Course Curriculum

for

Online Training

Developed by Training & Development wing, BCC

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Bangladesh Computer Council

BCC

ICT Tower, Agargaon, Sher-e-Bangla Nagar, Dhaka

Online Training Course list:

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Scratch Programming Course Outline (15 Classes, 30 Hours)

Course Name	Scratch Programming
Objective:	After completing this course, participants will be able to ▪ Gain a clear understanding of Scratch's interface, tools, and features. ▪ Learn how to create interactive animations, games, and projects using Scratch. ▪ Understand the core concepts of programming, such as loops, events, operators, variables, and sensing. ▪ Develop problem-solving and computational thinking skills through hands-on projects. ▪ Gain exposure to Scratch extensions like text-to-speech and video sensing, encouraging exploration of real-world applications. ▪ Work on individual and group projects to enhance collaboration and communication skills.
Minimum Pre-Requisite:	Class III to Class VIII
Class Mode	Online
Used Tools	Internet
Course Duration	30 Hrs..
Total Class	15 days (2 Hours per day).
Course Fee	1500 TK.
Target Group	School-going students.

Course Overview:	▪ **Introduction with Scratch:** Scratch website, Scratch Editor, Navigate, Language (Bangla, English), Scratch Sprite & Background, Making Artwork, Project saving (Offline), Scratch Account. ▪ **Scratch Code:** Understanding Scratch Code Categories, Exploring Motion blocks, Looks blocks, Control blocks and Sound blocks. ▪ **Move, Animation &Scratch Studio:** How to make a sprite move, Looks blocks for conversation animation, Introduction with Scratch Studio, How to make a multi sprite conversation animation. ▪ **Sensing blocks:** Make your own aquarium/fish tank, how to control a sprite using keyboard buttons, Exploring Operators and variables. ▪ **Game Project:** Students learn how to create, organize, and analyze information and develop the game. ▪ **Scratch Extensions:** Text to speech, Video sensing, Translate, Micro: bit.

Class No.	Class Duration	Topics Covered	Details
Class 1	2 hours	Introduction to Scratch	- Overview of Scratch and its importance. - Navigating the Scratch interface. - Creating a Scratch account. - Saving and managing projects.
Class 2	2 hours	Understanding Scratch Blocks & Animations	- Introduction to Motion, Looks, Sound, and Control blocks. - Creating sprite animations using costumes. - Project: Dancing animation.
Class 3	2 hours	Interactive Storytelling (Single & Multiple Sprites)	- Using Looks and Events blocks for story telling. - Making a multi-sprite conversation animation. - Project: Interactive dialogue-based animation.
Class 4	2 hours	User Input & Keyboard Controls	- Exploring Sensing blocks. - Controlling a sprite using keyboard inputs. - Project: Moving a sprite using arrow keys.
Class 5	2 hours	Game Development Basics	- Introduction to game mechanics. - Using loops for continuous motion. - Project: Cat and Mouse Chase game.
Class 6	2 hours	Variables, Operators & Game Scoring	- Creating and using variables in Scratch. - Implementing points, scores, and levels. - Project: Fruit Collector game.
Class 7	2 hours	Sound Integration & Scratch Extensions	- Use sound blocks for background music and effects. - Exploring Text-to-Speech, Translate, and Micro: bit extensions. - Project: Music-based interactive story.

Class 8	2 hours	Building an Interactive Game	- Designing mazes and creating collision detection. - Using keyboard controls for movement. - Project: Maze Escape game.
Class 9	2 hours	Advanced Motion, Physics & Cloning	- Simulating gravity and jumping mechanics. - Creating multiple sprites using clones. - Project: Platformer Jumping game.
Class 10	2 hours	Sensing, Decision Making & AI in Scratch	- Using If-Else conditions for smart decision making. - Implementing AI-based sprite behaviors. - Project: Rock-Paper-Scissors game.
Class 11	2 hours	Video Sensing & Webcam Integration	- Using the camera to control sprites. - Hands-on: Motion-based game project.
Class 12	2 hours	Debugging & Problem Solving	- Identifying and fixing errors in Scratch code. - Debugging strategies for animations and games.
Class 13	2 hours	Group Project Development	- Planning and designing a Scratch project as a team. - Implementing storytelling, game mechanics, or simulations.
Class 14	2 hours	Individual Project Development	- Selecting individual project ideas. - Writing Scratch code for animations, interactions, and game mechanics.
Class 15	2 hours	Final Project Showcase & Course Wrap-up	- Presenting projects and explaining logic. - Peer feedback and instructor evaluation. - Discussion on further learning and Scratch certifications.

