



**Bachelor of Science (Computer Science)**  
**B.Sc. (CS) Semester VI**

Course Code	<b>US06MACSC01</b>	Title of the Course	<b>Python Programming</b>
Total Credits of the Course	4	Hours per Week	4

Course Objectives:	<ol style="list-style-type: none"><li>1. To learn the fundamentals of the Python programming language.</li><li>2. To study the concepts of object-oriented programming in Python.</li><li>3. To learn exception handling and file handling in Python.</li><li>4. To understand how to access files and databases from Python</li></ol>
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**Course Content**

Unit	Description	Weightage* (%)
1.	<b>Introduction &amp; Basic Concepts of Python</b> <ul style="list-style-type: none"><li>– Python: Introduction, Features and Applications</li><li>– Variables and Comments in Python</li><li>– Data types, operators, keywords, literals</li><li>– I/O statements and Number formatting</li></ul>	25%
2.	<b>Control Statements &amp; Inbuilt Functions (Data types)</b> <ul style="list-style-type: none"><li>– Flow control statements: If, while, for</li><li>– Break, continue and pass statements</li><li>– Operations and functions: Strings, Lists, Tuples, Sets, Dictionary</li></ul>	25%
3.	<b>Functions, Modules and Exceptions</b> <ul style="list-style-type: none"><li>– Built-In functions</li><li>– User Defined functions: advantages, arguments, local and global variables, global keyword, first class object, recursion</li><li>– Lambda function</li><li>– Modules</li><li>– Exceptions</li><li>– Dates</li></ul>	25%
4.	<b>File I/O handling</b> <ul style="list-style-type: none"><li>– Regex</li><li>– File and I/O</li><li>– Types of Files</li><li>– Modes of File</li><li>– CSV File creating, reading and writing with: Delimiters, Initial Space and Quotes</li><li>– Update, Dialects, DictWriter() &amp; DictReader(), Line Terminator</li></ul>	25%



Teaching-Learning Methodology	Blended learning approach incorporating traditional classroom teaching and online /ICT-based teaching practices.
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Evaluation Pattern		
Sr. No.	Details of the Evaluation	Weightage
1.	Internal Examination	50%
2.	University Examination	50%

Course Outcomes: Having completed this course, the learner will be able to develop	
1.	Ability to develop computer programs using the Python programming language.
2.	Knowledge of manipulating different Python data types.
3.	Ability to develop object-oriented programs using Python.
4.	Basic knowledge of exception handling, file handling and database access in Python.



Suggested References:	
Sr. No.	References
1.	Paul A. DeBarry: Head First Python, O'Reilly Media, Inc., 2010.
2.	Martin C. Brown: The Complete Reference Python, McGraw Hill, 2018.
3	David M. Beazley: Python Essential Reference, Pearson Addison-Wesley Professional, 1996.
4	Timothy Budd, Exploring Python Book, McGraw Hill, 2009.
5	Aaul Barry, Head First Python: A Brain-Friendly Guide, Greyscale Indian Edition, 2013.
6	Bill Lubanovic , Introducing Python-Modern Computing in Simple Packages –, O'Reilly Publication, 2014.
7	Introduction to Computer Science Using Python-Charles Dierbach, Wiley Publication Learning with Python “, Green Tea Press, 2002.
8	John Paul Mueller, Beginning Programming with Python for Dummies Paperback– 2015.

