

## Skill Enhancement Courses (SEC) Courses

**Note: Besides the Semester-Wise Skill Enhancement Courses (SEC) Suggested List below, more value-based courses can be added by respective colleges**

Semester 1	Semester 2
IT Tools Laboratory	Operating Systems Laboratory
Programming in Scratch	Programming with Python
Digital Photography	HTML & CSS
Open Source Software	PHP Programming

COURSE CODE : SEC -				
Total marks : 50		Total credits : 02		
IT TOOLS LABORATORY				
Course objectives : To familiarize and learn use of various types of IT tools				
Unit		Topic		
#	Title	#	Content	Learning Objectives
I	PC Setup	A	PC Components Identification	To identify the different components of a PC
		B	PC Assembling	To study about the different peripherals connected to a PC
		C	BIOS Setup	To configure the BIOS setup for a standard PC
		D	PC Fault Troubleshooting	To learn to troubleshoot a PC
		E	PC Configuration	To learn to record and state configuration of a PC
II	Office Productivity tools	A	Word Processor	To learn the different features of a word processor
		B	Spreadsheet	To learn the different features of a spread sheet
		C	Presentation maker	To learn to use a presentation maker software
		D	Picture Manager	To learn simple image editing utilities
III	Learning Management System	A	<b>Basic Setup</b> <ul style="list-style-type: none"><li>• Installation of wampServer</li><li>• Installation of Moodle LMS</li><li>• Managing user accounts</li><li>• Managing course settings</li></ul>	To learn the basic setup and customization of an LMS

			<ul style="list-style-type: none"> <li>• Logging in</li> <li>• Customizing your profile</li> <li>• Customizing course settings</li> <li>• Editing the header block</li> </ul> Posting a course syllabus & Lecture Slides	
		B	<b>Working with Resources</b> <ul style="list-style-type: none"> <li>• Creating a text label</li> <li>• Linking to a web site</li> <li>• Creating a text page</li> <li>• Creating a web page</li> <li>• Linking to folder of documents</li> </ul> <b>Working with Media</b> <ul style="list-style-type: none"> <li>• Posting image files</li> <li>• Posting a photo gallery</li> <li>• Posting audio</li> </ul> Posting video files	To learn to use the resources and other media in a LMS
		C	<b>Adding Activities</b> <ul style="list-style-type: none"> <li>• Creating Assignments</li> <li>• Creating a forum</li> <li>• Creating a wiki</li> <li>• Creating Quiz</li> </ul>	To learn to create different activities and exercises
		D	<b>Administration</b> <ul style="list-style-type: none"> <li>• User Accounts (Student, Teacher, Course Creator, Administrator)</li> <li>• Editing,</li> <li>• Settings</li> </ul>	To learn to configure and customize users, roles and associated settings
IV	Internet Applications	A	Using Web Browsers	To know how to configure a web browser
		B	Search Engines	To learn to use search engines by defining search criteria
		C	E-Mail	To learn to setup an e-mail account and send and receive e-mails
		D	Blogs	To learn to subscribe and post on a blog
		E	Torrents	To learn to use torrents for accelerated downloads

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**Programming in Scratch**

Unit		Topic		
#	Title	#	Content	Learning Objectives
I	UNIT 1		Moving blocks, creating scripts, and repeating blocks	
II	UNIT 2		Drawing with a computer	
III	UNIT 3		Tempo, variables, and the hat block	
IV	UNIT 4		Coordinates and conditionals	
V	UNIT 5		Drawing with iteration	
VI	UNIT 6		Broadcast and random numbers	
VII	UNIT 7		Updating variables in repeats, iterative development, and the ask and join blocks	
VIII	UNIT 8		Scratch tools, gravity, and mazes	
IX	UNIT 9		Building your own blocks	
X	UNIT 10		Strategies for games	

