NATIONAL INSTITUTE OF TECHNOLOGY, TIRUCHIRAPPALLI

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

COURSE PLAN – PART I			
Name of the programme and specialization	B.Tech and CSE		
Course Title	Artificial Intelligence and Expert Systems (Theory)		
Course Code	CSPE24	No. of Credits	3
Course Code of Pre-requisite subject(s)	CSPE21	Semester	VII
Session	JULY 2019	Section (if, applicable)	A & B
Name of Faculty	Mrs.V.DHIVYA	Department	CSE
Email	vdhivya@nitt.edu	Telephone No.	8838558990
Name of Course Coordinator(s) (if, applicable)	NIL		
E-mail	NIL	Telephone No.	NIL
Course Type	☐ Core course	✓ Elective course	

Syllabus (approved in BoS)

Software Defined Networking (Theory)

Unit –I

Introduction to AI, Control strategies, Search strategies, Production system characteristics - Specialized production system - Problem solving methods -Problem graphs, Matching, Indexing and Heuristic functions - Hill Climbing - Depth first and Breath first, Constraints satisfaction Related algorithms,

Unit – II

Game playing - Knowledge representation, Knowledge representation using Predicate logic, Introduction to predicate calculus, Resolution, Use of predicate calculus, Knowledge representation using other logic-Structured representation of knowledge.

Unit – III

Knowledge representation -Production based system, Frame based system. Inference – Backward chaining,Forward chaining, Rule value approach, Fuzzy reasoning -Certaintyfactors, Bayesian Theory-Bayesian Network - Dempster -Shafer theory.

Unit –IV

Basic plan generation systems -Strips -Advanced plan generation systems –K strips –Strategic explanations -Why, Why not and how explanations. Learning-Machine learning, adaptive Learning

Unit –V

Expert systems -Architecture of expert systems, Roles of expert systems -Knowledge Acquisition-Meta knowledge, Heuristics. Typical expert systems -MYCIN, DART, XOON, Expert systems shells.

Text Book

1. Kevin Night and Elaine Rich, Nair B., "Artificial Intelligence (SIE)", McGraw Hill, 2008
2. Dan W. Patterson, "Introduction to AI and ES", Pearson Education, 2007

Reference Books

1. Peter Jackson, "Introduction to Expert Systems", 3rd Edition, Pearson Education, 2007
2. Stuart Russel and Peter Norvig, "AI – A Modern Approach, Pearson Education, 2nd Edition, 2007
3. G.Luger, W.A.Sttubblefield, "Artificial Intelligence", 3rd edition, Addison-Wesley Longman, 1998.
4. N.J.Nilson, "Principles of Artificial Intelligence", Narosa Publishing House, 1980.

COURSE OBJECTIVES

- To learn the concepts of Artificial Intelligence
- To learn the methods of solving problems using Artificial Intelligence
- To introduce the concepts of Expert Systems and machine learning

COURSE OUTCOMES (CO)

- Ability to comprehend AI & ES to analyze and map real world activities to digital world
- Ability to identify problems that are amenably solved by AI methods
- Ability to design and carry out an empirical evaluation of different AI algorithms

Course Outcomes	Aligned Programme Outcomes (PO)
1) Ability to comprehend AI & ES to analyze and map real world activities to digital world	PO 1,PO 2,PO3, PO4, PO 5,PO 8
2) Ability to identify problems that are amenably solved by AI methods	PO 1, PO 2, PO3, PO4
3) Ability to design and carry out an empirical evaluation of different AI algorithms	PO 1,PO3,PO 5, PO 6

COURSE PLAN – PART II

COURSE OVERVIEW

The course provides the fundamental concepts of cloud computing. It also demonstrates an understanding of service models, deployment models and virtualization. An introduction is also given in the programming and software environments of cloud. The security issues in cloud is also been described.