On-line resources to be used if available as reference material
On-line Resources
Python Tutorial/Documentation <a href="http://www.python.org">www.python.org</a> 2010 <a href="http://docs.python.org/3/tutorial/index.html">http://docs.python.org/3/tutorial/index.html</a> <a href="http://www.javapoint.com/python-tutorial">http://www.javapoint.com/python-tutorial</a>

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**Bachelor of Science (Computer Science)**  
**B.Sc. (CS) Semester VI**

Course Code	<b>US06MACSC02</b>	Title of the Course	<b>PHP Using MySql</b>
Total Credits of the Course	4	Hours per Week	4

Course Objectives:	<ol style="list-style-type: none"><li>1. To introduce students to fundamental concepts related to PHP programming.</li><li>2. To impart basic knowledge of working with advanced features of PHP and interaction with forms.</li><li>3. To provide basic understanding of database access.</li></ol>
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Course Content		
Unit	Description	Weightage* (%)
1.	<b>PHP Programming Concepts -1</b> <ul style="list-style-type: none"><li>– Introduction to open source</li><li>– Advantage and capabilities of open source</li><li>– Introduction to PHP: features, adding PHP to HTML</li><li>– PHP Syntax</li><li>– PHP Variables: Local, Global &amp; Static variables</li><li>– PHP \$ and \$\$ variable</li><li>– Constant, echo and print commands</li><li>– PHP Data types and Operators</li><li>– Control Structures: Conditional Structure &amp; Looping Structures</li><li>– Break and Continue</li><li>– Arrays</li></ul>	25%
2.	<b>PHP Programming Concepts-2</b> <ul style="list-style-type: none"><li>– In-built functions: Strings, Date and Time and Sorting Array</li><li>– User Defined Functions</li><li>– GET, POST and Request method</li><li>– Cookies and Session Management</li><li>– Class and Object in PHP</li><li>– Error Handling</li><li>– Send Email</li></ul>	25%



3.	<b>Working with Forms, Files, Ajax, XML, CSS and Bootstrap</b> <ul style="list-style-type: none"><li>– Form: Creating, Validation using PHP Filter and Regular Expression.</li><li>– Files: Include, Upload &amp; Download file and Generate PDF File.</li><li>– PHP with XML</li><li>– PHP with Ajax</li><li>– PHP with CSS and Bootstrap</li></ul>	25%
4.	<b>Accessing Databases</b> <ul style="list-style-type: none"><li>– Working with MySQL using PhpMyAdmin</li><li>– PHP-MySQL Connectivity</li><li>– PHP-MySQL Functions</li></ul>	25%

Teaching-Learning Methodology	Blended learning approach incorporating traditional classroom teaching and online /ICT-based teaching practices.
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Evaluation Pattern		
Sr. No.	Details of the Evaluation	Weightage
1.	Internal Examination	50%
2.	University Examination	50%

Course Outcomes: Having completed this course, the learner will be able to develop	
1.	Understanding of the fundamental concepts related to PHP programming.
2.	Basic knowledge of working with advanced features of PHP and interaction with forms.
3.	Understanding of database access in PHP.



Suggested References:	
Sr. No.	References
1.	Essential PHP Tools Modules, extensions and Accelerators–David Sklar–APRESS (SPD), 2008.
2.	PHP advanced for the World Wide Web – Larry Edward Ullman – peachpit press, 2002.
3	Advance PHP for Web professionals – Christopher Cosentino – Pearson education, 2000.
4	Expert PHP 5 Tools – Dirk Merkel – PACKT(SP), 2010.
5	Learning PHP 5 – David Sklar –O'Reilly (SPD), 2004.
6	Beginning PHP 5.1 For Begginers – Iyan Byross, Sharanam Shah- The Team (SPD). 2010.

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**Bachelor of Science (Computer Science)**  
**B.Sc. (CS) Semester-VI**

Course Code	<b>US06MACSC03</b>	Title of the Course	<b>Practical</b>
Total Credits of the Course	4	Hours per Week	08

Course Objectives:	<ol style="list-style-type: none"><li>1. To learn the fundamentals of the Python Programming Language.</li><li>2. To learn PHP web developments scripting language.</li></ol>
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Course Content		
Part	Description	Weightage (%)
I	Practical based on US06MACSC01	50%
II	Practical based on US06MACSC02	50%

Teaching-Learning Methodology	Hands on training through ICT tools.
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Evaluation Pattern		
Sr. No.	Details of the Evaluation	Weightage
1.	Internal Examination	50%
2.	University Examination	50%

Course Outcomes: After completing this course, the learner will be able to gain	
1.	knowledge of Python Programming Language.
2.	knowledge of PHP web development scripting language.

