CATALYST COLLEGE

An Unit of Vijayam Educational Trust, A Registered Non-Profit Charitable Trust

Affiliated to Patliputra University, Patna

Curriculum of Certificate Course in
Intensive Customer Service Training

Curriculum of Certificate Course in
Intensive Customer Service Training

Overviews:

The main objectives of customer service training are to improve customer satisfaction and build customer loyalty. Customer Service training can help employee improve a company's brand reputation and lead to positive word-of-mouth marketing.

Other objectives of customer service training include: Aligning support goals with business priorities, Delivering swift resolutions, Acquiring new customers, Reducing employee turnover, and Increasing sales.

This workshop will help students sharpening their skills in providing good Customer service and handling customers over the counter or over the phone call. It will also improve their Marketing and Selling Skills.

After successful completion of the course, the students will be able to :

- Improve customer satisfaction

Customer service training helps employees handle a variety of customer service scenarios, which can lead to higher customer satisfaction.

- Build customer loyalty

When customers are satisfied with a product or service, they are more likely to trust the brand, make repeat purchases, and recommend the company to others.

- Increase employee morale and job satisfaction

Customer service training can help employees feel more confident in their ability to handle customer inquiries and complaints. This can lead to increased job satisfaction and retention.

- Improve productivity

Customer service training can lead to increased productivity by improving employee motivation and morale.

- Improve brand reputation

Course Code : **CC/VAC/ICST**   Courses Duration : **60 Hours/Classes**

Eligibility for Admission
- Candidates who are studying BCA/B.Sc.IT/BBM course in the college
Duration
- 60 Hours/Class with Theory & Practical

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Structure of Syllabus of Intensive Customer Service Training

Sl. No.	Paper Topics	Duration	Remarks	Credit Point / Marks
1	**Introduction to Customer Service** - About Diploma in Customer Service, CSD Department, Customer, service, consumer, customer needs, customer service, agenda of customer, Principals of customer needs, Meeting or Exceeding the customer's expectations, Customer Satisfaction, Making Customers loyal to you, etc.	10 Hours	8 Hour Theory + 2 Hour Discussion / Activity	20 Marks
2	**Marketing & Selling** – selling, marketing, sales call, market, product, service, quality, value, marketing concept, Business factor, marketing deals, quality of sales, rule of selling, etc.	10 Hours	8 Hour Theory + 2 Hour Discussion / Activity	20 Marks
3	**Telephone Etiquette** – Etiquette, before, between and end of the call handling, Difficult customers, Five Forbidden Phrases, etc.	12 Hours	8 Hour Theory + 4 Hour Discussion / Activity	20 Marks
4	**Introduction to Call Centre / BPO / KPO Industry** – call centre and its types, Floor manager, CCE/CCR, TL/Sup, etc.	8 Hours	6 Hour Theory + 2 Hour Discussion / Activity	15 Marks
5	**Customer Relationship Management (CRM)** – Advantages, Phases, Acquisition, Enhancement, Pruning, Retention, Area of CRM, Service, sales, etc.	10 Hours	6 Hour Theory + 2 Hour Discussion / Activity	15 Marks
6	**Computer Telephone Integration (CTI)** – Computer Telephone Integration, Caller Line Identifier, Voice response, Automatic call distributer & dialler, multiplexer, etc.	10 Hours	6 Hour Theory + 2 Hour Discussion / Activity	10 Marks
		60 Hours	42 Hours Theory + 14 Hours Discussion / Activity	100 Marks

Fee Structure:

- This ad-on course is offered free of cost to all the students for their skill development. The college does not charge any fees, either for doing the course, practical, examination or certification.
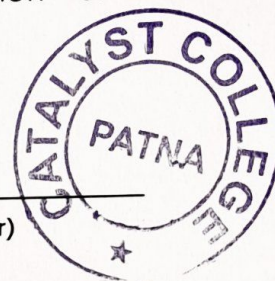
Deigned & Developed By:
The course is designed by Mr. Neeraj Kumar, approved by HoD and Board of Study (BOS) of Catalyst College, Patna.

Course Coordinator
- Mr. Nitish Kumar Rahotgi, Dept. of Management, Catalyst College, Patna.

References/Books/Links:
1. **Be Our Guest:** Perfecting the Art of Customer Service: By Theodore Kinni.
2. **The Effortless Experience:** Conquering the New Battleground for Customer Loyalty: By Matthew Dixon, Nick Toman, and Rick DeLisi.
3. **Be Your Customer's Hero:** Real-World Tips & Techniques for the Service Front Lines: By Adam Toporek
4. **You can Sell:** By Shiv Kheda.

Course Coordinator

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Curriculum of Certificate Course in (Micro Finance)

Curriculum of Certificate Course in Micro finance

Overviews:

The objective of studying microfinance is to understand the role of financial services in promoting economic empowerment, alleviating poverty, and fostering sustainable development, particularly for low-income individuals and communities. Microfinance focuses on providing small loans, savings, insurance, and other financial services to people who are typically excluded from the formal banking system due to lack of collateral, credit history, or geographical barriers.

Here are the following key objectives of studying microfinance:

1. To explore how microfinance services can provide financial access to marginalized and low-income individuals or communities.
2. Examining the Role of Microfinance in Economic Empowerment
3. To understand how microfinance empowers individuals, especially women, by giving them the resources to become financially independent and improve their social and economic status.
4. To study how microfinance addresses the financial exclusion of low-income groups who are unable to access traditional banking services due to lack of collateral, credit history, or other barriers.
5. To investigate how microfinance institutions (MFIs) balance the dual objectives of financial sustainability and social impact.
6. To explore the broader social impact of microfinance, such as improvements in education, healthcare, gender equality, and empowerment of marginalized groups.
7. To understand how microfinance fosters entrepreneurship by providing small loans or credit to start or grow businesses.
8. To critically assess the limitations and challenges faced by microfinance, including high-interest rates, over-indebtedness, and the risk of exploitation.
9. To learn about the legal, regulatory, and policy frameworks that govern microfinance activities and institutions in different countries.

Course Code : CC/VAC/MF   Courses Duration : 35 Hours/Classes

Eligibility for Admission
- Candidates who are studying BBA/BBM/MBA course in the college.

Duration
- 35 Hours/Class with Theory & Practical

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Structure of Syllabus Micro Finance

S. No.	Paper Topics	Duration	Remarks	Credit Point/Marks
1	Understanding Poverty Alleviation through Financial Inclusion	02 Hours	Theory	03 Marks
2	Examining the Role of Microfinance in Economic Empowerment	2 Hours	Theory	10 Marks
3	Studying Financial Inclusion and Access to Credit	02 Hours	Theory	10 Marks
4	Analyzing the Sustainability of Microfinance Institutions (MFIs)	03Hours	Theory	08 Marks
5	Impact of Microfinance on Social Development	04 Hours	Theory	10 Marks
6	Exploring Microfinance as a Tool for Entrepreneurial Development	04 Hours	Theory	10 Marks
7	Studying the Challenges and Limitations of Microfinance	04 Hours	Theory	10 Marks
8	Understanding the Regulatory and Policy Framework	02Hours	Theory	10 Marks
9	Learning about Innovations in Microfinance Models	03 Hours	Theory	05 Marks
10	Evaluating the Effectiveness of Microfinance Programs	02 Hours	Theory	06 Marks
11	Investigating Microfinance and Gender Equality	04 Hours	Theory	10 Marks
12	Promoting Sustainable Development and Social Impact	03 hour	Theory	08
	Total hours/Class	35 Hours	Total Credit Point	100 Marks

Fee Structure:

- This ad-on course is offered free of cost to all the students for their skill development. The college does not charge any fees, either for doing the course, practical, examination or certification.

Deigned & Developed By:

The course is designed by Nitish Rohatgi Dept. approved by HOD and Board of Study (BOS) of Catalyst College, Patna.

Course Co-Ordinator

- Mr. Nitish Rohatgi Dept. of IT, Catalyst College, Patna.

References/Books/Links:

1. ICAI Module

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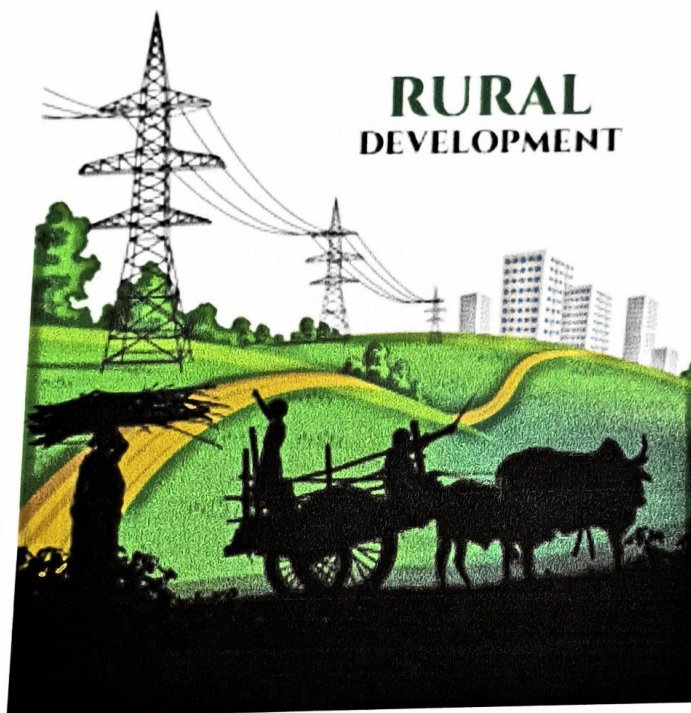Plot No.- C-16(P) Patliputra Industrial Area
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RURAL DEVELOPMENT

Curriculum of Certificate Course in
(Rural Development)

Curriculum of Certificate Course in
Rural Development

Overviews:

The course aims to provide students an introduction about the concepts and issues of rural development and to develop an understanding about the functions and management of agencies working for rural development. Course will also provide knowledge to the students about rural development Institutions and Non-governmental organizations working for rural development.
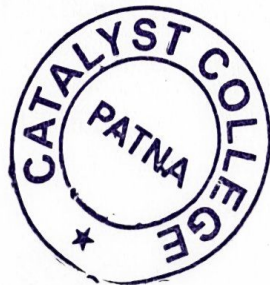
Course Code: **CC/VAC/RDA**   Courses Duration: **30 Hours/Classes**

Eligibility for Admission
- Candidates who are studying BBA /B.COM course in the college.