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Digital Photography				
Unit		Topic		
#	Title	#	Content	Learning Objectives
I	UNIT 1		Introduction to Digital Photography	To learn and understand digital photography basics including the color palette and camera basics
II	UNIT 2		Photography basics including tools and palette	

III	UNIT 3		Factors to consider in a digital camera	
IV	UNIT 4		Photography vocabulary: aperture, shutter speed, ISO	
V	UNIT 5		Camera Metering & Camera Modes, Lenses and Optics	To understand the different camera modes its lenses and optics
VI	UNIT 6		Composition and Learning	To learn and understand how to See Ways to get images with strong composition
VII	UNIT 7		Learning the Photoshop and Lightroom workspace Toolbar and Option Bar Image Adjustments, Image Extensions Saving and sizing image	Basic understanding of photoshop and its toolbar
VIII	UNIT 8		Lighting Techniques Natural vs. Artificial Lighting	Basic understanding of lighting techniques for indoor and outdoor shoots including natural and artificial lighting. Improving and developing the skill through various photo shoots as assignments and critically analyzing with the peers and experts.
IX	UNIT 9		Critiquing, analyzing and evaluating photography	
X	UNIT 10		Explore work by photographers	

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Open Source Software				
Unit		Topic		
#	Title	#	Content	Learning Objectives
I	UNIT 1		The philosophy of OSS, commercial software vs OSS, free software vs freeware.	

II	UNIT 2		The Linux operating system, GPL, LGPL and other licenses	
III	UNIT 3		Categories of OSS Application Softwares	
IV	UNIT 4		Study of Commercial Application software vs OSS,	
V	UNIT 5		Open Office, GAMBAS, GIMP etc.	

**References :**

Understanding Open Source and Free Software Licensing – O'Reilly Media, 2011

**Practicals :**

- Find out various Open source software for the concepts studied by you till now.
- Install the software like Open office, MySQL etc. and perform comparative study of their salient features
- Use GIMP for Image Editing
- Use GAMBAS for creating Admission Forms
- Use GAMBAS for creating Exam Marksheet

COURSE CODE : SEC				
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OPERATING SYSTEMS LABORATORY				
Course objectives :To learn the setup, functioning and structure of desktop and advanced operating systems				
Unit		Topic		
#	Title	#	Content	Learning Objectives
I	Installation and configuration of Operating System	A	Disk Partitioning	To learn disk preparation before installation
		B	Operating System Installation	To learn to install an Operating System
II	Desktop based GUI Operating Systems	A	Desktop	To learn to configure and customize the desktop
		B	Directory Explorer	To learn to navigate the file system using explore
		C	Control Center	To learn to configure the operating system through the control panel
		D	Command Prompt Basic file and directory commands	To learn basic Commands
		E	Shell Programming	To learn to create shell scripts for common routine tasks

			Applications Installation	To learn to install an application
III	Web Based Operating System	A	Introduction	To learn the concept of an online OS
		B	Features	To learn the features of the online OS
		C	Configuration	To learn to configure and customize the operating system
		D	Resources	To learn to use the resources available
		E	File System	To learn file formats and directory structure
IV	Network Configuration	A	TCP/IP Configuration	To study network connectivity by configuring TCP/IP

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**Programming with Python**

Unit		Topic		
#	Title	#	Content	Learning Objectives
I	Overview of Programming	A B	Structure of a Python Program, Elements of Python	To learn the basic programming constructs by implementing them in a programming language
II	Introduction to Python	A B C D E F	Python Interpreter, Using Python as calculator, Python shell, Indentation. Atoms, Identifiers and keywords, Literals, Strings, Operators(Arithmetic operator, Relational operator, Logical or Boolean operator, Assignment, Operator, Ternary operator, Bit wise operator, Increment or Decrement operator)	To learn the programming specific data types and their usage, use of different operators, declare variables
III	Creating Python Programs		:Input and Output Statements, Control statements(Branching, Looping, Conditional Statement, , nested conditions, Difference between break, continue and pass.), Defining Functions, default arguments, iteration	To learn and understand the use of if/else and switch statements, the different looping structures and to combine decision and looping structures, use of functions, recursion and iteration

			and Recursion, Strings and lists	
IV	OO programming, Data Structures overview		Introduction to Classes, Objects and Methods, Arrays, list, set, stacks, queues	To implement classes, arrays, stacks and queues
V	Sorting and searching techniques		Linear and Binary Search, Bubble, Selection and Insertion sorting	To implement the different sorting and searching techniques

