

Bachelor of Computer Application			
Programme/Class:		Year:3 <sup>rd</sup>	Semester:5 <sup>th</sup>
Subject Code: BCA-301 N		Subject Title: Artificial Intelligence	
Course out comes:		On completion of the course, the student will be able to:	
CO 1:	Understand the basics of Artificial Intelligence and gain knowledge of the learning process and its models. Understand basic concepts of machine learning, ANN, SVM and fuzzy logic		
CO 2:	Understand different types of search techniques.		
CO 3:	Understand different knowledge representation schemes.		
CO4:	Understand the AI applications in the design of expert systems.		
Credits:4		Core Compulsory	
Max. Marks: 30 + 70		Min. Passing Marks: 40	
Tot al No. of Lectures-Tutorials-Practical(in hours per week): 4-0-0			
Unit	Topic		No. of Lectures
I	Introduction: Definitions and Approaches, History of AI, Philosophical Foundations of AI, Turing’s Test, Searle’s Chinese Room, Symbolic and Connectionist AI, Concept of Intelligent Agents.		10
II	AI Problem Solving: Problem solving as state space search, production system, control strategies and problem characteristics; Search techniques: Breadth First and Depth-first, Hill-climbing, Heuristics, Best-First Search, A* algorithm, Problem reduction and AO* algorithm, Constraints satisfaction, Means Ends Analysis, Game Playing.		10
III	Knowledge Representation and Reasoning: Predicate and propositional logic, Resolution, Unification, Deduction and theorem proving, Question answering;		10
IV	Forward versus backward reasoning, Matching, Indexing, Semantic Net, Frames, Conceptual Dependencies and Scripts.		10
	Applications: Introduction to Natural Language Processing, Expert System.		10
<b>Suggested Readings:</b> <ul style="list-style-type: none"><li>• S. Russel, P. Norvig, Artificial Intelligence: A Modern Approach, Pearson.</li><li>• E. Rich, K. Knight, Artificial Intelligence, Tata McGraw Hill.</li><li>• N. J. Nilsson, Artificial Intelligence: A New Synthesis, Morgan Kaufmann.</li></ul>			
<b>Suggested equivalent online courses:</b> <input type="checkbox"/> <a href="https://nptel.ac.in/courses/106102220">https://nptel.ac.in/courses/106102220</a>			
<b>This course can be opted as an elective by the students of following subjects: NONE</b>			
<b>Suggested Continuous Evaluation Methods:</b> Continuous Internal Evaluations hall be based on allotted Assignment and Class Tests. The marks shall			
	<b>Internal Assessment</b>	<b>Marks</b>	
	Class Interaction	5	
	Quiz/Assignments	5	

	Seminar/Presentation	5	
	Unit Test/Class Test	15	
	Total	30	

Bachelor of Computer Application			
Programme/Class:		Year:3 rd	Semester:5 <sup>th</sup>
Subject Code: BCA-303 N		Subject Title: Web Technologies	
Course out comes:		On completion of the course, the student will be able to:	
CO 1:	Understand best technologies for solving web client/server problems		
CO 2:	CO 2: Analyze and design real time web applications		
CO 3:	Use Java script for dynamic effects and to validate form input.		
CO4:	Analyze to Use appropriate client-side and Server-side application technology		
Credits:4		Core Compulsory	
Max. Marks: 30 + 70		Min. Passing Marks: 40	
Tot al No. of Lectures-Tutorials-Practical(in hours per week): 4-0-0			
Unit	Topic		No. of Lectures
I	Web Basics and Overview: Introduction to Internet, World Wide Web, Web Browsers, URL, MIME, HTTP, Web Programmers Toolbox. HTML Common tags: List, Tables, images, forms, frames, Cascading Style Sheets (CSS) & its Types. Introduction to Java Script, Declaring variables, functions, Event handlers (onclick, onsubmit, etc.,) and Form Validation.		10
II	Introduction to XML: Document type definition, XML Schemas, Presenting XML , Introduction to XHTML, Using XML Processors: DOM and SAX. PHP: Declaring Variables, Data types, Operators, Control structures, Functions.		10
III	Web Servers and Servlets: Introduction to Servlets, Lifecycle of a Servlet, JSDK, Deploying Servlet, The Servlet API, The javax. Servlet Package, Reading Servlet parameters, Reading Initialization parameters. The javax.servlet HTTP package, Handling Http Request & Responses, Cookies and Session Tracking.		10
IV	Database Access: Database Programming using JDBC, JDBC drivers, Studying Javax.sql.* package, Connecting to database in PHP, Execute Simple Queries, Accessing a Database from a Servlet. Introduction to struts frameworks.		10
V	JSP Application Development: The Anatomy of a JSP Page, JSP Processing. JSP Application Design and JSP Environment, JSP Declarations, Directives, Expressions, Scripting Elements, implicit objects. Java Beans: Introduction to Beans, Deploying java Beans in a JSP page.		10