Duration
- 30 Hours/Class with theory

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Structure of Syllabus Rural Development (RD)

S. No.	Paper Topics	Duration	Remarks	Credit Point/Marks
1	Intoduction to Rural Area, Rural Society, Social Structure of rural area	02 Hours	02 Hours Each Class Only Theory	06 Marks
2	Rural Livelihood system, Agriculture and Non-Agriculture sector, Allied to agriculture activities	4Hours	02 Hours Each Class Theory	15 Marks
3	Rural Infrastructure Development- MNREGA, NRLM, NRHM, Fasal Bima etc	04 Hours	01 Hours Each Class Only Theory	05 Marks
4	Agencies for Rural Development- Disrict Rural Development Agencies	04 Hours	02 Hours Each Class Theory + Practical	06 Marks
5	Financial Instituions Involved in Rural Development- Regional Rural Bank, Cooperative Banks, PACS, LAMPS, Farmers service society	04 Hours	02 Hours Each Class Theory	08 Marks
6	Khadi and Village Industries Commission(KVIC), MSME	03 Hours	02 Hours Each Class Theory	08 Marks
7	Panchayati Raj Institutions- Gram Panchayat Instituion, Panchayat Samiti, Zila Parishad, Disaster Management	02 Hours	02 Hours Each Class Theory	14 Marks
8	Tribal Area Development, Various Schemes for Tribal Area, Vocational Training, Rights of Tribals in Forest Produce	02 Hours	02 Hours Each Class Theory	06 Marks
9	Case Studies related to rural development	01 Hours	01 Hours Each Class Only Theory	06 Marks
10	Non Governmental Organizations, Formation of NGO, Functions Of NGO	02 Hours	02 Hours Each Class Theory	12 Marks
11	Role of NGO in Rural Develoment, Skill Development and Training to rural people	02 Hours	02 Hours Each Class Theory	14 Marks
	Total hours/Class	**30 Hours**	**Total Credit Point /Marks**	**100 Marks**
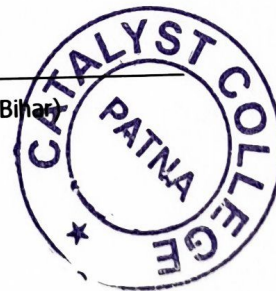
Fee Structure:

- This ad-on course is offered free of cost to all the students for their skill development. The college does not charge any fees, either for doing the course, practical, examination or certification.

Deigned & Developed By:

The course is designed by Mr. Sujeet Kumar Suman. approved by HoD and Board of Study (BOS) of Catalyst College, Patna.

Course Co-ordinator

- Mr. Nitish Kumar Rohatgi Dept. of Management, Catalyst College, Patna.

References/Books/Links:

1. "Rural Development in India" by Vasant Desai
2. "An Introduction to Rural Development- Theory and Practice" by Dr. Akhilesh Kumar
3. "Rural Marketing" by Pradeep Kashyap
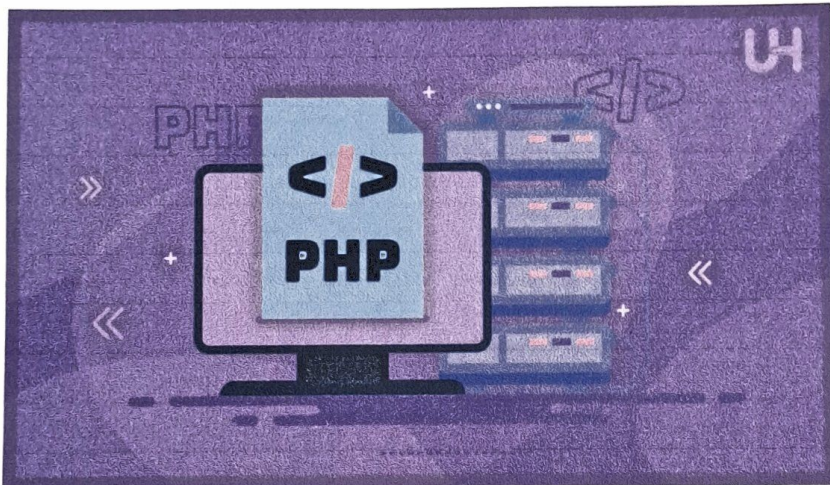4. "Rural Development Principles Policies and Management" by Katar Singh

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Course Coordinator

Curriculum of Certificate Course in (PHP/MYSQL)

Curriculum of Certificate Course in PHP/MYSQL

Overviews: PHP (Hypertext Preprocessor) is a:

1. Server-side scripting language
2. Open-source and free
3. Cross-platform (Windows, Linux, macOS)
4. Used for web development, especially for dynamic websites and web applications
Object-oriented programming (OOP)
5. Support for various databases (MySQL, PostgreSQL, MongoDB)
6. Extensive libraries and frameworks (Laravel, CodeIgniter, Symfony)
7. Integrated development environments (IDEs) like PHPStorm, NetBeans

Objectives:

1. Understand MySQL basics (data types, tables, queries)
2. Learn SQL commands (SELECT, INSERT, UPDATE, DELETE)
3. Master database design principles
4. Understand data modeling and normalization
5. Build simple MySQL databases
6. Learn advanced SQL concepts (joins, subqueries, indexing)
7. Understand database security and access control
8. Implement database backup and recovery techniques
9. Build dynamic MySQL databases (using PHP)

Course Code :   **CC/VAC/PHP**   Courses Duration : 45 Hours/Classes

Eligibility for Admission
- Candidates who are studying BCA course in the college.

Duration
- 45 Hours/Class with Theory + Practical

Structure of Syllabus PHP and MYSQL

Sl. No.	Paper Topics	Duration	Remarks	Credit Point/Marks
1	**PHP overview and software Installation**	02 Hours	02 Hours Each Class Theory + Practical	06 Marks
2	PHP syntax, variable, comments, datatype, Form (GET and POST method), PHP Operators	05 Hours	02 Hours Each Class Theory + Practical	15 Marks
3	Array and its type, Array Function, PHP Conditional Statements	04Hours	01 Hours Each Class Only Theory	05 Marks
4	PHP switch Statement, PHP Loops, PHP Functions, PHP Form Handling	04 Hours	02 Hours Each Class Theory + Practical	08 Marks
5	PHP Date and Time, PHP File Upload	04 Hours	02 Hours Each Class Theory + Practical	10 Marks
6	PHP Sessions, PHP Cookies,PHP OOPS	04 Hours	02 Hours Each Class Theory + Practical	10 Marks
7	MYSQL Overview, Create Database, create table , insert data	04 Hours	02 Hours Each Class Theory + Practical	10 Marks
8	Form creation, validation and store data in database	03 Hours	02 Hours Each Class Theory + Practical	06 Marks
9	Mini project (Admin Section)	06 Hours	01 Hours Each Class Only Theory	15 Marks
10	Mini project (User Section)	09 Hours	02 Hours Each Class Theory + Practical	15 Marks
	Total hours/Class	**45 Hours**	**Total Credit Point /Marks**	**100 Marks**

Fee Structure:

- This ad-on course is offered free of cost to all the students for their skill development. The college does not charge any fees, either for doing the course, practical, examination or certification.

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Deigned & Developed By:
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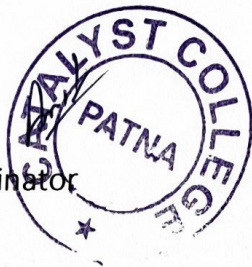
Course Co-ordinator
- Mr.Amit kumar Shukla Dept. of IT, Catalyst College, Patna.

References/Books/Links:
1. "PHP and MySQL Web Development" by Luke Welling and Laura Thomson
2. "PHP Cookbook" by David Sklar and Adam Trachtenberg
3. "Learning PHP, MySQL & JavaScript" by Robin Nixon
4. "PHP 7: From Beginner to Advanced" by Mohammad Munim5.

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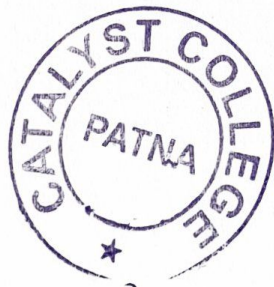Plot No.- C-16(P) Patliputra Industrial Area
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Curriculum of Certificate Course in
(Android Programming)

Curriculum of Certificate Course in Android Programming

Overviews:

Android Studio is open source and free of charge to all. Android releases source code to the Android Open Source Project (AOSP). The overview screen (also referred to as the recents screen, recent task list, or recent apps) is a system-level UI that lists recently accessed activities and tasks. The user can navigate through the list and select a task to resume, or the user can remove a task from the list by swiping it away. These skills can be used in a variety of industries and job roles, including Problem handling, Server management, and quick application generator.

Course Code: **CC/VAC/Android** Courses Duration: **30 Hours/Classes**

Eligibility for Admission
- Candidates who are studying BCA course in the college.

Duration
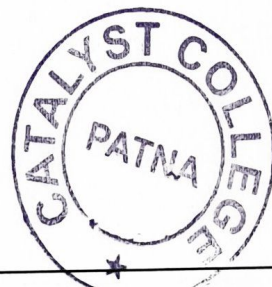- 30 Hours/Class with theory & practical

Structure of Syllabus Android Programming

S. No.	Paper Topics	Duration	Remarks	Credit Point/Marks
1	Fundamentals of Android OOPS Concept SQL Queries, Android Basics	2 Hours	Theory	06 Marks
2	PHP and HTML Basics Learning Java Classes and Objects, Encapsulation, Polymorphism Exception Handling	2 Hours	Theory + Practical	15 Marks
3	Android OS Activities and Intents User Input Controls Screen Navigation Recycler view	02 Hours	Theory+ Practical	05 Marks
4	Broadcast Receiver Notifications Transferring Data Efficiently	04 Hours	Theory + Practical	08 Marks
5	SQLite Data Types	03 Hours	Theory + Practical	10 Marks
6	Working with MySQL	03 Hours	Theory + Practical	10 Marks
7	Database Connectivity	02 Hours	Theory + Practical	15 Marks
8	Project Work-1	04 Hours	Theory + Practical	08 Marks
9	Project Work-2	04 Hours	Theory	08 Marks
10	Implementation of Project	04 Hours	Theory + Practical	15 Marks
	Total hours/Class	**30 Hours**	**Total Credit Point /Marks**	**100 Marks**

Fee Structure:

- This ad-on course is offered free of cost to all the students for their skill development. The college does not charge any fees, either for doing the course, practical, examination or certification.

Deigned & Developed By:

The course is designed by Mr. Amit Kumar Shukla, approved by HoD and Board of Study (BOS) of Catalyst College, Patna.

Course Co-ordinator

- Mr. Amit Kumar Shukla Dept. of IT, Catalyst College, Patna.