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COURSE TEACHING AND LEARNING ACTIVITIES

S.No.	Week	Topic	Mode of Delivery
1	1	Introduction to AI, Control strategies, Search strategies, Production system characteristics - Specialized production system -	Chalk and Talk PPT
2	2	Problem solving methods -Problem graphs, Matching, Indexing and Heuristic functions - - Depth first and Breath first.	Chalk and Talk PPT
3.	3	Hill Climbing, Constraints satisfaction Related algorithms.	Chalk and Talk PPT
4	4	Game playing - Knowledge representation, Knowledge representation using Predicate logic, Introduction to predicate calculus, Resolution,	Chalk and Talk PPT
5.	5	Use of predicate calculus, Knowledge representation using other logic-Structured representation of knowledge	Chalk and Talk PPT
6.	6	Knowledge representation -Production based system, Frame based system.	Chalk and Talk PPT
7.	7	Inference –Backward chaining,Forward chaining,	Chalk and Talk PPT
8.	8	Rule value approach, Fuzzy reasoning - Certaintyfactors	Chalk and Talk PPT
9.	9	Bayesian Theory-Bayesian Network - Dempster - Shafer theory.	Chalk and Talk PPT
10	10	Basic plan generation systems -Strips -Advanced plan generation systems –K strips	Chalk and Talk PPT
11	11	Strategic explanations -Why, Why not and how explanations.	Chalk and Talk PPT
12	12	Learning-Machine learning, adaptive Learning	Chalk and Talk PPT
13	13	Expert systems -Architecture of expert systems, Roles of expert systems -Knowledge Acquisition-Meta knowledge, Heuristics..	Chalk and Talk PPT
14	14	Typical expert systems -MYCIN, DART ,XOON, Expert systems shells	Chalk and Talk PPT

COURSE ASSESSMENT METHODS-THEORY

S.No.	Mode of Assessment	Week/Date	Duration	% Weightage
1	Cycle Test-1	3rd week of Aug	1 hour	20
2	Cycle Test-2	3rd week of Sep	1 hour	20
3	Assingment	4th week of Sep 3rd week of Oct		10
CPA	Compensation Assessment	2nd week of Nov	1 hour	20
4	Final Assessment* Theory	1st week of Dec	3 hours	50
	TOTAL			100

*mandatory

COURSE EXIT SURVEY (mention the ways in which the feedback about the course shall be assessed)

1. Students' feedback through class committee meetings.
2. Feedback questionnaire from students – from MIS at the end of the semester.

COURSE POLICY (preferred mode of correspondence with students, compensation assessment policy to be specified)

MODE OF CORRESPONDENCE (email/ phone etc)
Mode of Correspondence through Phone.

COMPENSATION ASSESSMENT POLICY
Compensation assessment will be conducted for absentees in cycle test 1 or cycle test 2 only after the submission of medical or on duty certificates signed by competent authority. The portions for compensation assessment will the portions for cycle test 1 or cycle test 2.

ATTENDANCE POLICY (A uniform attendance policy as specified below shall be followed)

- ➢ At least 75% attendance in each course is mandatory.
- ➢ A maximum of 10% shall be allowed under On Duty (OD) category.
- ➢ Students with less than 65% of attendance shall be prevented from writing the final assessment and shall be awarded 'V' grade.

ACADEMIC DISHONESTY & PLAGIARISM
- ➢ Possessing a mobile phone, carrying bits of paper, talking to other students, copying from others during an assessment will be treated as punishable dishonesty.

- ➢ Zero mark to be awarded for the offenders. For copying from another student, both students get the same penalty of zero mark.

> The departmental disciplinary committee including the course faculty member, PAC chairperson and the HoD, as members shall verify the facts of the malpractice and award the punishment if the student is found guilty. The report shall be submitted to the Academic office.

The above policy against academic dishonesty shall be applicable for all the programmers.

ADDITIONAL INFORMATION

The students can get their doubts clarified at any time with their faculty member.

FOR APPROVAL

Course Faculty V. Dhivya
1/8/19
(DHIVYA.V)

CC-Chairperson

HOD 2/8/19

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Guidelines

a) The number of assessments for any theory course shall range from 4 to 6.

b) Every theory course shall have a final assessment on the entire syllabus with at least 30% weightage.

c) One compensation assessment for absentees in assessments (other than final assessment) is mandatory. Only genuine cases of absence shall be considered.

d) The passing minimum shall be as per the regulations.

B.Tech. Admitted in				P.G.
2018	2017	2016	2015	
35% or (Class average/2) whichever is greater.		(Peak/3) or (Class Average/2) whichever is lower		40%

e) Attendance policy and the policy on academic dishonesty & plagiarism by students are uniform for all the courses.

f) Absolute grading policy shall be incorporated if the number of students per course is less than 10.

Necessary care shall be taken to ensure that the course plan is reasonable and is objective