Name of Course:	**Training Program on Python Programming**
Objective:	After completing this course, participants will be able to • Write and understand Python code effectively; ▪ Gain the ability to manipulate and automate tasks involving Excel and multiple file operations; ▪ use NumPy and Pandas for data processing and analysis; ▪ Create clear and informative visualizations using Matplotlib.
Minimum Pre-Requisite:	Class VIII to XII
Class Mode	Online
Used Tools	Python compiler (interpreter), PyCharm
Course Duration	50 Hrs..
Total Class	25 days (2 Hours per day)
Course Fee	3500 TK.
Target Group	School-College going students.

Course Overview:	▪ Python Overview, Data types and Collections ▪ Functions, Modules & Packages ▪ Object-oriented programming ▪ Managing Exceptions and Files ▪ Accessing Relational Databases with Python ▪ Data Analysis ▪ Python Frameworks ▪ Final Project and Review

Modules & Hours	Details of the Course outline:
Module 1: Python Overview, Data Types and Collections (04 Hrs.)	▪ Enter statements into the Python Console ▪ Define an object and a type, assign objects to variables, employ arithmetic operators, use string operations and methods, Index and slice strings, make decisions using the if statement ▪ Learn about lists, tuples, dictionaries and sets, Create and modify list operators and methods, Index and slice lists and tuples, Create and process dictionaries using functions and methods, perform set arithmetic, Test for membership in a collection, Iterate using for and while loops, Apply list comprehensions
Module 2: Functions, Modules & Packages (06 hrs.)	▪ Create functions, call functions using positional and keyword argument passing, handle unlimited numbers of keyword or positional arguments, return values from functions, know the 4 levels of scope, create and call lambda functions ▪ Import additional modules, Access attributes from another namespace, Inspect the current namespace, Test the name attributes, Access modules from the standard library, Navigate package contents.
Module 3: Object-Oriented Programming (06 Hrs.)	Define classes, add attributes using the constructor method, add additional methods to objects, Access class attributes, Leverage inheritance
Module 4: Managing Exceptions and Files (02Hrs.)	Handle exceptions raised by Python, raise exceptions, Open, close, read and write to files, iterate through a file, leverage the context manager to open and close files, define the 3 standard streams.
Module 5: Accessing Relational Databases (4 Hrs.)	Describe a relational database, Describe the steps to access a database from a Python program, create a database connection, Interact with the database through a cursor, Execute SQL statements using a cursor
Module 6: Data Analysis (10Hrs.)	Data Analysis using NumPy, Pandas, Matplotlib
Module 7: Python Frameworks (12 Hrs.)	Web development using Django Frameworks
Module 8: Final Project and Review (06 Hrs.)	Developing a Capstone Project Integrating All Concepts

Training Program on C Programming Course Outline (25 Classes, 50 Hours)

Name of Course:	**Training Program on C Programming**
Objective:	After completing this course participants will be able to: • Develop a strong foundation in programming concepts and logic development. • Develop problem-solving skills through algorithmic thinking. • Understanding low-level system operations and memory management. • Serve as a stepping stone for learning more advanced languages. • Contribute to the growth of the software development industry. • Prepare individuals for roles in embedded systems and IoT development.
Minimum Pre-Requisite:	HSC/Equivalent
Class Mode	Online
Used Tools	Internet
Course Duration	50 Hrs.
Total Class	25 days (2 Hours per day).
Course Fee	3500 TK.
Target Group	Government sector and Private sector

Course Overview	• C Programming Overview • Data type • Decision-making • Array • String • Pointer & Abstract data structures • Function • Final Project and Review