References/Books/Links:

1. Android Application Development with Java
2. https://www.geeksforgeeks.org/android-tutorial/
3. https://www.javatpoint.com/android-tutorial

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Flutter

Curriculum of Certificate Course in
(Flutter App Development)

Curriculum of Certificate Course in Flutter App Development

Overviews:

Flutter is an open-source framework that allows developers to build apps for multiple platforms using a single codebases. Flutter is a software development kit (SDK) that helps developers create native apps for iOS, Android, the web, Windows, MacOS, and Linux. Flutter provides a collection of UI building blocks, called widgets, and compiles the codebase into native machine code. Flutter can reduce the development cycle; make apps more user-friendly and streamline processes and increase efficiency accessible, save time on development. Flutter includes the Dart programming language, which is simple and effective. Ahead-of-Time (AOT) and Just-in-Time (JIT) compilation types, no need for XML files.
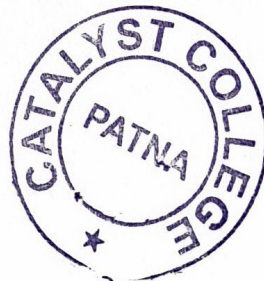
Course Code: CC/VAC/Flutter   Courses Duration: **30 Hours/Classes**

Eligibility for Admission
- Candidates who are studying BCA course in the college.

Duration
- 30 Hours/Class with theory & practical

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Structure of Syllabus Flutter App Development

S. No.	Paper Topics	Duration	Remarks	Credit Point/Marks
1	Introduction to Flutter Flutter Installation Installation in Windows	2 Hours	Theory+ Practical	06 Marks
2	Flutter Basics Widgets- Gestures- Concept of State-Layers Introduction to Dart Programming	2 Hours	Theory + Practical	15 Marks
3	Introduction to Layouts Type of Layout Widgets Introduction to Gestures	04 Hours	Theory+ Practical	05 Marks
4	Animation on Flutter Introduction to Animation Based Classes Introduction to Package	04 Hours	Theory + Practical	08 Marks
5	Develop a Flutter Plugin Package-Accessing Rest API- Basic Concepts-Accessing Product service API	03 Hours	Theory + Practical	10 Marks
6	Database Concepts	02 Hours	Theory + Practical	10 Marks
7	SQLite- Cloud Fire store- Internalization on Flutter- Using intl Package	03 Hours	Theory + Practical	15 Marks
8	Testing on Flutter- Types of Testing- Widget Testing- Steps Involved- Working Example-Deployment- Android	02 Hours	Theory + Practical	08 Marks
9	Application- IOS Application-Development Tools- Widget Sets- Flutter Development with Visual Studio Code- Dart DevTools- Flutter SDK	04 Hours	Theory+Practical	08 Marks
10	Implementation of Project	04 Hours	Theory + Practical	15 Marks
	Total hours/Class	30 Hours	Total Credit Point /Marks	100 Marks

Fee Structure:

- This ad-on course is offered free of cost to all the students for their skill development. The college does not charge any fees, either for doing the course, practical, examination or certification.

Deigned & Developed By:

The course is designed by Mr. Amit Kumar Shukla, approved by HoD and Board of Study (BOS) of Catalyst College, Patna.

Course Co-ordinator

- Mr. Amit Kumar Shukla Dept. of IT, Catalyst College, Patna.

References/Books/Links:

1. https://flutter.dev/
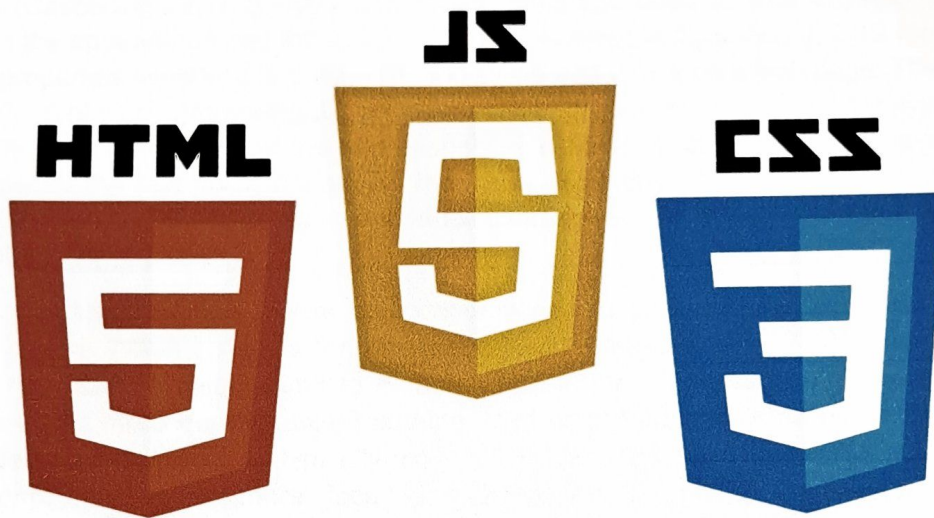2. https://www.appify.digital/post/flutter-app-development
3. https://www.geeksforgeeks.org/flutter-tutorial/

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HTML **JS** **CSS**

Curriculum of Certificate Course in
(Web Designing)

Curriculum of Certificate Course in Web Designing

Overviews: An HTML document structure is the foundational framework for web pages. It includes elements that define different parts of a web page, such as headers, paragraphs, links, and images. HTML tags create a hierarchy, including a section for metadata and scripts, and a section where actual visible content goes. Understanding HTML is crucial in web design, and knowledge can be deepened through courses like html css and javascript course, html javascript course, or certification html css javascript, available online. These courses often include practical exercises to build and enhance skills in creating structured, effective websites.

CSS (Cascading Style Sheets) is a styling language used in web development to design the appearance and formatting of HTML documents. Specifically, CSS fonts and color properties allow you to customize text styles and colors on a web page. The `font-family`, `font-size`, `font-weight`, and `font-style` properties help you alter typeface, size, thickness, and style of the text, respectively. Meanwhile, the `color` property lets you specify the text color, enhancing the visual hierarchy and readability of content. Mastering these CSS features is crucial for creating visually appealing and accessible websites.

JavaScript functions are blocks of code designed to perform specific tasks in web development. When called, a function executes the task it's designed for, which can range from simple calculations to complex operations. This modularity makes code reusable and more manageable. Learning JavaScript functions is an essential skill in web development and is typically covered in courses such as HTML CSS and JavaScript course, or more focused training like an HTML JavaScript course. Mastering these can be beneficial, and opting for an HTML CSS course online or HTML online certification might provide comprehensive knowledge including certification in HTML CSS JavaScript.
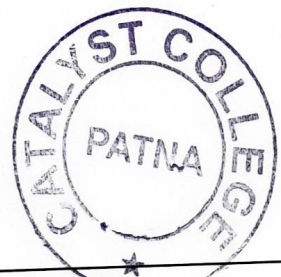
Course Code : **CC/VAC/WEB**   Courses Duration : **48 Hours/Classes**

Eligibility for Admission
- Candidates who are studying BCA\BSC.IT course in the college.

Duration
- 48 Hours/Class with Theory & Practical

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Structure of Syllabus Internet and Web Designing

S. No.	Paper Topics	Duration	Remarks	Credit Point/Marks
1	Introduction to Web Designing • Web terms • Websites • Home Page of Website • Web page creation and design • Graphics appliacation	02 Hours	01 Hours Each Class Only Theory	06 Marks
2	Introduction to Server Side Programming Using ASP(Active Server Page) • ASP Objects • ASP Controls • DOM • Database Accessing on Web • Using Form for accessing Database	10 Hours	Theory + Practical	15 Marks
3	Introduction to HTML • Tags and Attributes • Making HTML Document Structure • HTML FORM for user input	02 Hours	01 Hours Each Class Only Theory	05 Marks
4	Introduction to CSS • Types of CSS • Properties and behaviors of HTML Elements • Designing responsive web page using flex, grid features.	04 Hours	Theory + Practical	08 Marks
5	Introduction to JavaScript • Data types, Variables, Operators, Functions etc. • Prepare DOM (Document Object Model) for accessing HTML Elements	05 Hours	Theory + Practical	10 Marks

6	OOPS Concept in JS. • Object, Class, Abstraction, Inheritance, Encapsulation, Polymorphism	05 Hours	Theory + Practical	10 Marks
7	Bootstraps Introduction for web Development	06 Hours	02 Hours Each Class Theory + Practical	15 Marks
8	Introduction to Backend Development Technology Server side scripting language PHP, OR ASP.NET, VB.NET etc.	04 Hours	Theory + Practical	08 Marks
9	Creating web page using HTML/CSS/JS and HOST on server	04 Hours	Only Theory	08 Marks
10	Project and Presentation	06 Hours	Theory + Practical	15 Marks
	Total hours/Class	48 Hours	Total Credit Point /Marks	100 Marks

Fee Structure:
- This ad-on course is offered free of cost to all the students for their skill development. The college does not charge any fees, either for doing the course, practical, examination or certification.

Deigned & Developed By:
The course is designed by Mr. Ram Lakhan Singh approved by HoD and Board of Study (BOS) of Catalyst College, Patna.

Course Co-ordinator
- Mr. Amit Kumar Shukla Dept. of IT, Catalyst College, Patna.

References/Books/Links:
1. Clean Code, Author: Robert Cecil Martin
2. https://www.w3schools.com/html/html_lists.asp
3. Learning PHP, MYSQL and JS, Author: Robin Nixon
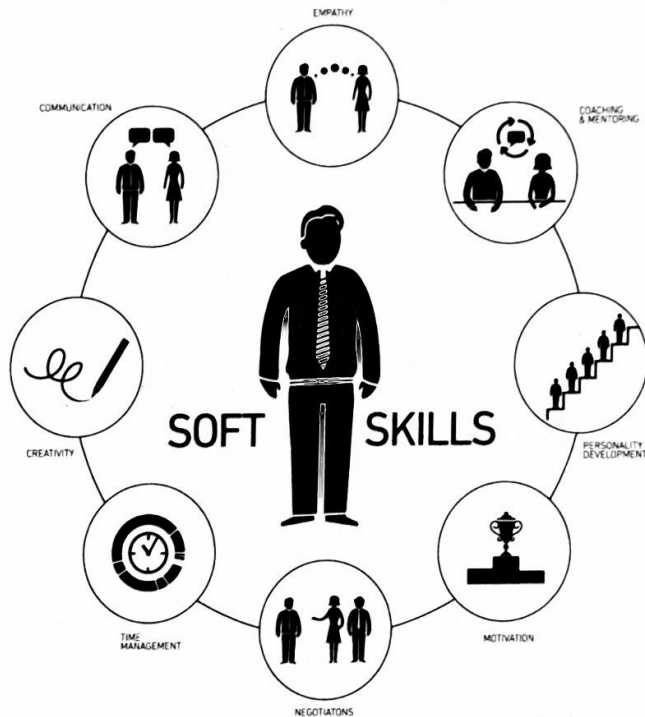
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Curriculum of Certificate Course in (Soft Skills)

Curriculum of Certificate Course in Soft Skills

Overviews:

Soft skills are the most essential part for students aspiring to enhance their career. It can be termed as a non-technical skills that elaborates how one works and interacts with others. It is equally important for workers to succeed in modern organizations and are valuable for businesses that have a customer service/relations component. The course aims to motivate students to acquire employability skills.

