Module III:

Knowledge Representation & Predicate Logic [3L]

Syntax & Semantics of FOPL, Representation of facts using FOPL, Clauses, Resolution, Unification methods of inference, Default & Non-Monotonic reasoning.

Knowledge Representation using Rules [2L]

Rule based system, Horn clauses, Procedural vs. declarative knowledge, forward & backward reasoning, Introduction of logic programming using PROLOG/ LISP.

Other Representational Formalism [2L]

Inheritable knowledge, Semantic network, Inference in Semantic network, Extending Semantic Network, Frames, Slots as objects.

Probabilistic reasoning [3L]

Representing knowledge in an uncertain domain, probabilistic inference rules, Bayesian networks – representation & syntax, semantics of Bayesian net, Fuzzy sets & fuzzy logic.

Module IV:

Planning [2L]: Introduction, Simple planning agent, Problem solving vs. planning, Logic based planning, Goal Stack planning, Planning as a search, Total-order vs. partial order planning.

Learning [4L]: Overview, Taxonomy of learning system, various learning models, learning rules, inductive learning framework, Decision tree based learning, Learning using Neural Network & Genetic Algorithm.

Natural Language Processing [2L]: Introduction, Syntactic processing, semantic analysis, discourse & pragmatic processing.

Expert Systems [2L]: Representing and using domain knowledge, expert system shells, knowledge acquisition.

Course Outcomes/Learning Objectives:

- At the end of this course the students are expected to be capable of understanding the basic features/ attributes that an intelligent system should have, how those attributes can be incorporated to the system.
- Beside this students should be able to know the importance of knowledge as far as intelligence is concerned and how this knowledge can be suitably represented so that it can be used to infer new knowledge.
- On completion of this course, the students also get an idea of the significance of efficient searching algorithms as far as intelligent decisions are concerned.
- Last but not the least, by the end of this course, students will be able to explore various problem solving paradigms, learning algorithms, game playing techniques, logic theorem proving etc.

References:

1. Artificial Intelligence A Modern Approach, Stuart Russell & Peter Norvig, Pearson Education
2. Artificial Intelligence, Ritch & Knight, TMH
3. Artificial Intelligence & Intelligent Systems, N.P.Padhy, Oxford University Press
4. Introduction to Artificial Intelligence & Expert Systems, Dan W. Patterson, PHI
5. PROLOG Programming for Artificial Intelligence, Ivan Bratko, Pearson India.

Course Name : Web Technologies					
Course Code: CSEN3282					
Contact hrs per week:	**L**	**T**	**P**	**Total**	**Credit points**
	3	**0**	**0**	**3**	**3**

MODULE 1 [Types of Web pages and Web page front end design]

Dynamic Web Pages [1L]

The need of dynamic web pages; comparative studies of different technologies of dynamic page creation

Active Web Pages [1L]

Need of active web pages; java applet life cycle.

HTML (3L):

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Introduction, Editors, Elements, Attributes, Heading, Paragraph. Formatting, Link, Head, Table, List, Block, Layout, CSS. Form, Iframe, Colors, Colorname, Colorvalue.
Image Maps (1L): map, area, attributes of image area.

MODULE 2 [Web page scripting, server and client side**]**
HTTP[2L]: Message, Request, Response, Methods , Status Codes
Extensible Markup Language (XML) (4L): Introduction, Tree, Syntax, Elements, Attributes, Validation, Viewing. XHTML in brief.
Java Script [3L]
Data types, variables, operators, conditional statements, array object, date object, string ob ject.
Java Servlet [2L]
Servlet environment and role, HTML support, Servlet API, The servlet life cycle, Cookies and Sessions.

MODULE 3 [Advanced Java Server Side Programming**]**
JSP [9L]: JSP architecture, JSP servers, JSP tags, understanding the layout in JSP, Declaring variables, methods in JSP, inserting java expression in JSP, processing request from user and generating dynamic response for the user, using include and forward action, Creating ODBC data source name, introduction to JDBC, prepared statement and callable statement.
J2EE[4L]: An overview of J2EE web services, basics of Enterprise Java Beans, EJB vs. Java Beans

MODULE 4 [Network Security**]**
Threats (1L):
Malicious code-viruses, Trojan horses, worms; eavesdropping, spoofing, modification, denial of service attacks.
Network security techniques (2L):
Password and Authentication; VPN, IP Security, security in electronic transaction, Secure Socket Layer (SSL), Secure Shell (SSH).
Firewall (1L): Introduction, Packet filtering, Stateful, Application layer, Proxy.

References:

1. Web Technology: A Developer's Perspective, N.P.Gopalan and J. Akilandeswari, PHI Learning, Delhi, 2013. (Chapters 1-5,7,8,9).
2. Internetworking Technologies, An Engineering Perspective, Rahul Banerjee, PHI Learning, Delhi, 2011.(Chapters 5,6,12)
3. Murach's Java Servlets and JSP.
4. Java for the Web with Servlets, JSP, and EJB, Budi. Kurniawan
5. Cryptography and Network security by William Stallings

Course Outcome:
1. Students will be able to understand the basic tags of HTML, CSS, java script and DHTML.
2. Students will be able to connect a server side program using servlet and JSP to a DBMS and perform insert, update and delete operations on DBMS table.
3. Students will be able to write a server side programming using servlet and JSP to store the data sent from client, process it and store it on database.
4. 4. Students will be able to prepare a well formed / valid XML document , schema to store and transfer data.
5. 5. Students will be able to understand various types of attacks and their characteristics.
6. 6. Students will be able to get familiar with network security designs using available secure solutions (such as PGP, SSL, IPSec)