The Law of Convergence.

Assignments and activities: AES, Blowfish algorithms, Kerberos, Comparison of PGP and S/MIME, study of common malicious software, antiviruses.

4. REFERENCES
4.1 Core

- Brijendra Singh, Cryptography & Network Security, PHI.
- Pachghare, V.K., Cryptography and Information Security, PHI.

15UCS642 ARTIFICIAL INTELLIGENCE

No. of credits: 4

No. of instructional hours per week: 4

1. AIM:

➤ To Expose students to basic concepts and tools of Artificial Intelligence and create awareness about its applications, both current and futuristic

2. OBJECTIVES:

✓ To introduce the notion of machine intelligence
✓ To introduce the symbolic processing paradigm of AI and algorithms for state space search
✓ To introduce the knowledge representation formalism
✓ To introduce basics concepts and challenges of Robotics
✓ To introduce basics concepts and challe