Course Code :CC/VAC/SS   Courses Duration : 35 Hours/Classes

Eligibility for Admission
   • Candidates who are studying BCA course in the college.

Duration
   • 35 Hours/Class with Theory & Practical

Structure of Syllabus Soft Skills

S. No.	Paper Topics	Duration	Remarks	Credit gPoint/Marks
1	Definition Objectives and needs. Concepts. Question Answers	02 Hours	Theory	05 Marks
2	Connection from classroom to career. Steps towards future goals. Skills Abilities Goals: Short /long terms Personality Traits. Questions Answers	05 Hours	Theory + Practical	10 Marks
3	What the Industry requires. Oral /Written communication. Critical Thinking. Problem solving. Questions Answers	02 Hours	Theory + Practical	10 Marks
4	Professional Ethics. Introduction Definition Advantages The Dos And Don'ts for developing a personal image. Questions Answer	04 Hours	Theory + Practical	10 Marks
5	Communication Skills as Soft Effective communication. Nonverbal. Verbal 7 Cs. Vocabulary workout	04 Hours	Theory + Practical	10 Marks
6	Intrapersonal Skills: Definition Importance and advantages Questions Answers	02 Hours	Theory + Practical	10 Marks
7	Time Management. Principles. Steps for effective TM Definition. Questions Answers	04 Hours	Theory + Practical	15 Marks
8	Stress Management. Definition. Steps to manage and overcome. Questions Answers.	04 Hours	Theory + Practical	07 Marks
9	The Essentials of negotiating. Importance of BLAST – Believe. Listen. Apologise. Thank. Listening Skills. Questions Answers.	04Hours	Theory + Practical	08 Marks
10	Public Speaking. Definition The importance of Public Speaking. Question Answer	04 Hours	Theory + Practical	15 Marks
	Total hours/Class	**35 Hours**	**Total Credit Point /Marks**	**100 Marks**

Fee Structure:

- This ad-on course is offered free of cost to all the students for their skill development. The college does not charge any fees, either for doing the course, practical, examination or certification.

Deigned & Developed
The course is designed by Sanjana Sinha, approved by HoD and Board of Study (BOS) of Catalyst College, Patna.

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Course Co-ordinator

- Mr. Nitish Kumar Rastogi Dept. of Management, Catalyst College, Patna.

References/Books/Links:

1. A Handbook To Soft Skills By Dr. Neha Mathur
2. Know Yourself And Know your World By S Chand
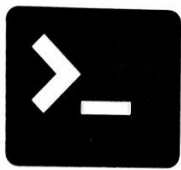3. Soft Skills By By Sharma Prashant

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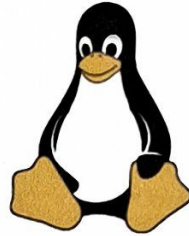Patliputra, Patna-13
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>_ awk?

Curriculum of Certificate Course in
(Linux AWK)

Curriculum of Certificate Course in
Linux AWK

Overviews:

AWK is a language for processing text files. AWK is typically used as a data extraction and reporting tool. It is a standard feature of most Unix-like operating systems. It consists of a set of actions to be taken against streams of textual data for purposes of extracting or transforming text, for eg: producing formatted reports. The language uses the string datatype, associative arrays, and regular expressions. AWK was created at Bell Labs in the 1970s and its name is an acronym derived from the surnames of its authors—Alfred Aho, Peter Weinberger, and Brian Kernighan.

Course Code: **CC/VAC/LA**   Courses Duration: **30 Hours/Classes**

Eligibility for Admission
• Candidates who are studying BCA course in the college.

Duration
• 30 Hours/Class with theory & practical

Structure of Syllabus Front Accounting

S. No.	Paper Topics	Duration	Remarks	Credit Point/Marks
1	Overview of Linux AWK	02 Hours	Theory	05 Marks
2	Basics of AWK	04 Hours	Theory + Practical	05 Marks
3	Variables and Operators in awk	04 Hours	Theory +Practical	10 Marks
4	Built-in Variables	02 Hours	Theory + Practical	10 Marks
5	Conditional statements	04 Hours	Theory + Practical	10 Marks
6	Loops in awk	03 Hours	Theory + Practical	10 Marks
7	Basics of single dimensional array	04 Hours	Theory + Practical	10 Marks
8	More on single dimensional array	02 Hours	Theory + Practical	10 Marks
9	Multi-dimensional Array	02 Hours	Theory	10 Marks
10	Built-in Function in AWK	01 Hours	Theory + Practical	10 Marks
11	User Defined Functions in AWK	02 Hours	Theory + Practical	10 Marks
	Total hours/Class	**30 Hours**	**Total Credit Point /Marks**	**100 Marks**

Fee Structure:
- This ad-on course is offered free of cost to all the students for their skill development. The college does not charge any fees, either for doing the course, practical, examination or certification.

Deigned & Developed By:
The course is designed by Mr. Ram Lakhan Kumar, approved by HoD and Board
of Study (BOS) of Catalyst College, Patna.

Course Co-ordinator
- Mr. Amit Kumar Shukla Dept. of IT, Catalyst College, Patna.

References/Books/Links:
1. Effective AWK Programming by Arnold Robbins
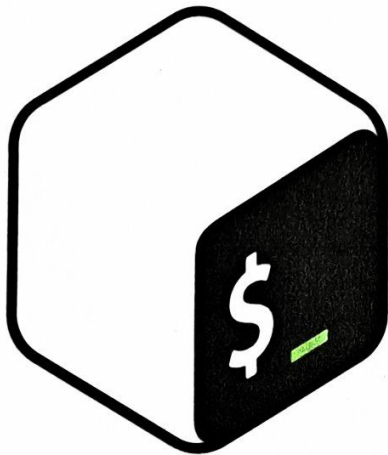2. Effective awk Programming, 4th Edition by Arnold Robbins

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BASH
THE BOURNE-AGAIN SHELL

Curriculum of Certificate Course in
(Bash)

Curriculum of Certificate Course in Bash

Overviews:

Bash is a command-line interpreter or Unix Shell and it is widely used in GNU/Linux Operating System. It is written by Brian Jhan Fox. It is used as a default login shell for most Linux distributions. Scripting is used to automate the execution of the tasks so that humans do not need to perform them individually. Bash scripting is a great way to automate different types of tasks in a system. Developers can avoid doing repetitive tasks using bash scripting.

Bash scripting supports variables, conditional statements, and loops just like programming languages.

Course Code: **CC/VAC/BASH**   Courses Duration: **30 Hours/Classes**

Eligibility for Admission
• Candidates who are studying BCA course in the college.

Duration
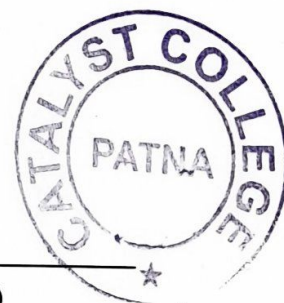• 30 Hours/Class with theory & practical

Structure of Syllabus Bash

S. No.	Paper Topics	Duration	Remarks	Credit Point/Marks
1	Introduction to Bash shell scripting	02 Hours	Theory	05 Marks
2	Command Line, Quoting, Globing	04 Hours	Theory + Practical	05 Marks
3	Export statement	04 Hours	Theory	10 Marks
4	Array Operations	02 Hours	Theory + Practical	10 Marks
5	Conditional execution	04 Hours	Theory + Practical	10 Marks
6	Nested and multilevel if elsif statement	03 Hours	Theory + Practical	10 Marks
7	Logical Operators, String and File attributes	04 Hours	Theory + Practical	10 Marks
8	Conditional loop & Case statement	02 Hours	Theory + Practical	10 Marks
9	Functions & Arrays	02 Hours	Theory	10 Marks
10	Redirection	01 Hours	Theory + Practical	10 Marks
11	Purchase and Reports in Front Accounting	02 Hours	Theory + Practical	10 Marks
	Total hours/Class	**30 Hours**	**Total Credit Point /Marks**	**100 Marks**

Fee Structure:

- This ad-on course is offered free of cost to all the students for their skill development. The college does not charge any fees, either for doing the course, practical, examination or certification.

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Deigned & Developed By:
The course is designed by Md. Ravi Soni, approved by HoD and Board of Study (BOS) of Catalyst College, Patna.

Course Co-ordinator
- Mr. Amit Kumar Shukla Dept. of IT, Catalyst College, Patna.

References/Books/Links:
1. https://tldp.org/LDP/Bash-Beginners-Guide/Bash-Beginners-Guide.pdf
2. Mastering Linux Shell Scripting by Mokhtar Ebrahim

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Curriculum of Certificate Course in
(Boss Linux)

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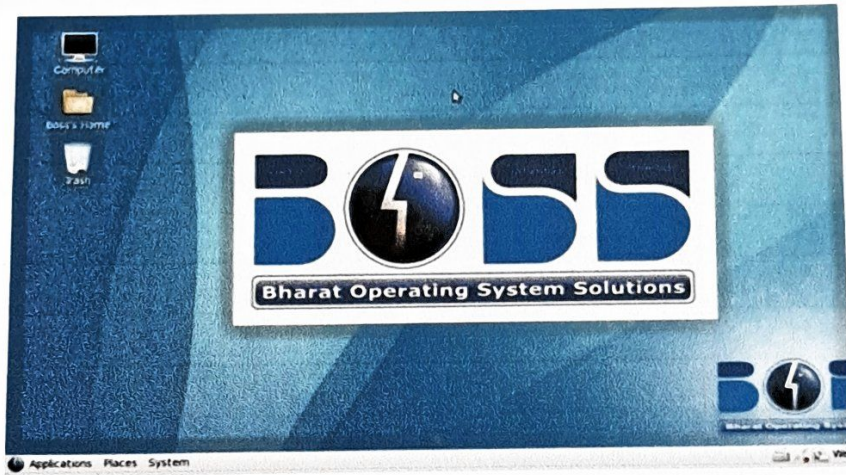
Curriculum of Certificate Course in
Boss Linux

Overviews:

BOSS (Bharat Operating System Solutions) GNU/Linux distribution developed by C-DAC (Centre for Development of Advanced Computing) derived from Debian for enhancing the use of Free/ Open Source Software throughout India. BOSS GNU/Linux Version 5.0 is coupled with GNOME Desktop Environment with wide Indian language support & packages, relevant for use in the Government domain.

Course Code: **CC/VAC/BLIN**   Courses Duration: **30 Hours/Classes**

Eligibility for Admission
• Candidates who are studying BCA course in the college.