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**Bachelor of Science (Computer Science)**  
**B.Sc. (CS) Semester VI**

Course Code	<b>US06MICSC01</b>	Title of the Course	<b>Advanced Web Development Technology using ASP.NET</b>
Total Credits of the Course	2	Hours per Week	2

Course Objectives:	3. To acquire the knowledge about Server Side Web Development Technology. 4. To understand how to design customized Web Applications using ASP.NET.
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Course Content

Unit	Description	Weightage* (%)
1.	<b>Introduction to ASP.NET and its Controls</b> <ul style="list-style-type: none"><li>- Introduction to .NET framework and Visual Studio IDE</li><li>- Introduction to ASP.NET with its features</li><li>- ASP.NET page processing life cycle with its events</li><li>- Concept of Postback and Roundtrip</li><li>- ASP.NET files and directory types</li><li>- Coding Model</li><li>- Object Oriented Concepts: Working with C# as ASP.NET backend language</li><li>- Web Server Controls</li><li>- Validation Controls</li><li>- Navigation Controls</li><li>- Concept of Master Page and Themes</li></ul>	50%
2.	<b>State Management, Database Access Mechanism and Exception Handling</b> <ul style="list-style-type: none"><li>- ASP.NET State Management<ul style="list-style-type: none"><li>• Client-side techniques (View state, query string, cookies)</li><li>• Serve-side techniques (Session)</li></ul></li><li>- ADO .NET architecture</li><li>- Database Access using ADO.NET</li><li>- Data Binding using: GridView, DropDownList, FormView controls</li><li>- Exception handling:<ul style="list-style-type: none"><li>• Structured exception</li><li>• Unstructured exception</li><li>• Page level exception</li><li>• Application level exception</li></ul></li></ul>	50%



Teaching-Learning Methodology	Blended learning approach incorporating both traditional class-room teaching as well as usage of ICT tools.
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Evaluation Pattern		
Sr.No.	Details of the Evaluation	Weightage
1.	Internal Examination	50%
2.	University Examination	50%

Course Outcomes: Having completed this course, the learner will be able to develop	
1.	Knowledge about the Server Side Web Technology.
2.	Customized Web applications using ASP.NET.
3.	Understanding of database management using ASP.NET.

Suggested References:	
Sr. No.	References
1.	ASP.NET 4.0 Covers C# 2010 & VB 2010 codes BLACK BOOK, DreamtechPress. 2010.
2.	Programming in C#, E Balagurusamy, TataMcGraw-Hill, 2017.
3.	The Complete Reference C# 4.0, Herbert Schildt, Tata McGraw Hill, Edition, 2010 (Third Reprint 2011).
On-line resources to be used if available as reference material	
On-line Resources	
3.	<a href="https://www.tutorialspoint.com/">https://www.tutorialspoint.com/</a>
4.	<a href="https://www.w3schools.com/">https://www.w3schools.com/</a>

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**Bachelor of Science (Computer  
Science) B.Sc. (CS) Semester-VI**

Course Code	<b>US06MICSC02</b>	Title of the Course	<b>Practical</b>
Total Credits of the Course	2	Hours per Week	04

Course Objectives:	1. To implement dynamic Websites using ASP.NET
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Course Content		
Part	Description	Weightage (%)
I	Practical based on US06MICSC01	100%

Teaching-Learning Methodology	Hands on training through required ICT tools.
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Evaluation Pattern		
Sr. No.	Details of the Evaluation	Weightage
1.	Internal Examination	50%
2.	University Examination	50%

Course Outcomes: After completing this course, the learner will be able to	
1.	develop and manage customized Web Application.