



**SWAMINARAYAN
UNIVERSITY**
THE RESERVOIR OF ALL KNOWLEDGE

FACULTY OF IT AND COMPUTER SCIENCE

COURSE CURRICULUM

COURSE TITLE : ARTIFICIAL INTELLIGENCE-II
(CODE: AICAM111-1C)

IT and CS Programmes in which this course is offered	Semester in which offered
Bachelor of Computer Applications-(B.C.A)(Hons.)	Sixth Semester

Course Objectives –

This course is intended to make the students:

- To understand fundamentals of Open Source, Server Side Programming Technology PHP.
- To learn exception handling, cookie and session management.
- To develop websites using open source technology PHP and MySQL.

Teaching and Examination Scheme –

Content Hours per Week			Course Credits		Examination Marks			
L	T	P	T	P	Theory Marks		Practical Marks	
			3	1	E	M	I	EV
3	0	2	4		25	25	25	25
100								

*E - External Examination, M- Mid Semester Examination, I- Internal Submission & Viva,
EV - External Viva

Detailed Course Contents –

Sr.	Topic	Teaching Hrs.	Weightage (%)
1	Artificial Intelligence AI vs. Human Intelligence, Definition of Artificial Intelligence, Narrow AI vs. General AI, Subfields of AI, History and Evolution of AI, Applications and limitations of current AI systems, Ethical and societal challenges of AI	9	20
2	Intelligent agents Agents and Environments, the concept of rationality, the nature of environments, structure of agents, problem solving agents, problem	10	20

	formulation. Search: informed search , uninformed search , Local search, adversarial search, Constraint Satisfaction Problems		
3	Knowledge representation Knowledge representation, Logical representation including predicate and first-order logic, Limitations of logical representation, Semantic networks: structure and usage, Frames: attributes, slots, values, and inheritance, Scripts for event sequences Rule-based deduction systems: forward and backward chaining, resolution, Conceptual graphs: basics and construction, Reasoning under uncertainty: review of probability, Bayesian networks, Hidden Markov Models (HMM), Challenges in knowledge representation.	10	25
4	Expert systems Introduction, basic concepts, structure of expert systems, the human element in expert systems how expert systems works, problem areas addressed by expert systems, expert systems success factors, types of expert systems	8	15
5	Introduction to AI ethics key ethical principles in AI: fairness, accountability, transparency, integrity, sustainability, control, democracy, interoperability, privacy concerns and data protection in AI systems, bias and discrimination in algorithmic decision-making, AI in surveillance and its implications for human rights, governance frameworks for AI	10	20

***Continuous Evaluation:**

It consists of Assignments/Seminars/Presentations/Quizzes/Surprise Tests (Summative/MCQ) etc.

Suggested Learning Resources

A. List of Books

SR NO.	TITLE OF BOOKS	AUTHOR NAME	PUBLICATION
1			
2			
3			
4			
5			

B. List of Major Equipment/ Software

C. List of Software/Learning Websites

Course Learning Outcomes (CLO):

Sr. No.	CO statement	Marks % Weightage
CLO-1		25
CLO -2		25
CLO -3		25
CLO -4		25

Revised Bloom's Taxonomy

Distribution of Theory Marks					
Remember	Understand	Apply	Analyze	Evaluate	Create
07	07	11	-	-	-

*Legends: R = Remembrance; U = Understanding; A = Application N :Analyze and E :Evaluate C : Create and Above Levels (Revised Bloom's Taxonomy)

Suggested List Of Practical/Exercises

Sr. No	Practical/ Exercises	Approx Hrs. Required
1.	Write a Program to Implement Breadth First Search using Python.	
2.	Write a Program to Implement Depth First Search using Python	
3.	Write a program to solve any real-life problem using depth first search.	
4.	Write a program to implement Water Jug Problem	
5.	Write a program for medical diagnosis using Python	
6.	Write a program to implement Random Forest Algorithm	
7.	Write a program to implement Regression algorithm	



**SWAMINARAYAN
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FACULTY OF IT & COMPUTER SCIENCE

COURSE CURRICULUM

Course Title: Linux Server Security
(Code:)

IT and CS Programmes in which this course is offered	Semester in which offered
Bachelor of Computer Applications (BCA)	Sixth Semester

Course Objectives -

- This course is intended to make the students:
- Apply a range of security techniques to secure a Linux server environment.
- Manage user access and authentication securely while preventing unauthorized access.
- Use industry-standard security tools to monitor, detect, and respond to security threats.
- Implement best practices for network and application security on Linux servers.
- Understand and implement secure configurations in virtualized and cloud environments.
- Perform security audits, penetration testing, and continuous monitoring to maintain a secure Linux server environment.