Modules & Hours

Class	Hours	Details of the Course outline
Class 1-2	4 Hrs.	**C Overview**: Language overview: Facts about C, what is C program? Why to use C? C environment Setup: Text Editor, The C compiler, Installation on Windows/Mac/Linux Basic Syntax: Tokens in C, Semicolons, Comments, Identifiers, Keywords White space in C, C Program Structure (Example)
Class 3-5	6 Hrs.	**Data Types**: Data Types: Integer, Floating type, Variables, Declaration, Initialization, Memory Size, Categories, Lookups, Typedef, I/O Functions, Header File, Constant and Literals Integer Operators: Arithmetic, Logical, Miscellaneous Operators.
Class 6-8	6 Hrs.	**Decision Making**: Decision Making: If if…, Else, Nested if …Else, Switch, Loops: While loop, for loop, do…while, Nested Loops, Break, continue
Class 9-11	6 Hrs.	**Array**: Array: Declaration arrays, Index of array, Initialization, accessing array elements, two dimensional arrays, initializing two dimensional arrays, accessing two-dimensional array, passing arrays as function arguments.
Class 12-14	6 Hrs.	**String**: String: Copying Strings, Concatenation strings, comparing strings, searching strings.
Class 15-18	8 Hrs.	**Pointer & Abstract data structures**: Pointer: What are pointers? How to use pointers, Null pointers, Pointer Arithmetic, incrementing a Pointer, Decrementing a Pointer, Pointer comparison Abstract data structures include: arrays, linked lists, stacks, queues, trees, and graphs.
Class 19-22	8 Hrs.	**Function**: Function: Defining a function (with example), Function Declaration, Calling a function, Function Arguments, Function call by value, Function call by reference.
Class 23-25	6 Hrs.	**Final Project and Review**: Developing a Capstone Project Integrating All Concepts

Course Name	Training Program on Digital Marketing
Objective	After completing this course participants will be able to- • Achieve knowledge on search engine optimization, email marketing, web designing, pay-per-click advertising, e-commerce and social media marketing those contents are available in this course. • Plan, launch, and manage successful digital marketing initiatives. • Learn how to construct complete digital marketing plans that are suited to specific business goals. • Gain practical experience through case studies, projects, and tools utilized by industry professionals.
Minimum Pre-Requisite	SSC/Equivalent
Used Tools	Internet
Course Duration	80 Hrs.
Total Class	40 days (2 Hours per day)
Course Fee	5000/- Tk.
Target Group	Government sector and Private sector

Course Overview	• Introduction to Digital Marketing • Search Engine Optimization (SEO) - Keyword part • WordPress Site Build • Search Engine Optimization (SEO) Content, On Page & off Page • Technical SEO • Analytics & Search Console • Off Page Optimization: • What is a Blog? • Top 50 social bookmarking sites • What is web 2.0? • What is Forum? • All About YouTube • Social Media Platform Marketing • Introduction to Instagram • Introduction to Twitter • Pinterest BUSINESS • Introduction to LinkedIn • Introduction to Email Marketing • Mobile Marketing • Google My Business Page (GMB) • Freelancing

Modules & Hours	Detailed Course outline
Introduction to Digital Marketing (18 Hrs.)	**Introduction to Digital Marketing** Traditional Vs. Digital Marketing, Types of Digital Marketing **Search Engine Optimization (SEO) - Keyword part** Keyword: Keyword Research, Keyword: Basic Keyword Analysis, Google PPC Ads Campaign, A-z PPC Ads Campaign, Competitor: Competitor Research, Competitor Research, Analysis **WordPress Site Build** Domain: Find Niche based premium & expired Domain, Hosting: How to select Secured Hosting? WP: One Click WP installation Soft callous, WP: WP Dashboard Details explanation, Page: Mandatory Page setup for Client site. Plugin: Mandatory Plugin setup for smart solution, Menu: Customize Menu, Page etc. Index: Requesting Search Engine for Index. **Search Engine Optimization (SEO) Content, On Page & off Page Content:** Content Writing, **On page optimization:** Meta title, Permalink, Meta description, Image alt tags, Keyword Prominence, Keyword stuffing and Keyword density. **Technical SEO** E-Commerce Management: Product SEO, Category SEO, Product Inventory Management, Category Inventory Management.
Ad Relevance Optimization Technique, Placement Optimization, Ad set Optimization, Age Group Based optimization. (20Hrs.)	**Analytics & Search Console** The Ultimate Technical SEO Checklist, Analytics & Search Console: Practical discussion on Google Analytics, Practical discussion on Google Search Console, Website audit, how to perform a website audit? **Off Page Optimization:** What are Do follow and No follow links, DA, PA, Link juice, backlink, Roundup Link Building, Broken Backlinks, Resource Page Link building. **What is a Blog?** What is Blog commenting? How to find relevant blogs for blog commenting, what is social bookmarking, why Google likes social signals for a website **Top 50 social bookmarking sites** Profile optimization for social sites, Creating accounts in popular bookmarking sites Optimize all social profiles & start bookmarking. **What is web 2.0?** Importance of web 2.0 backlinks, Creating web 2.0 profile in a smarter way, Content writing for web 2.0 sites.