<b>Suggested Readings:</b>			
<ul style="list-style-type: none"> <li>• Web Programming, building internet applications, Chris Bates 2nd edition, WILEY Dreamtech</li> <li>• Core SERVLETS ANDJAVASERVER PAGES VOLUME 1: CORE TECHNOLOGIES By Marty Hall and Larry Brown Pearson</li> </ul>			
<b>Suggested equivalent online courses:</b>			
□			
<b>This course can be opted as an elective by the students of following subjects: NONE</b>			
<b>Suggested Continuous Evaluation Methods:</b>			
Continuous Internal Evaluations shall be based on allotted Assignment and Class Tests. The marks shall			
	<b>Internal Assessment</b>	<b>Marks</b>	
	Class Interaction	5	
	Quiz/Assignments	5	
	Seminar/Presentation	5	
	Unit Test/Class Test	15	
	Total	30	

Bachelor of Computer Application			
Programme/Class:		Year:3 <sup>rd</sup>	Semester:5 <sup>th</sup>
Subject Code: BCA-305 N		Subject Title: Computer Graphics and Animation	
Course out comes:		On completion of the course, the student will be able to:	
CO 1:	Understand the basics of computer graphics, different graphics systems and applications of computer graphics.		
CO 2:	Understand various algorithms for scan conversion and filling of basic objects and their comparative analysis		
CO 3:	Understand various algorithms for scan conversion and filling of basic objects and their comparative analysis. Extract scene with different clipping methods and its transformation to graphics display device.		
CO4:	Understanding animation and its principles.		
Credits:4		Core Compulsory	
Max. Marks: 30 + 70		Min. Passing Marks: 40	
Tot al No. of Lectures-Tutorials-Practical(in hours per week): 4-0-0			
Unit	Topic		No. of Lectures
I	Introduction and applications History of Computer Graphics, What is CG, Types of Computer Graphics, Area of Computer Graphics, Display Devices: Refresh CRT, Random Scan and Raster scan monitors, Color CRT, Plasma Panel displays LCD Panels, Raster-scan System, Random scan System, Graphic software, Input/output Devices, Tablets		10

II	2D Transformation: 2D Transformation, Use of homogeneous coordinate Systems, Composite Transformation: Translation, Scaling, Rotation, Mirror Reflection, Rotation about an arbitrary point. Clipping and Windowing, Clipping Operation ,Line Clipping Algorithms: The Mid-Point subdivision method, Cohen-Sutherland Line Clipping Algorithms, Polygon Clipping, Sutherland Hodgeman Algorithms, Text Clipping, 3D Transformation: 3D Transformation ,Translation ,Rotation ,Scaling ,Projection, Types of projection.	10
III	Points and Lines, Frame buffer, Line Drawing Algorithms, Circle Generating Algorithms, Ellipse Generating Algorithms.	10
IV	Quadric Surfaces :Sphere, Ellipsoid and Torus, Superquadrics: Superellipse, Superellipsoid, Curve drawing, Spline Representation Cubic Spline, parametric representation, need for cubic curves, Drawing cubic Bezier's curves & Surfaces, Bezier's curves and B-spline curves & Surfaces B-spline curves (No derivation needed).	10
V	Animation: Introduction to Animation, Principles of Animation, Types of Animations, Tweaking & Morphing	10

**Suggested Readings:**

- S. Harrington, Computer Graphics – A programming, Tata McGraw Hill.
- J.D. Foley & A VanDam, Fundamentals of Interactive Computer Graphics, Addison Wesley.
- Hearn & P.M. Baker, Computer Graphics, Prentice Hall India.

**Suggested equivalent online courses:** □

<https://nptel.ac.in/courses/106102063>

**This course can be opted as an elective by the students of following subjects: NONE**

**Suggested Continuous Evaluation Methods:**

Continuous Internal Evaluations shall be based on allotted Assignment and Class Tests. The marks shall

	Internal Assessment	Marks	
	Class Interaction	5	
	Quiz/Assignments	5	
	Seminar/Presentation	5	
	Unit Test/Class Test	15	
	Total	30	

Bachelor of Computer Application			
Programme/Class:		Year:3 <sup>rd</sup>	Semester:5 <sup>th</sup>
Subject Code: BCA-307 P		Subject Title: Industrial Training	
Course out comes:		On completion of the course, the student will be able to:	
CO 1:	Identify various technologies and fields for practical training.		
CO 2:	Understand the industrial problems and applying engineering knowledge to solve the industrial problems.		
CO 3:	Analyze ethical practices and tools in used in different technologies		
CO4:	Design and develop the skills to make software/hardware, reports and presentation, related to industrial training.		

<b>Credits:4</b>		<b>Core Compulsory</b>
<b>Max. Marks: 100</b>		<b>Min. Passing Marks: 50</b>
<b>Tot al No. of Lectures-Tutorials-Practical(in hours per week): 0-0-10</b>		
<b>Unit</b>	<b>Topic</b>	<b>No. of Lectures</b>
I	<p>Students will have to undergo 6 to 8 weeks of Summer/industrial training/internship during the summer vacation after BCA IV semester examination.</p> <p>After successful completion of the training, the concerned students will submit their training completion certificate along with the training report in the form of a project.</p> <p>The internship of the said student will be evaluated by internal and external examiners/experts in BCA 5th Sem on the basis of their training report, presentation and oral examination etc.</p>	60 hrs to 80Hrs
<b>Suggested Readings:</b> <ul style="list-style-type: none"> <li>•</li> </ul>		
<b>Suggested equivalent online courses:</b> <ul style="list-style-type: none"> <li>□</li> </ul>		
<b>This course can be opted as an elective by the students of following subjects: NONE</b>		