Teaching and Examination Scheme –

Content Hours per Week			Course Credits		Examination Marks			
L	T	P	T	P	Theory Marks		Practical Marks	
			3	2	E	M	I	EV
3	0	2	4		25	25	25	25
100								

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EV - External Viva

DETAILED COURSE CONTENTS -

Sr.	Topic	Teaching Hrs.	Weightage (%)
1	Introduction to Linux Security Linux introduction : file system Basic Features, Different flavors of Linux. Advantages, How Linux access files, storage files, Linux standard directories. Commands for files and directories cd, ls, cp, md, rm, mkdir, rmdir, pwd, file, more, less, creating and viewing files using cat, file comparisons - cmp &	08	15

	comm, View files, disk related commands, checking disk free spaces.		
2	Linux System Hardening Understanding shells, Processes in linux, connecting processes with pipes, Redirecting input output, manual help, Background processing, managing multiple processes, changing process priority with nice, scheduling of processes at command, cron commands, kill, ps, who, sleep, Printing commands, touch, file related commands - wc, cut, dd, etc. Mathematical commands- bc, expr. Creating and editing files with vi & vim editor. Simple filter commands - pr, head, tail, cut, paste, sort, uniq, tr. Filter using regular expressions - grep, egrep, and sed.	08	15
3	Introduction to Shell Programming- develop some shell programs. System administration: Common administrative tasks, configuration and log files, Role of system administrator. Installing requirement, Partitioning the Hard drive for Linux, Installing the Linux system, System startup and shut-down process.	09	18
4	Managing user accounts-adding & deleting users : changing permissions and ownerships, Creating and managing groups, modifying group attributes, Temporary disable user's accounts, creating and mounting file system, file security & Permissions, becoming super user using su. host name, disk partitions & sizes, users, kernel. Backup and restore files, installing and removing packages. Starting & Using KDE & Gnome graphical interfaces. Basic networking administration: Setting up a LAN using Linux, choosing peer to peer vs client/server model, setting up an Ethernet Lan, configuring host computers, checking Ethernet connecting, connecting to Internet, common networking administrative tasks, configuring Ethernet, initializing Ethernet Interface, ifconfig, netstat and netconfig commands, TCP/IP network, DNS services. Automating backups with cron.	10	20
5	Installation, configuration & Administration of following servers in Linux Mail server DNS Remote access FTP server Apache web server Vnc Server	04	15

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Revised Bloom's Taxonomy

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SUGGESTED LEARNING RESOURCES

A. List of Books

SR NO.	TITLE OF BOOKS	AUTHOR NAME	PUBLICATION
1	Linux Administration: A Beginner's Guide	Wale Soyinka	McGraw-Hill
2	Fedora 9 And Red Hat Enterprise Linux Bible	Christopher Negus	Wiley India Ltd
3	Linux Bible, 9ed	Christopher Negus	Wiley India Ltd
4	Linux Security Cookbook	Daniel J. Barrett, Richard E. Silverman	O'Reilly Media
5	Practical Linux Security Cookbook	Tajinder Kalsi	Packt Publishing
6	Linux Administration: A Beginner's Guide	Wale Soyinka	McGraw-Hill

B. List of Software/Learning Websites

<https://www.redhat.com/en/services/training/rh415-red-hat-security-linux-physical-virtual-and-cloud>
<https://training.linuxfoundation.org/resources/free-courses/>

COURSE OUTCOMES:

Sr. No.	CO statement	Marks % Weightage
CO-1	Fully understand the fundamental concepts of Linux server administration,	15
CO-2	Put those concepts to use in real-world situations	15
CO-3	Install and customize Linux (administration of Linux servers from the GUI);	18
CO-4	Manage users, permissions, folders, and native applications;	20

SUGGESTED LIST OF PRACTICAL/EXERCISES

S.No.	Practical Exercises (Outcomes' in Psychomotor Domain)	Hrs. required
1	Understand and modify file and directory permissions using chmod, chown, and chgrp.	02
2	Add, modify, and delete users and groups.	02
3	Set up SSH key-based authentication.	02
4	Configure basic iptables rules to allow or block specific traffic.	02
5	Set up and test rules using firewalld.	02
6	Analyze system logs in /var/log.	02
7	Install and configure Tripwire.	02
8	Encrypt files using GPG.	02
9	Restore data from a backup.	02
10	Use nmap to perform a basic network vulnerability scan.	02
11	Configure HTTPS on a web server (Apache or Nginx).	02