Modules & Hours	Detailed Course outline
	What is a Forum? How to find relevant forums? Creating Forum accounts in a smarter way, creating profile backlink, how to publish post in Forum sites, how to create backlinks from Forum sites.
YouTube, Social Media& Email-Marketing (30 Hrs.)	**All About YouTube** Introduction to You tube: YouTube Channel Creation & Optimization, YouTube Marketing, YouTube Ads Campaign A-Z, Tips to Create Great Contents and Videos, you tube Tips: Quick and Effective Tips for Video Optimization, YouTube Keyword: Keyword Research for Channel, You tube Competitor: YouTube Competitor Analysis, Niche Details: Top Niche Ideas for YouTube Marketing, Dashboard Tour: YouTube Editor Dashboard details, Earn with YouTube: YouTube Monetization **Social Media Platform Marketing** Introduction to Facebook, Facebook Page Setup, Facebook Ads, Facebook Ads Campaign Setup, Facebook Ads Location Targeting, Facebook Ads Placement targeting, Facebook Ads Lead Generation, Review. **Introduction to Instagram** Instagram Profile & Business Profile, Instagram Ads: Instagram Ads Campaign Setup, Instagram Ads Location Targeting, Instagram Ads Lead Generation, Review **Introduction to Twitter** Introduction to Twitter Marketing, Do's and Don'ts of Twitter Marketing, Power of Twitter Hashtags, Tools and Measurement, Twitter Ads – Content & Targeting, Twitter Marketing: Influencer Marketing, Targeted Audience Collect, Review, Increase followers **Pinterest BUSINESS** Introduction to Pinterest: Pinterest Pin, Pinterest Save, how to find Popular Pins, Reddit, how to set up a Pinterest account for your business, how to use Pinterest for business? Pinterest Board Creation (Public & Private), Details about Reddit Marketing & its opportunities. **Introduction to LinkedIn** LinkedIn Job Market: How to Use JOB Market, LinkedIn Marketing: Personal marketing, Brand Marketing, LinkedIn Ads, LinkedIn Campaigns, LinkedIn Business Page Creation, LinkedIn Business Page Setup, LinkedIn Business Page Promotion **Introduction to Email Marketing** What is Email Marketing? Evolution of email, Developments and advancements in E-mail Marketing, Mapping industry trends, how to capture leads from landing page/website? Setting up a campaign from scratch, Best Email Marketing tools, what is Email Automation? Creating an Email automation campaign

Modules & Hours	Detailed Course outline
	Mobile Marketing Introduction Mobile Marketing, Difference between mobile advertising and marketing utilizing mobile marketing for sales promotions, online applications, etc. SMS Marketing, WhatsApp Marketing, Telegram Marketing **GMB: Google My Business Page** GMB: Google My Business Page, Google Business Page creation, GMB: Google Business Page Verification, Submission Google Business Page in Google Map Google Map Post, Engagement, Marketing Automation: Knower & IFTTT Different Types of Passive income: Affiliate Marketing
Freelancing (12 Hrs.)	Freelancing: What is Freelancing? Who can become a freelancer? Market research Fiverr, Account Creation on Fiverr, Necessary SEO setup on your gig and marketing

মোঃ গোলাম রববানী
ম্যানেজার (সিস্টেমস), বিসিসি
ও সদস্য সচিব

মোহাঃ জেনারুল ইসলাম
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ও সদস্য

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সহকারী প্রোগ্রামার, বিসিসি
ও সদস্য

খালেদা বেগম
প্রশিক্ষণ সমন্বায়ক এবং শাখা প্রধান, বিআইটিএম, বেসিস
ও সদস্য

মোঃ হোসেন বিন আমিন
ম্যানেজার (অপারেশন), বিসিসি
ও সদস্য

শেখ মফিজুর রহমান, ম্যানেজার
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ও সদস্য

ড. আহমেদুল কবীর
সহযোগী অধ্যাপক, তথ্য প্রযুক্তি ইউনিট
ঢাকা বিশ্ববিদ্যালয়
ও সদস্য

মোঃ জফুরুল আলম খান
পরিচালক (প্রশিক্ষণ ও উন্নয়ন), বিসিসি
ও সভাপতি
বিসিসি কর্তৃক পরিচালিত বিভিন্ন আইসিটি প্রশিক্ষণ কোর্সের কারিকুলাম উন্নয়ন ও হাল-নাগাদ করার নিমিত্তে গঠিত কমিটি