Duration
• 30 Hours/Class with theory & practical

Structure of Syllabus Boss Linux

S. No.	Paper Topics	Duration	Remarks	Credit Point/Marks
1	Boss Linux Desktop	02 Hours	Theory	05 Marks
2	Synaptic Package Manager	04 Hours	Theory + Practical	05 Marks
3	Basic Commands	04 Hours	Theory	10 Marks
4	General Purpose Utilities	02 Hours	Theory + Practical	10 Marks
5	File system	04 Hours	Theory + Practical	10 Marks
6	Working with Regular Files	03 Hours	Theory + Practical	10 Marks
7	File Attributes	04 Hours	Theory + Practical	10 Marks
8	Redirection Pipes	02 Hours	Theory + Practical	10 Marks
9	Working with Linux Process	02 Hours	Theory	10 Marks
10	The Linux Environment	01 Hours	Theory + Practical	10 Marks
11	Commands – grep , sed, awk	02 Hours	Theory + Practical	10 Marks
	Total hours/Class	30 Hours	Total Credit Point /Marks	100 Marks

Fee Structure:

- This ad-on course is offered free of cost to all the students for their skill development. The college does not charge any fees, either for doing the course, practical, examination or certification.

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Deigned & Developed By:
The course is designed by Mr. Murali Manohar, approved by HoD and Board of Study (BOS) of Catalyst College, Patna.

Course Co-ordinator
- Mr. Amit Kumar Shukla Dept. of IT, Catalyst College, Patna.

References/Books/Links:
1. https://bosslinux.in/sites/default/files/ISOImages/usermanual/BOSS_Manual.pdf
2. Linux Bible by Christopher Negus

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Curriculum of Certificate Course in

AI IN MARKETING

Curriculum of Certificate Course in

AI IN MARKETING

Overview

AI in Marketing explores the growing role of artificial intelligence (AI) in transforming marketing strategies and practices. It covers how AI technologies, such as machine learning, natural language processing, and data analytics, are used to enhance customer targeting, personalize marketing campaigns, and optimize business performance. This course delves into practical applications of AI, including predictive analytics, chatbots, recommendation engines, and marketing automation. It also addresses ethical considerations, data privacy issues, and the future potential of AI in the marketing industry.

By completing this course, students will gain the knowledge and skills to leverage AI technologies effectively in marketing, creating more efficient, targeted, and personalized marketing campaigns that drive business growth.

Course Code : **CC/VAC/AIM**   Courses Duration : 56 **Hours**

Eligibility for Admission
- Candidates who are studying MBA/BBA courses in the college.

Duration:
- 56 Hours with Theory Only

Structure of Syllabus AI IN MARKETING

S. No.	Paper Topics	Duration	Remarks	Credit	Point/Marks
1	Understanding the basics of AI in Marketing (Continued), Introduction to AI Algorithms, Designs of AI, Transition process and AI matrix.	04Hours	Theory		08 Marks
2	Customer value and Role of AI in Value Delivery Process, Transforming Marketing Strategy using AI (Continued).	04 Hours	Theory		08 Marks
3	Using AI for STP, Application of AI in Marketing Mix, Marketing Information Systems and its Components.	04 Hours	Theory		05 Marks
4	What is Marketing Research (Continued), Individual Dynamics and its influence on Consumer Behaviour, Consumer Buying Decision Process, Understanding Customer Journey (Continued).	04 Hours	Theory		08 Marks
5	Customer Experience: Meaning & Characteristics, Personalization: Going Beyond Segmentation, Avatar marketing.	04 Hours	Theory		06 Marks
6	Standardization, Personalization &Relationalization of Brands using AI, Understanding Networks and Brand Network Effect, Understanding the Use of AI for Addressing Competition, AI and Brand Equity, AI and New Brand Realities	04 Hours	Theory		07 Marks
7	AI for Value Creation and Product Development, Personalization and hyper-personalization Using AI.	04 Hours	Theory		07 Marks
8	Implementation of AI by Product Managers, AI in Service, Pricing Strategies Using AI.	04 Hours	Theory		07 Marks
9	Role of AI in Advertising	04 Hours	Theory		07 Marks
10	AI in Sales promotion and Direct Marketing, AI in PR and Publicity and Social Media Marketing	04 Hours	Theory		07 Marks
11	AI and Marketing Channel Management, Omni channel Marketing and Retailing, Changing face	04 Hours	Theory		05 Marks
12	Navigating Ethical Challenges in AI (Continued), AI and Sustainability	04 Hours	Theory		05 Marks
13	Case Study	04 Hours	Theory		10 Marks
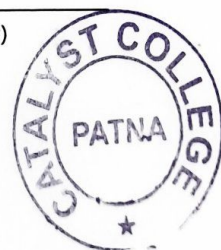
14	Presentation	04 Hours	Theory	10 Marks
	Total hours/Class	**56 Hours**	**Total Credit Point /Marks**	**100**

Fee Structure:

- This ad-on course is offered free of cost to all the students for their skill development. The college does not charge any fees, either for doing the course, practical, examination or certification.

Designed & Developed By:

The course is designed by Mr. Anil kumar (Assistant Professor) approved by HOD and Board of Study (BOS) of Catalyst College, Patna.

Course Co-ordinator

- Mr.Nitish Kumar Rohatgi, Dept. of Management, Catalyst College, Patna

References/Books/Links:

1. Sterne J., "Artificial intelligence for marketing: practical applications", John Wiley & Sons.
2. Gentsch, Peter., "AI in marketing, sales and service: How marketers without a data science degree can use AI, big data and bots", (eBook) Springer.
3. King K., "Using Artificial Intelligence in Marketing: How to harness AI and maintain the competitive edge", Kogan Page Publishers
4. Hosnagar, K, "A human's guide to machine intelligence", New York: Viking.
5. Venkatesan, R., and Lecinski J, "The AI Marketing Canvas: A Five-stage Road Map to Implementing Artificial Intelligence in Marketing", Stanford University Press.

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Curriculum of Certificate Course in
(Financial Market & their components)

Curriculum of Certificate Course in Financial Market & their components

Overviews:

The objective of studying financial markets and their components is to understand how these markets facilitate the flow of capital, enable investment, and support economic growth by providing opportunities for businesses, governments, and individuals to raise and allocate funds efficiently. Financial markets are crucial for promoting transparency, liquidity, and price discovery, and they play a central role in determining the cost of capital, fostering economic stability, and enabling risk management.

Here's a breakdown of the following key objectives of studying financial markets and their components:

1. To comprehend how financial markets facilitate the efficient allocation of resources by enabling the transfer of funds between savers and borrowers.

2. To explore how financial markets aid in capital formation, which is essential for business expansion, technological innovation, and infrastructure development.

3. To study how financial markets contribute to price discovery — the process by which the price of an asset is determined based on supply and demand dynamics.

4. To understand how financial markets provide liquidity, allowing assets to be bought or sold quickly without significantly affecting their price.

5. To identify and understand the different components of financial markets, such as money markets, capital markets, foreign exchange (Forex) markets, and derivatives markets, and their specific roles.

6. To study the core functions of financial markets, including:

   ➢ Raising Capital (via equity or debt instruments)

   ➢ Facilitating Trading (through secondary markets for securities)

   ➢ Enabling Risk Sharing and Hedging

   ➢ Providing Information and Transparency

7. To learn about various financial instruments traded in financial markets, such as stocks, bonds, mutual funds, derivatives, options, and futures.

8. To analyze the roles of various participants in financial markets, such as individual investors, institutional investors, brokers, market makers

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Course Code : CC/VAC/FMIS   Courses Duration : 40 Hours/Classes

Eligibility for Admission
- Candidates who are studying BBA, B.COM(P), MBA course in the college.

Duration
- 40 Hours/Class with theory & practical

Structure of Syllabus Income tax and its compliance

S. No.	Paper Topics	Duration	Remarks	Credit Point/Marks
1	Understanding the Role of Financial Markets in the Economy	03 Hours	Theory	10 Marks
2	Learning about Capital Formation and Investment	05 Hours	Theory	15 Marks
3	Exploring Market Efficiency and Price Discovery	06 Hours	Theory	10 Marks
4	Facilitating Liquidity and Risk Management	03 Hours	Theory	10 Marks
5	Understanding the Components of Financial Markets	04 Hours	Theory	10 Marks
6	Exploring the Functions of Financial Markets	04 Hours	Theory	10 Marks
7	Examining the Different Types of Financial Instruments	04 Hours	Theory	10 Marks
8	Studying Financial Market Participants	06 Hours	Theory	15 Marks
9	Understanding Market Regulation and Oversight	04 Hours	Theory	10 Marks
	Total hours/Class	40 Hours	Total Credit Point /Marks	100 Marks

Fee Structure:

- This ad-on course is offered free of cost to all the students for their skill development. The college does not charge any fees, either for doing the course, practical, examination or certification.

Deigned & Developed By:
The course is designed by Nitish Rohatgi Dept. approved by HOD and Board of Study (BOS) of Catalyst College, Patna.

Course Co-Ordinator

- Mr. Nitish Rohatgi Dept. of IT, Catalyst College, Patna.

References/Books/Links:

1. ICAI Module

Course Co-ordinator

Principal

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BIG DATA

Volume   Value   Veracity   Visualization   Variety   Velocity   Virality

Curriculum of Certificate Course in
(Big Data)

Curriculum of Certificate Course in Big Data

Overviews:

Big data refers to extremely large and diverse collections of structured, unstructured, and semi-structured data that continues to grow exponentially over time. These datasets are so huge and complex in volume, velocity, and variety, that traditional data management systems cannot store, process, and analyze them. These skills can be used in a variety of industries and job roles, including Problem handling, Server management, Database management, Data warehousing, Data Mining.

Course Code: **CC/VAC/BigData**   Courses Duration: **52 Hours/Classes**

Eligibility for Admission
- Candidates who are studying BCA course in the college.

Duration
- 52 Hours/Class with theory & practical

Structure of Syllabus Big Data

S. No.	Paper Topics	Duration	Remarks	Credit Point/Marks
1	Introduction Data Evolution Of Data. What is Big Data ? Types of Big Data	02 Hours	Theory	06 Marks
2	Download Oracle Virtual Box & Cloudera Quickstart VM. Configure and Install DFS. What is Hadoop? HDFS	07 Hours	Theory + Practical	15 Marks
3	Meta Data, Data, NSI/EL, Hadoop 1.0, Hadoop 1.6, Hadoop 2.0 High Availability, Major Version of Hadoop, Fencing and Failover, Federation, UNIX Commands	04 Hours	Theory+ Practical	05 Marks
4	HDFS Commands, RAC Awareness, Hadoop 1.X, Job Tracker, Task Tracker, 2.X YARN/MR2, Scheduling, FAIR Scheduling MapReduce, MapReduce Process, Mapper/Reducer, MapReduce	08 Hours	Theory + Practical	08 Marks
5	Datatypes, MapReduce Programs Lab Schedule in MapReduce, Run MapReduce Program, Combiner, Partitioner	07 Hours	Theory + Practical	10 Marks
6	SQOOP (Import/Export), Hadoop Environment (Run Code)	07 Hours	Theory + Practical	10 Marks
7	PIG (Transformation), ELT/ETL, PIG Mode, Lazy Execution, DFL Lab Schedule in PIG, Joins, CDC	08 Hours	Theory + Practical	15 Marks
8	HIVE, SQL/RDBMS vs HIVE, External, Internal, HIVE Architecture, Hive Query	04 Hours	Theory + Practical	08 Marks
9	HIVE, SCD1, SCD2, Partitioning/Bucketing, Bucketing Table Projects:- Airlines, Country, Inverted Index, Movie, Stack Overflow, Youtube, Hive Analytical Function, Lead/Lac	03 Hours	Theory	08 Marks
10	GCP Basic Overview Basic Overview of Spark, Lab	02 Hours	Theory + Practical	15 Marks
	Total hours/Class	52 Hours	**Total Credit Point /Marks**	100 Marks

Fee Structure:

- This ad-on course is offered free of cost to all the students for their skill development. The college does not charge any fees, either for doing the course, practical, examination or certification.