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FACULTY OF IT & COMPUTER SCIENCE

COURSE CURRICULUM

Course Title: Machine Learning-II
(Code:)

IT and CS Programmes in which this course is offered	Semester in which offered
Bachelor of Computer Applications (BCA)	Sixth Semester

Course Objectives -

The objective of the course is to introduce the students with concepts of machine learning, machine learning algorithms and building the applications using machine learning for various domains.

Teaching and Examination Scheme –

Content Hours per Week			Course Credits		Examination Marks			
L	T	P	T	P	Theory Marks		Practical Marks	
			2	2	E	M	I	EV
3	0	2	4		25	25	25	25
100								

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DETAILED COURSE CONTENTS -

Sr.	Topic	Teaching Hrs.	Weightage (%)
1	Python libraries suitable for Machine Learning Numpy: • Creating Array: array() • Accessing Array: by referring to its index number • Stacking & Splitting: stack(), array_split() • Maths Functions: add(), subtract(), multiply(), divide(), power(), mod() • Statistics Functions: amin(), amax(), mean(), median(), std(), var(), average(), ptp() Pandas: • Series: Series() • Dataframes: DataFrames() • Read CSV File: read_csv() • Cleaning Empty Cells: dropna() • Cleaning Wrong Data: drop() • Removing Duplicates: duplicated() • Pandas Plotting: plot() Matplotlib • Pyplot.plot: plot() • Show: show() • Labels:	08	25

	xlabel(), ylabel() • Grid: grid() • Bars: bar() • Histogram: hist() • Subplot: subplot() • pie chart: pie() • Save the plotted images into pdf: savefig()		
2	Preparing to Model and Preprocessing Machine Learning activities • Preparing to Model • Learning: Data Partition-k-fold cross validation, Model Selection • Performance Evaluation: confusion matrix • Performance Improvement: Ensemble Types of Data • Qualitative/Categorical Data: Nominal, Ordinal • Quantitative/Numeric Data: Interval, Ratio 3. Data quality and remediation • Handling outliers • Handling missing values 3.2.3 Data Pre-Processing • Dimensionality reduction • Feature subset selection: Filter, Wrapper, Hybrid, Embedded	09	15
3	Supervised Learning: Classification and Regression: Define Supervised Learning , List types of Supervised Learning, Describe K-Nearest Neighbour and Simple linear regression , Advantage and disadvantage of supervised machine learning	15	25
4	Unsupervised Learning: Define Unsupervised Learning ,List types of Unsupervised Learning ,Differentiate Supervised and Unsupervised Learning	08	20
5	Clustering: Introduction to Clustering, Clustering of Patterns, Divisive Clustering, Agglomerative Clustering, Partitional Clustering. Reinforcement Learning: Overview and Scope of Reinforcement Learning, Components of Reinforcement Learning, Q-Learning.	08	15

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It consists of Assignments/Seminars/Presentations/Quizzes/Surprise Tests(Summative/MCQ) etc.

Revised Bloom's Taxonomy

Distribution of Theory Marks					
Remember	Understand	Apply	Analyze	Evaluate	Create
07	07	11	-	-	-

*Legends: R = Remembrance; U = Understanding; A = Application N :Analyze and E :EvaluateC :Create and Above Levels (Revised Bloom's Taxonomy)

SUGGESTED LEARNING RESOURCES

A. List of Books

SR NO.	TITLE OF BOOKS	AUTHOR NAME	PUBLICATION
1	Machine Learning	Saikat Dull, S. Chjandramouli, Das	Pearson
2	Machine Learning with Python for Everyone	Mark Fenner	Pearson
3	Machine Learning	Anuradha Srinivasaraghavan, Vincy Joseph	Wiley

4	Machine Learning with Python	U Dinesh Kumar Manaranjan Pradhan	Wiley
5	Python Machine Learning	Sebastian Raschka, Vahid Mirjalili	Packt Publishing

B. List of Software/Learning Websites

<https://www.geeksforgeeks.org/machine-learning/>

https://www.tutorialspoint.com/machine_learning_with_python/index.htm

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

<https://www.coursera.org/>

COURSE OUTCOMES:

Sr. No.	CO statement	Marks % Weightage
CO-1	Explore the fundamental issues and challenges in Machine Learning including data and model selection and complexity	25
CO-2	Appreciate the underlying mathematical relationships within and across Machine Learning algorithms	15
CO-3	Evaluate the various Supervised Learning algorithms using appropriate Dataset.	25
CO-4	Evaluate the various unsupervised Learning algorithms using appropriate Dataset.	20
CO-5	Design and implement various machine learning algorithms in a range of real-world applications..	15

SUGGESTED LIST OF PRACTICAL/EXERCISES

S.No.	Practical Exercises (Outcomes' in Psychomotor Domain)	Hrs. required
1	Write a NumPy program to implement following operation <ul style="list-style-type: none"> • to add, subtract, multiply, divide arguments element-wise • to round elements of the array to the nearest integer • to calculate mean across dimension, in a 2D numpy array • to calculate the difference between neighboring elements, elementwise of a given array 	06
2	Implementation of Python Libraries for ML application such as Pandas and Matplotlib. <ol style="list-style-type: none"> a) Create a Series using pandas and display b) Access the index and the values of our Series c) Compare an array using Numpy with a series using pandas d) Define Series objects with individual indices e) Access single value of a series f) Load datasets in a Data frame variable using pandas g) Usage of different methods in Matplotlib. 	06
3	<ol style="list-style-type: none"> a) Creation and Loading different types of datasets in Python using the required libraries. <ol style="list-style-type: none"> i. Creation using pandas ii. Loading CSV dataset files using Pandas iii. Loading datasets using sklearn b) Write a python program to compute Mean, Median, Mode, Variance, Standard Deviation using Datasets c) Demonstrate various data pre-processing techniques for a given dataset. Write a python program to compute <ol style="list-style-type: none"> i. Reshaping the data, 	06

	ii. Filtering the data, iii. Merging the data iv. Handling the missing values in datasets v. Feature Normalization: Min-max normalization	
4	Implement Dimensionality reduction using Principle component Analysis method on a dataset iris	02
5	Write a program to demonstrate the working of the decision tree based ID3 algorithm by considering a dataset.	02
6	Consider a dataset, use Random Forest to predict the output class. Vary the number of trees as follows and compare the results: i. 20 ii. 50 iii. 100 iv. 200 v. 500	02
7	Write a Python program to implement Simple Linear Regression and plot the graph.	02
8	Write a Python program to implement Simple Linear Regression for iris using sklearn and plot the confusion matrix.	02
9	Build KNN Classification model for a given dataset. Vary the number of k values as follows and compare the results: i. 1 ii. 3 iii. 5 iv. 7 v. 11	02
10	Implement Support Vector Machine for a dataset and compare the accuracy by applying the following kernel functions: i. Linear ii. Polynomial iii. RBF	02
11	Write a python program to implement K-Means clustering Algorithm. Vary the number of k values as follows and compare the results: i. 1 ii. 3 iii. 5	



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COURSE CURRICULUM

Course Title: Web .NET with C#
(Code:)

IT and CS Programmes in which this course is offered	Semester in which offered
Bachelor of Computer Applications (BCA)	Sixth Semester

Course Objectives -

- This course is intended to make the students:
- This course is intended to make the students aware of Understand ASP.Net architecture, lifecycle, and server controls.
- Learn C# programming and web-based application concepts.
- Explore ASP.Net controls for interactive interfaces and validations.
- The goal of Course expertise in ADO.Net and three-tier web application development.

Teaching and Examination Scheme –

Content Hours per Week			Course Credits		Examination Marks			
L	T	P	T	P	Theory Marks		Practical Marks	
			2	2	E	M	I	EV
3	0	2	4		25	25	25	25
					100			