COURSE CODE : SEC				
Total marks : 50		Total credits : 04		
HTML & CSS				
Unit		Topic		
#	Title	#	Content	Learning Objectives
I	Web Designing Principles	A	<ul style="list-style-type: none"><li>• Introduction</li><li>• Why need of website designing</li><li>• Golden Rule of web Designing</li><li>• Page Design</li><li>• Home Page layout</li><li>• Design Concepts</li></ul>	Understand the importance of the web as a medium of communication. Understand the principles of creating an effective web page, including an in-depth consideration of information architecture.
II	Basic of Web Design	A	<ul style="list-style-type: none"><li>• Meaning of www</li><li>• www Standards</li><li>• W3C</li></ul>	
III	Introduction to HTML	A	<ul style="list-style-type: none"><li>• Web Servers</li><li>• Web Clients</li><li>• HTML TAGS</li><li>• Paired Tags</li><li>• Singular Tags</li></ul>	
		B	<ul style="list-style-type: none"><li>• Structure of HTML</li><li>• Text Formatting</li><li>• Heading Style</li><li>• Text Style</li><li>• text Effects</li></ul>	
IV	Graphics in HTML	A	<ul style="list-style-type: none"><li>• Border attribute</li><li>• Width &amp; Height</li><li>• Align</li><li>• DIV Tags</li></ul>	

V	Tables & linking Documents	A	<ul style="list-style-type: none"> <li>• Table tags</li> <li>• Cell padding &amp; spacing</li> <li>• Colspan &amp; rowspan</li> <li>• External and Internal Links</li> <li>• Hyper Linking</li> <li>• Images ad Linking</li> </ul>	
VI	CSS	A	<ul style="list-style-type: none"> <li>• Concepts of css</li> <li>• Creating Stylesheets</li> <li>• Css Property &amp; Stying</li> <li>• Id and class</li> <li>• Box Model</li> <li>• CSS Advanced(Groupin g, Dimension, Display,</li> <li>• Positioning, Floating, Align,Pseudo class, Navigation Bar,</li> <li>• Image Sprites, Attribute sector)</li> <li>• CSS Color</li> </ul>	

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PHP Programming				
Unit		Topic		
#	Title	#	Content	Learning Objectives
I	UNIT 1		Design and write PHP programs- To learn Basic PHP syntax, structure and coding techniques, variables, constants, expressions and operators	
II	UNIT 2		Use of arrays, string, numbers, built-in functions	



			and global variables	
III	UNIT 3		Use PHP to send email, upload files dynamically	
IV	UNIT 4		MySQL Database- setup, connection, insert, update, delete, display records	

**References :**

1. Steven Holzner, "PHP: The Complete Reference Paperback", McGraw Hill Education (India), 2007.
2. Timothy Boronczyk, Martin E. Psinas, "PHP and MYSQL (Create-Modify-Reuse)", Wiley India Private Limited, 2008.
3. Robin Nixon, "Learning PHP, MySQL, JavaScript, CSS & HTML5", 3rd Edition Paperback, O'reilly, 2014.
4. Luke Welling, Laura Thompson, "PHP and MySQL Web Development", 4th Edition, Addition Paperback, Addison-Wesley Professional, 2008.
5. David Sklar, Adam Trachtenberg, "PHP Cookbook: Solutions & Examples for PHP Programmers", 2014.