Deigned & Developed By:

The course is designed by Mr. Amit Kumar Shukla, approved by HoD and Board of Study (BOS) of Catalyst College, Patna.

Course Co-ordinator

- Mr. Amit Kumar Shukla Dept. of IT, Catalyst College, Patna.

References/Books/Links:

1. https://www.ibm.com/topics/big-data-analytics
2. https://www.tableau.com/analytics/what-is-big-data-analytics
3. https://www.simplilearn.com/what-is-big-data-analytics-article

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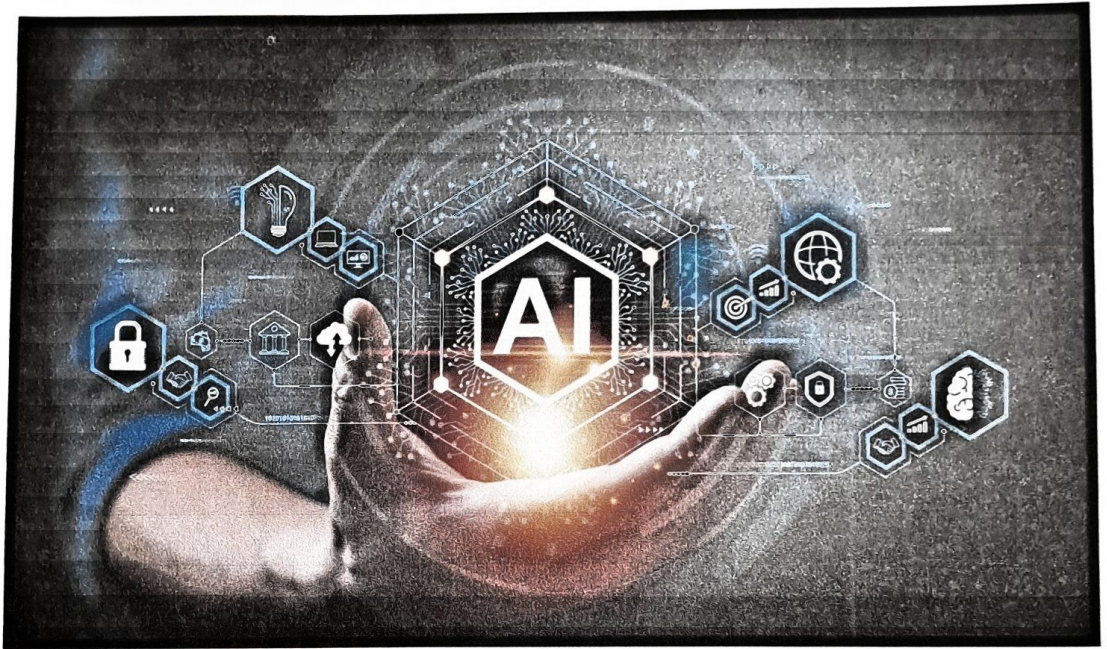An Unit of Vijayam Educational Trust, A Registered Non-Profit Charitable Trust

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Curriculum of Certificate Course in
(Artificial Intelligence)

Curriculum of Certificate Course in

Artificial Intelligence

Overviews:

This course provides an in-depth introduction to Artificial Intelligence (AI) concepts, techniques, and applications. It covers the fundamentals of AI, including problem-solving and search strategies, knowledge representation, and the design of intelligent agents. Students will explore various AI paradigms, such as natural language processing (NLP), fuzzy logic, and neural networks, and will apply this knowledge to practical problem-solving scenarios. This course is ideal for beginners in AI who want to gain a foundational understanding of the principles, algorithms, and applications in the field.
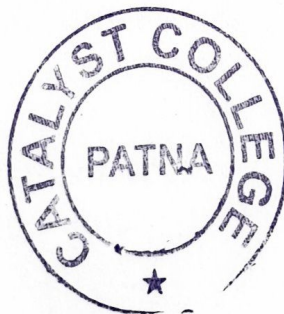
Course Code : **CC/VAC/AI**   Courses Duration : **40 Hours/Classes**

Eligibility for Admission
- Candidates who are studying BCA course in the college.

Duration
- **40 Hours/Class with Theory & Practical**

Structure of Syllabus Artificial Intelligence

| S. No.	Paper Topics	Duration	Remarks	Credit Point/Marks
1	Introduction of AI	05 Hours	Theory	12 Marks
2	Problem solving and Search Techniques	07 Hours	Theory + Practical	20 Marks
3	Knowledge Representation	05 Hours	Theory	12 Marks
4	Introduction of Intelligence Agent	02 Hours	Theory	06 Marks
5	Planning	04 Hours	Theory + Practical	10 Marks
6	NLP	05 Hours	Theory + Practical	12 Marks
7	Fuzzy Set	03 Hours	Theory + Practical	08 Marks
8	Artificial Neural Network	09 Hours	Theory + Practical	20 Marks
	Total hours/Class	**40 Hours**	**Total Credit Point /Marks**	**100 Marks**

Fee Structure:

- This ad-on course is offered free of cost to all the students for their skill development. The college does not charge any fees, either for doing the course, practical, examination or certification.

Deigned & Developed By:

The course is designed by Priya Ratnam, approved by HoD and Board of Study (BOS) of Catalyst College, Patna.

Course Co-ordinator

- Mr. Amit Shukla Dept. of IT, Catalyst College, Patna.
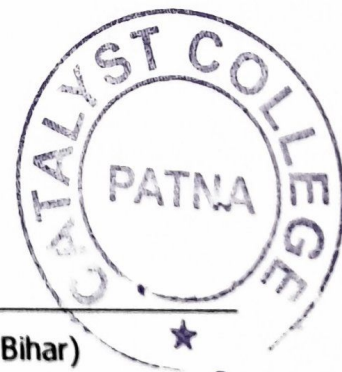
References/Books/Links:

1.Artificial Intelligence: A Modern Approach – Stuart J. Russell & Peter Norvig

2.Artificial Intelligence: A Guide for Thinking Humans – Melanie Mitchell

3.On Intelligence – Jeff Hawkins, Sandra Blakeslee

4.Hello World: Being Human in the Age of Algorithms – Hannah Fry

5.Human Compatible: Artificial Intelligence and the Problem of Control – Stuart Russell

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Curriculum of Certificate Course in (Advanced Computer Architecture)

Curriculum of Certificate Course in Advanced Computer Architecture

Overviews:

ABOUT THE COURSE:
This course is on Advanced Computer Architecture. It will introduce students to advanced aspects of processor design and will specifically focus on out-of-order pipelines, GPUs, and compiler techniques for enhancing ILP. The course will subsequently move on to cache design and main memory technologies such as DDR-4. A substantial portion of the course will be devoted to the theory of on-chip networks and memory models. The last part of the course will cover aspects of low-power design, hardware security, and reliability.

Course Code : **CC/VAC/ACA**   Courses Duration : **32 Hours/Classes**

Eligibility for Admission
- Candidates who are studying BCA course in the college.

Duration
- 32 Hours/Class with Theory & Practical

Structure of Advanced Computer Architecture

S. No.	Paper Topics	Duration	Remarks	Credit Point/Marks
1	In-order pipelines overview	02 Hours	Theory	08 Marks
2	Out-of-order pipelines, Branch prediction	03 Hours	Theory + Practical	10 Marks
3	Advanced branch prediction techniques	02 Hours	Theory + Practical	05 Marks
4	Issue, select, and commit	02 Hours	Theory + Practical	05 Marks
5	Aggressive speculation	02 Hours	Theory + Practical	06 Marks
6	Compiler techniques for enhancing ILP	03 Hours	Theory + Practical	10 Marks
7	Caches: Design, modeling, and optimizations	04 Hours	Theory + Practical	15 Marks
8	On-chip networks	02 Hours	Theory + Practical	08 Marks
9	Theory of memory models	02 Hours	Theory + Practical	08 Marks
10	Coherence Protocols	04 Hours	Theory + Practical	10 Marks
11	Low power design	02 Hours	Theory + Practical	05 Marks
12	Reliability and Hardware Security	05 Hours	Theory + Practical	10 Marks
	Total Duration	32 Hours	Total Credit Point /Marks	100 Marks

Fee Structure:

- This ad-on course is offered free of cost to all the students for their skill development. The college does not charge any fees, either for doing the course, practical, examination or certification.

Deigned & Developed By:

Catalyst College (An Affiliated College to Patliputra University, Patna, Bihar)
www.catalystcollege.in

The course is designed by Mr. Amit Kumar Shukla, approved by HoD and Board of Study (BOS) of Catalyst College, Patna.

Course Co-ordinator
- Mr. Amit Kumar Shukla Dept. of IT, Catalyst College, Patna.

References/Books/Links:

1. Advanced Computer Architecture, Smruti R. Sarangi, McGrawHill 2021

2. Advanced Computer Architecture, Nitin Jain

Course Coordinator

Principal

Curriculum of Certificate Course in
(Advanced Computer Networks)

Curriculum of Certificate Course in Advanced Computer Networks

Overviews:

This is an advanced course on Computer Networks covering four main contemporary topics namely how high performance networks are designed covering algorithms and implementations, data center networking, information centric networking and network softwarization: software defined networking, network virtualization and programmable networks. This course assumes a basic knowledge of computer networks and working proficiency with Unix/Linux Operating Systems. It has practical component with programming assignments giving hands on to the students.

Course Code : **CC/VAC/ACN**   Courses Duration : **32 Hours/Classes**

Eligibility for Admission
- Candidates who are studying BCA course in the college.