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DETAILED COURSE CONTENTS -

Sr.	Topic	Teaching Hrs.	Weightage (%)
1	Introduction to C# and the .NET Environment Overview of C# and the .NET Framework: Understanding the C# language, its history, features, and the role of the .NET Framework, .NET Core, and the Common Language Runtime (CLR). Development Environment Setup: Installing and configuring development tools such as Visual Studio or the .NET SDK and	10	10

	writing a basic "Hello World" program.		
2	C# Language Fundamentals Data Types, Variables, and Constants: Working with various data types (e.g., int, double, bool, string), declaring variables, and defining constants. Operators and Expressions: Understanding arithmetic, relational, logical, assignment, and other operators, as well as operator precedence. Control Flow Statements: Implementing conditional logic using if-else, switch, and the ternary operator (? :). Looping Structures: Using for, while, do-while, and foreach loops to iterate over data and control program flow. Arrays and Strings: Creating and manipulating single-dimensional, multi-dimensional, and jagged arrays; using the System.Array class and methods for string manipulation.	05	20
3	Object-Oriented Programming (OOP) in C# Classes and Objects: Defining classes, creating objects (instances), and understanding constructors and destructors. Encapsulation and Properties: Controlling access to class members using access modifiers (public, private, protected) and defining properties. Inheritance: Creating base and derived classes to promote code reuse and understanding virtual and override methods. Polymorphism and Abstraction: Implementing method overloading and overriding, and working with abstract classes and interfaces.	09	25
4	Working with ASP.Net Standard Controls: Label, Textbox, Button, Link Button, Image Button, Hyperlink, List Box, Dropdown List, Checkbox, Checkbox List, Radio Button, RadioButtonList, BulletedList, Image, Table, Panel, File Upload.	10	25
5	Validation Control: Required Field Validator, Range Validator, Regular Expression Validator, Compare Validator, Custom Validator, Validation Summary. Rich Controls: Calendar Control, Ad Rotator Control, Multitier Control. Navigation Control: Menu Control, Tree View Control, Site Map Path Control. Mater page and Theme	10	20

*Continuous Evaluation:

It consists of Assignments/Seminars/Presentations/Quizzes/Surprise Tests(Summative/MCQ) etc.

Revised Bloom's Taxonomy

Distribution of Theory Marks					
Remember	Understand	Apply	Analyze	Evaluate	Create
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SUGGESTED LEARNING RESOURCES

A. List of Books

SR NO.	TITLE OF BOOKS	AUTHOR NAME	PUBLICATION
1	The Beginning Asp.net 4 in c# 2010	Matthew MacDonald	APRESS
2	The Complete Reference ASP.NET	Matthew MacDonald	TATA McGraw-Hill
3	ASP.NET Black Book.	Kogent Learning Solutions Inc.	Wiley
4	Pro ASP.Net Core MVC 2	Adam Freeman	Apress, 2017
5	C# 9 and .NET 5 – Modern Cross-Platform Development	Mark J. Price	

B. List of Software/Learning Websites

<https://www.w3schools.com/asp/>

<http://www.tutorialspoint.com/listtutorials/asp-dot-net/1>

http://www.pragimtech.com/dot_net_tutorials_for_beginners.aspx

COURSE OUTCOMES:

Sr. No.	CO statement	Marks % Weightage
CO-1	Understand .NET Framework features, architecture, and languages.	10
CO-2	Work with ASP.NET Web Forms, lifecycle, and IIS configuration.	20
CO-3	Learn C# basics (data types, loops, functions, OOP concepts).	25
CO-4	Differentiate between web-based and window-based applications and web server functionality.	25
CO-5	Use ASP.NET standard controls to create interactive web apps and Implement validation controls, rich controls, navigation systems, data controls, and use Master Pages and Themes.	20

SUGGESTED LIST OF PRACTICAL/EXERCISES

S.No.	Practical Exercises (Outcomes in Psychomotor Domain)	Hrs. required
1	Install Visual Studio (Community Edition) or the .NET SDK. Create a Console Application that prints "Hello, [Your Name]!" to the console.	02
2	1. Write a program that takes two numbers and outputs their sum, difference, product, and remainder. 2. Write a program using delegate in which addition and subtraction of two Integer value Possible. 3. Write a program using while or for loop to print sum of first 100 ODD and Even Numbers. 4. Write a program using for each loop.	08
3	1. Write a program using Arrays. 2. Write a program using constructors and destructors. 3. Write a program using Inheritance. 4. Write a program using overloading and overriding.	08
4	Write a program to Create Simple Web Application using two or more web	02

	form.	
5	Write a program to demonstrate different common Control.	02
6	1. Write a program to add the value of Text Box in to Dropdown List and List box Controls. 2. Write a program to Delete Items from Dropdown list and List box. 3. Write a program to set Image on Image Control according to selection of image name From dropdown list.	06
7	1. Write a program which demonstrates the Validation Control. 2. Write a program which is using different Rich Control. 3. Write a program using Menu Control.	06
8	Write a program using Tree View Control.	02
9	Write a program using Sitemap Control.	02
10	Write a program to demonstrate use of Master Page and Theme.	02



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FACULTY OF IT & COMPUTER SCIENCE

COURSE CURRICULUM

Course Title: Web .NET with C#
(Code:)

IT and CS Programmes in which this course is offered	Semester in which offered
Bachelor of Computer Applications (BCA)	Sixth Semester

Course Objectives -

- This course is intended to make the students:
- This course is intended to make the students aware of Understand ASP.Net architecture, lifecycle, and server controls.
- Learn C# programming and web-based application concepts.
- Explore ASP.Net controls for interactive interfaces and validations.
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DETAILED COURSE CONTENTS -

Sr.	Topic	Teaching Hrs.	Weightage (%)
1	Introduction to ASP.Net & Working With Asp.Net Introduction to ASP.Net: Introduction and Features of .Net, .Net Framework architecture (CLR, MSIL, JIT, FCL, WPF, WCF, LINQ, CLS, CTS), .Net Languages. Working With Asp.Net: Introduction to Web-Form and its events, Asp.net Application Life Cycle, ASP.net Page Life Cycle, ASP.Net Server Control Events, IIS Server	10	10

2	Introduction to C# : Introduction to C#, Data type, Looping statement, For each Loop, Array, Function, Delegate	05	20
3	Basic about Classes & Objects: Namespaces and Assemblies. Introduction to Web Server, Web Based vs. Window Based Application	09	25
4	Working with ASP.Net Standard Controls: Label, Textbox, Button, Link Button, Image Button, Hyperlink, List Box, Dropdown List, Checkbox, Checkbox List, Radio Button, RadioButtonList, BulletedList, Image, Table, Panel, File Upload.	10	25
5	Validation Control: Required Field Validator, Range Validator, Regular Expression Validator, Compare Validator, Custom Validator, Validation Summary. Rich Controls: Calendar Control, Ad Rotator Control, Multitier Control. Navigation Control: Menu Control, Tree View Control, Site Map Path Control. Master page and Theme	10	20

*Continuous Evaluation:

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Remember	Understand	Apply	Analyze	Evaluate	Create
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SUGGESTED LEARNING RESOURCES

A. List of Books

SR NO.	TITLE OF BOOKS	AUTHOR NAME	PUBLICATION
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2	The Complete Reference ASP.NET	Matthew MacDonald	TATA McGraw-Hill
3	ASP.NET Black Book.	Kogent Learning Solutions Inc.	Wiley
4	Pro ASP.Net Core MVC 2	Adam Freeman	Apress, 2017
5	C# 9 and .NET 5 – Modern Cross-Platform Development	Mark J. Price	

B. List of Software/Learning Websites

<https://www.w3schools.com/asp/>

<http://www.tutorialspoint.com/listtutorials/asp-dot-net/1>

http://www.pragimtech.com/dot_net_tutorials_for_beginners.aspx

COURSE OUTCOMES:

Sr. No.	CO statement	Marks % Weightage
CO-1	Understand .NET Framework features, architecture, and languages.	10
CO-2	Work with ASP.NET Web Forms, lifecycle, and IIS configuration.	20
CO-3	Learn C# basics (data types, loops, functions, OOP concepts).	25
CO-4	Differentiate between web-based and window-based applications and web server functionality.	25
CO-5	Use ASP.NET standard controls to create interactive web apps and Implement validation controls, rich controls, navigation systems, data controls, and use Master Pages and Themes.	20

SUGGESTED LIST OF PRACTICAL/EXERCISES

S.No.	Practical Exercises (Outcomes' in Psychomotor Domain)	Hrs. required
1	Install Visual Studio (Community Edition) or the .NET SDK. Create a Console Application that prints "Hello, [Your Name]!" to the console.	02
2	1. Write a program that takes two numbers and outputs their sum, difference, product, and remainder. 2. Write a program using delegate in which addition and subtraction of two Integer value Possible. 3. Write a program using while or for loop to print sum of first 100 ODD and Even Numbers. 4. Write a program using for each loop.	08
3	1. Write a program using Arrays. 2. Write a program using constructors and destructors. 3. Write a program using Inheritance. 4. Write a program using overloading and overriding.	08
4	Write a program to Create Simple Web Application using two or more web form.	02
5	Write a program to demonstrate different common Control.	02
6	1. Write a program to add the value of Text Box in to Dropdown List and List box Controls. 2. Write a program to Delete Items from Dropdown list and List box. 3. Write a program to set Image on Image Control according to selection of image name From dropdown list.	06
7	1. Write a program which demonstrates the Validation Control. 2. Write a program which is using different Rich Control. 3. Write a program using Menu Control.	06
8	Write a program using Tree View Control.	02
9	Write a program using Sitemap Control.	02
10	Write a program to demonstrate use of Master Page and Theme.	02