Duration
- 32 Hours/Class with Theory & Practical

Structure of Advanced Computer Networks

S. No.	Paper Topics	Duration	Remarks	Credit
1	High Performance Switching and Routing: Introduction, performance considerations, IP address lookup	02 Hours	Theory	08 Marks
2	Algorithms for IP address lookup and optimization, hardware implementation of address lookup	03 Hours	Theory + Practical	10 Marks
3	Packet Classification: Need for packet classification and methods for packet classification.	02 Hours	Theory + Practical	05 Marks
4	Differentiated Service, Quality of Service, Traffic Polishing, Traffic Shaping	02 Hours	Theory + Practical	05 Marks
5	Network Softwarization - Introduction	02 Hours	Theory + Practical	06 Marks
6	Software Defined Networking (SDN) - Deep Dive (Northbound and Southbound interface) , Working with Mininet + Lab Exercises with Mininet	03 Hours	Theory + Practical	10 Marks
7	Network Function Virtualization (NFV) - Architecture and Concepts	04 Hours	Theory + Practical	15 Marks
8	Programmable Networks - Introduction to P4, SmartNICS and P4 switches. + Lab Exercise with Mininet and BMV2 switches.	02 Hours	Theory + Practical	08 Marks
9	Data Center Networking (DCN) - Introduction	02 Hours	Theory + Practical	08 Marks
10	DCN - Deep Dive (Network topologies, Container Network Interfaces)	04 Hours	Theory + Practical	10 Marks
11	Content Distribution on the Internet, Architectures for Information Centric networking	02 Hours	Theory + Practical	05 Marks
12	Content Naming, Routing and Caching, Security in Named Data Networking	05 Hours	Theory + Practical	10 Marks
	Total Duration	**32 Hours**	**Total Credit Point**	**100 Marks**

Fee Structure:

- This ad-on course is offered free of cost to all the students for their skill development. The college does not charge any fees, either for doing the course,

practical, examination or certification.

Deigned & Developed By:
The course is designed by Mr. Murali Manohar, approved by HoD and
Board of Study (BOS) of Catalyst College, Patna.

Course Co-ordinator
- Mr. Amit Kumar Shukla Dept. of IT, Catalyst College, Patna.

References/Books/Links:

1. High Performance Switches and Routers, H. Jonathan Chao, Bin Liu, 2007, John Wiley & Sons, Inc. ISBN-10: 0-470-05367-4

2. Information-Centric Networks: A New Paradigm for the Internet (Focus Series in Networks and Telecommunications), Gabriel M. de Brito, Pedro B. Velloso, Igor M. Moraes, Wiley-ISTE; 1st edition, 2013, ISBN: 9781848214491

3. Information-Centric Networking (ICN): Content Centric Networking (CCNx) and Named Data Networking (NDN) Terminology, B. Wissingh, C. Wood, A. Afanasyev, L. Zhang, D. Oran and C. Tschudin, RFC 8793, June 2020

4. Software-Defined Networks: A Systems Approach, Peterson, Cascone, O'Connor, Vachuska, and Davie, Online Free Reference Book available at https://sdn.systemsapproach.org/index.html

5. Cloud Networking: Understanding Cloud-based Data Centre Networks, Gary Lee (Author), Morgan Kaufmann (Publisher), 2014,ISBN-139780128007280

Course Coordinator

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Curriculum of Certificate Course in
(Developmental Analysis)

Curriculum of Certificate Course in Developmental Analysis

Overviews:

The objective of developmental analysis is to assess and understand the progress, challenges, and impact of development activities within a specific area, region, or sector. Developmental analysis is typically focused on evaluating how effectively policies, programs, and initiatives contribute to the social, economic, and environmental development of a country, region, or community. It involves assessing both the inputs (resources, policies, and interventions) and the outputs (outcomes and impacts) of development efforts to identify areas for improvement, challenges, and opportunities for sustainable development.

Following Key Objectives of Developmental Analysis

1. To evaluate the effectiveness of development policies, programs, and projects in achieving their intended goals, such as poverty reduction, economic growth, health improvements, and education.

2. To examine the economic performance of a country or region by analyzing key indicators such as GDP growth, income distribution, employment rates, and industrial development.

3. To analyze progress in improving social indicators such as healthcare access, education, housing, sanitation, gender equality, and human rights.

4. To identify disparities in wealth, income, and access to resources across different groups (e.g., rural vs. urban, gender, ethnic groups, etc.).

5. To ensure that development benefits all members of society, particularly marginalized or vulnerable groups, including women, children, people with disabilities, and indigenous communities.

6. To assess human development through indices such as the Human Development Index (HDI), which combines measures of life expectancy, education, and income.

7. To evaluate the success of poverty alleviation strategies, programs, and initiatives, particularly in terms of improving income levels, access to basic services, and social mobility.

8. To align developmental analysis with global frameworks such as the United Nations Sustainable Development Goals (SDGs), which focus on key areas like poverty, hunger, health, education, climate action, and gender equality.

9. To track long-term trends in development, such as changes in employment, income levels, infrastructure development, or social mobility, and analyze factors driving those trends.

Course Code: CC/VAC/DA   Courses Duration: 30 Hours/Classes

Eligibility for Admission
- Candidates who are studying BBA/MBA course in the college.

Duration
- 30 Hours/Class with theory and practical

Structure of Syllabus Development Analysis

S. No.	Paper Topics	Duration	Remarks	Credit Point/Marks
1	Assessing the Impact of Development Policies and Programs	02 Hours	Theory	10 Marks
2	Measuring Economic Development and Growth	02 Hours	Theory	10Marks
3	Evaluating Social Development and Welfare	02 Hours	Theory	10 Marks
4	Identifying and Reducing Inequality	02 Hours	Theory	10 Marks
5	Promoting Inclusive Development	02 Hours	Theory	10 Marks
6	Evaluating Human Development Indicators	04 Hours	Theory	10 Marks
7	Monitoring Poverty Reduction Efforts	04 Hours	Theory	10 Marks
8	Fostering Sustainable Development Goals (SDGs)	04 Hours	Theory	10Marks
9	Examining the Role of Institutions in Development	04 Hours	Theory	10 Marks
10	Assessing Developmental Trends Over Time	04 Hours	Theory	10 Marks
	Total hours/Class	30 Hours	Total Credit	100 Marks

Fee Structure:
- This ad-on course is offered free of cost to all the students for their skill development. The college does not charge any fees, either for doing the course, practical, examination or certification.

Deigned & Developed By:
The course is designed by Nitish Rohatgi Dept. approved by HOD and Board of Study (BOS) of Catalyst College, Patna.

Course Co-Ordinator
- Mr. Nitish Rohatgi Dept. of IT, Catalyst College, Patna.

References/Books/Links:
1. ICAI Module

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Course Coordinator

Principal

Curriculum of Certificate Course in (Immersive Technologies)

Curriculum of Certificate Course in Immersive Technologies

Overviews:

In terms of knowledge, the students will understand immersive technology fundamentals: Definitions, types (VR, AR, MR), and history. They will become familiarity with devices (HMDs, controllers, sensors) in addition to gaining knowledge of Unity, Unreal Engine, or other immersive technology platforms. The students will also be able to understanding of user experience, interface design, and interaction principles, which will help then in designing immersive storytelling, which includes principles of narrative design, storytelling, and emotional engagement.

After gaining the concept about the above mentioned topics, students would like to apply this knowledge for design, develop, and demonstrate immersive technology projects or work with artists, designers, writers, and programmers on immersive projects.
They can even explore applications in education, healthcare, entertainment, and other fields and design immersive experiences for diverse audiences. Last but not the least it will be a huge help in communicate project ideas and goals.

Course Code : **CC/VAC/IT**   Courses Duration : **40 Hours/Classes**

Eligibility for Admission
- Candidates who are studying BCA course in the college.

Duration
- 40 Hours/Class with theory & Practical

Structure of Syllabus Financial Accounting Concepts with Tally ERP

S. No.	Paper Topics	Duration	Remarks	Credit Point/Marks
1	Introduction to Augmented reality and its types	06 Hours	Theory	7 Marks
2	Tools and technologies used in designing an AR project	04 Hours	Theory + Practical	12 Marks
3	Introduction to Virtual reality	02 Hours	Theory	10 Marks
4	Understanding the concept of virtual reality and its hardware requirements	04 Hours	Theory	10 Marks
5	Designing principle for VR	02 Hours	Theory + Practical	10 Marks
6	2D game development using the concept of AR/VR	04 Hours	Theory + Practical	12 Marks
7	Introduction to Mixed reality	04 Hours	Theory	10 Marks
8	Industrial use of AR, VR, and MR	04 Hours	Theory	12 Marks
9	Understanding the concept of exclusive technologies	06 Hours	Theory	8 Marks
10	Case study	04 Hours	Theory + Practical	9 Marks
	Total hours/Class	**40 Hours**	**Total Credit Point /Marks**	**100 Marks**

Fee Structure:

- This ad-on course is offered free of cost to all the students for their skill development. The college does not charge any fees, either for doing the course, practical, examination or certification.

Deigned & Developed By:

The course is designed by Akanksha, approved by HoD and Board of Study (BOS) of Catalyst College, Patna.

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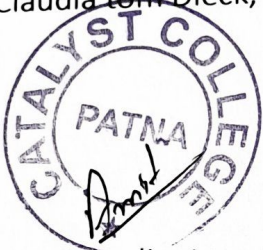www.catalystcollege.in

Course Co-ordinator
- Mr. Amit Shukla, Dept. of IT, Catalyst College, Patna.

References/Books/Links:
1. Augmented Reality and Virtual Reality: New Trends in Immersive Technology by M. Claudia tom Dieck, Timothy H. Jung, and Sandra M. C. Loureiro.
2. Metaverse and Immersive Technologies: An Introduction to Industrial, Business and Social Applications by Chandrashekhar A, Shaik Himam Saheb, Sandeep Kumar Panda, S. Balamurugan, and Sheng-Lung Peng.
3. Extended Reality and Metaverse: Immersive Technology in Times of Crisis by Timothy Jung, M. Claudia tom Dieck, and Sandra Maria Correia Loureiro.

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Curriculum of Certificate Course in (Embedded System in C)

Curriculum of Certificate Course in Embedded system in C

Overviews:

In terms of knowledge, the students will understand embedded system fundamentals like architecture, hardware components, and software development. They will become familiarity with C programming concepts, data types, operators, control structures, functions, and pointers and use this in embedded system programming concepts. They will gain the knowledge about interrupts, timers, and input/output operations.

The students will also be able to familiarize with microcontroller architecture, including memory organization, registers, and instruction sets. They will also know about the design process for embedded systems, including requirements analysis, hardware and software design

After gaining the concept about the above mentioned topics, students would be able to develop C programs for embedded systems, including coding, debugging, and testing. They will be able to design, develop, and test embedded systems using microcontrollers and development boards, including using program interfaces, GPIO, UART, SPI, I2C, and ADC. They would be able to implement interrupt handling mechanisms in C and they could use debugging tools and techniques to identify and resolve issues.

Course Code: **CC/VAC/ESC**   Courses Duration : 30 Hours/Classes

Eligibility for Admission
  • Candidates who are studying BCA course in the college.