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COURSE CURRICULUM

Course Title: MAJOR PROJECT
(Code:)

IT and CS Programmes in which this course is offered	Semester in which offered
Bachelor of Computer Applications (BCA)	Sixth Semester

Course Objectives -

- Perform various tasks like market survey, industrial visits, creative and innovative techniques, etc to identify project.
- Draw details and assembly production drawings.
- Plan material and processes optimally and economically.
- Develop sense of environmental responsibility..

Teaching and Examination Scheme –

Content Hours per Week			Course Credits		Examination Marks				
L	T	P	T	P	Theory Marks		Practical Marks		50
			2	2	E	M	I	EV	
0	0	2	4		0	0	25	25	

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DETAILED COURSE CONTENTS -

Sr.	Topic	Teaching Hrs.	Weightage (%)
1	Preparatory activities: Objectives of learning this subject. List attitude dos and don'ts.	2	10
2	Basic techniques. a. Explain all basic techniques as per Unit II. b. Identify at least five needs which require product development/modification. Each student will identify separately. c. Given the live product/case (to be assigned by	4	20

	<p>teacher),generate at least ten questions for each following basic techniques leading to identify project/problem:</p> <p>i. Productivity. ii. Quality. iii. Cost/waste reduction. iv. Value analysis. d. Carry out market survey for given product. (Teacher will assign the required data). e. Prepare cause and effect diagram (Fish bone diagram) for given data.(Teacher will assign the required data). f. Perform SWOT analysis for self. g. Briefly explain and present 5-S and 7-S frame work. h. Visit an industry and prepare the report on project which can be undertaken for manufacturing at institute place and/or live problems which can be solved at industry place. i. Carry out literature survey for basic techniques.</p>		
3	<p>Identification of problem/project. Student will practice and will identify at least one problem/project and will prepare following. i. Details and assembly production drawings.(For manufacturing type project). OR i. Define live problems at industry place. Also prepare necessary drawings for live problem solution at industry place. ii. Bill of material. iii. Cost estimation of parts and complete project.</p>	05	25
4	<p>Draft project report: Prepare draft project report and include following. i. Activities performed at sr.no.2 from b to i. (Questions generated, market survey carried out, fishbone diagram, self SWOT analysis, tutorials, examples, 5-S and 7-S brief techniques, industrial visit outcome, literature survey). ii. Title of project. iii. Details and assembly production drawings prepared with use of software.(AutoCAD/ProE, CREO, etc. OR iii. Description of live problem to be solved at industry place. iv. Bill of material. v. Cost estimation of parts and complete project.</p>	15	25

NOTE:

Prepare project report with MS Office with following guidelines.

PAGE	:	A4 (ON ONE SIDE)
MARGIN	:	TOP 15mm
	:	BOTTOM 15mm
	:	RIGHT 15mm
	:	LEFT 30mm
FONT	:	ARIAL
SIZE	:	TITLE : 12 BOLD
	:	CONTENT : 12
	:	SPACING : 18 points.

HEADER : TITLE OF THE PROJECT, PAGE
NUMBER ON TOP RIGHT.
FOOTER: ACADEMIC YEAR, SHORT NAME

It is compulsory to prepare log book of exercises. It is also required to get each exercise recorded in logbook, checked and duly dated signed by teacher. PA component of practical marks is dependent on continuous and timely evaluation of exercises.

For practical ESE part, students are to be assessed for competencies achieved.

A. SUGGESTED LEARNING RESOURCES

- a. Use of Library.
- b. Reference books.
- c. Hand books.
- d. Encyclopaedia.
- e. Magazines.
- f. Periodicals.
- g. Journals.
- h. Visits of industry, organizations related as per the requirement.
- i. Internet.

COURSE OUTCOMES:

Sr. No.	CO statement	Marks % Weightage
CO-1		
CO-2		
CO-3		
CO-4		