Duration
  • 30 Hours/Class with theory & practical

Structure of Syllabus Financial Accounting Concepts with Tally ERP

S. No.	Paper Topics	Duration	Remarks	Credit Point/Marks
1	Introduction to Embedded system	06 Hours	Theory	12 Marks
2	Microcontroller and Microprocessor	04 Hours	Theory	12 Marks
3	Communication interface	02 Hours	Theory	12 Marks
4	Software support for embedded system (RTOS, Bare-metal programming)	04 Hours	Theory	12 Marks
5	Sensors and actuators	02 Hours	Theory	12 Marks
6	Hardware connectivity for Embedded system	04 Hours	Theory	14 Marks
7	Effective measures for price cutting in embedded system	04 Hours	Theory	12 Marks
8	Project making	04 Hours	Practical	14 Marks
	Total hours/Class	**30 Hours**	**Total Credit Point /Marks**	**100 Marks**

Fee Structure:

- This ad-on course is offered free of cost to all the students for their skill development. The college does not charge any fees, either for doing the course, practical, examination or certification.

Deigned & Developed By:
The course is designed by Akanksha, approved by HoD and Board of Study (BOS) of Catalyst College, Patna.

Course Co-ordinator

- Mr. Amit Shukla, Dept. of IT, Catalyst College, Patna.

References/Books/Links:

1. The 8051 Microcontroller & Embedded system using Assembly and C by Muhammad Ali Mazidi and Robin D. MCkinlay.

2. Embedded software development system with C by Kai Qian, David Den Haring and Li Cao.

3. Programming embedded system with C and GNU development tools by Michael Barr and Anthony Massa.

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Curriculum of Certificate Course in
(Cyber Security)

Curriculum of Certificate Course in Cyber Security

Overviews:

This course introduces to management students the concepts, technologies, practices and challenges associated with cybersecurity as applied in organizations. Protection as well as disclosure of information pose unique challenges and also allude to economic and technological implications. Breach of information privacy has been reported as having serious consequences to all the stakeholders involved from the origin to end use of data. Furthermore, cyber security has often been analyzed independent of information privacy, which thus lacks a wholesome picture of investments, benefits and stakeholder concerns. The course takes a broad view of cyber security along with information privacy by analzsing relevant organizational, human, legal and policy issues.

Through this course, students will explore cyber security along with information privacy with a managerial focus. Students are expected to develop a wholesome understanding about cyber security and privacy risks to businesses covering governance, compliance and risk mitigation and closely study certain business domains.

COURSE LEARNING OBJECTIVES
To recognize cyber security from technological and administrative perspectives
To articulate cyber security governance, risks and compliance in the current business environment
To apply cybersecurity and information privacy in organizational context for risk assessment
To develop cyber security and information privacy policy in selected business domains

Course Code : **CC/VAC/CSEC**   Courses Duration : **50 Hours/Classes**

Eligibility for Admission
 • Candidates who are studying BCA course in the college.

Duration
 • 50 Hours/Class with Theory & Practical
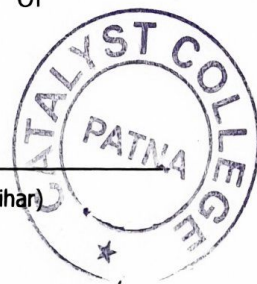

Structure of Syllabus Cyber Security

S. No.	Paper Topics	Duration	Remarks	Credit Point/Marks
1	Introduction of Cyber Security	02 Hours	Theory	06 Marks
2	Attacks, Concepts, and Techniques	10 Hours	Theory + Practical	15 Marks
3	Protecting Your Data and Privacy of the Organization	02 Hours	Theory + Practical	05 Marks
4	Awareness about fraud on online/offline transactions	04 Hours	Theory + Practical	08 Marks
5	Cyber security Threats, Vulnerabilities and attacks	05 Hours	Theory + Practical	10 Marks
6	Art of protecting secrets and ensuring integrity	05 Hours	Theory + Practical	10 Marks
7	The Five Nine Concept	06 Hours	Theory + Practical	15 Marks
8	Implementing basic Linux security	04 Hours	Theory + Practical	08 Marks
9	Protocols enable network operation	06 Hours	Theory + Practical	08 Marks
10	Approaches to network security defense Response & CyberOps	06 Hours	Theory + Practical	15 Marks
	Total hours/Class	50 Hours	Total Credit Point /Marks	100 Marks

Fee Structure:

- This ad-on course is offered free of cost to all the students for their skill development. The college does not charge any fees, either for doing the course, practical, examination or certification.

Deigned & Developed By:

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not charge any fees, either for doing the course, practical, examination or certification.

Deigned & Developed By:
The course is designed by Mr. Murali Manohar, approved by HoD and Board of Study (BOS) of Catalyst College, Patna.

Course Co-ordinator
- Mr. Amit Kumar Shukla Dept. of IT, Catalyst College, Patna.

References/Books/Links:
1. Darktrace, "Technology" https://www.darktrace.com/en/technology/#machine-learning, accessed November 2018.
2. Van Kessel, P. Is cyber security about more than protection? EY Global Information Security Survey 2018-2019.
3. Johnston, A.C. and Warkentin, M. Fear appeals and information security behaviors: An empirical study. MIS Quarterly, 2010.
4. Arce I. et al. Avoiding the top 10 software security design flaws. IEEE Computer Society Center for Secure Design (CSD), 2014.
5. Smith, H. J., Dinev, T., & Xu, H. Information privacy research: an interdisciplinary review. MIS Quarterly, 2011.
6. Subramanian R. Security, privacy and politics in India: a historical review. Journal of Information Systems Security (JISSec), 2010.
7. Acquisti, A., John, L. K., & Loewenstein, G. What is privacy worth? The Journal of Legal Studies, 2013

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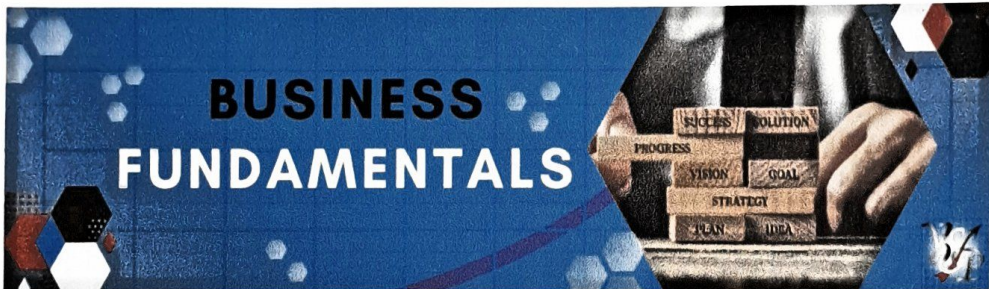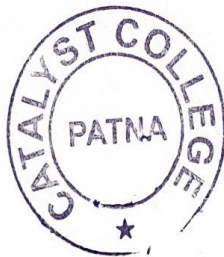Course Coordinator

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BUSINESS FUNDAMENTALS

Curriculum of Certificate Course in

BUSINESS FUNDAMENTALS

Curriculum of Certificate Course in
BUSINESS FUNDAMENTALS

Overview of

Business fundamentals provide a foundational understanding of how businesses operate and the key principles that govern business activities. This subject covers the essential concepts of management, marketing, finance, economics, and organizational behavior, offering a broad understanding of how various functions within a company work together to achieve success.

The course covers ALL aspects of a company (e.g. company structure, vision, mission, strategy, manufacturing, finance, leadership & people management, marketing, sales, customer service, supply chain, retail & distribution, ESG) tending of how various functions within a company work together to achieve success.
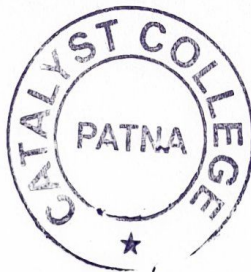
Course Code : **CC/VAC/BF**   Courses Duration : **40 Hours**

Eligibility for Admission
- Candidates who are studying MBA/BBA courses in the college.

Duration:
- 40 Hours with Theory Only

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Structure of Syllabus BUSINESS FUNDAMENTALS

S. No.	Paper Topics	Duration	Remarks	Credit Point/Marks
1	Business History, Environment & Trends,What is a Company?Types of Companies	04Hours	Theory	08 Marks
2	Understanding the Purpose of a Company	03 Hours	Theory	06 Marks
3	Producing High-Quality Products	04 Hours	Theory	08 Marks
4	Sustaining a great business	03 Hours	Theory	06 Marks
5	Studying Markets, Competitors & Customers	03 Hours	Theory	06 Marks
6	Winning in the Market Place	04 Hours	Theory	06 Marks
7	Building Customer Loyalty	04 Hours	Theory	06 Marks
8	Reaching your customers	03 Hours	Theory	06 Marks
9	Defining your Business Model	04 Hours	Theory	08 Marks
10	Social Entrepreneurship	04 Hours	Theory	06 Marks
11	Environment, Social & Governance (ESG) Investing	04 Hours	Theory	08 Marks
12	Communication & Conclusion	04 Hours	Theory	06 Marks
13	Case study	04 Hours	Theory	10 Marks
14	Presentation	04 Hours	Theory	10 Marks
	Total hours/Class	52 Hours	Total Credit Point /Marks	100

Fee Structure:

- This ad-on course is offered free of cost to all the students for their skill development. The college does not charge any fees, either for doing the course, practical, examination or certification.

Designed & Developed By:

The course is designed by Mr. Anil kumar (Assistant Professor) approved by HOD and Board of Study (BOS) of Catalyst College, Patna.

Course Co-ordinator

- Mr. Nitish Kumar Rohatgi, Dept. of Management, Catalyst College, Patna

References/Books/Links:

1. **Management**| by James A. F. Stoner, R. Edward Freeman, Amitabh DeoKodwani Daniel R. Gilbert, Ranjeet Nambudiri | Pearson Paperback – 19 January 2018
2. **B. Support and Reference Reading (Business Fundamentals for Entrepreneurs – Part 1 Internal Operations)**
3. **Principles of Corporate Finance** | Richard A Brealey, Stewart C Myers, Franklin Allen, PitabasMohanty | McGraw Hill
4. **Human Resource Management** | Gary Dessler&BijuVarrkey | Pearson Paperback
   C. Support and Reference Reading (Business Fundamentals for Entrepreneurs – Part 2 External Operations)
5. **Marketing Management** | Philip Kotler, Kevin Keller, Alexander Chernev, JagdiahSheth, G Shainesh | Pearson Paperback
6. **Sales and DistributionManagement** | Richard R. Still, Edward W. Cundiff, Norman A. P. Govoni, Sandeep Puri (Author) | Pearson Paperback
7. **Operations and Supply Chain Management** | Richard B. Chase, Ravi Shankar, F. Robert Jacobs | McGraw Hill

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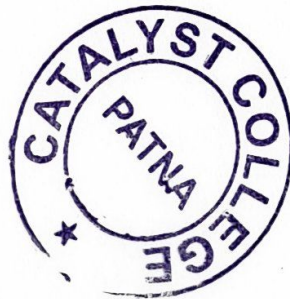
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THE POWER OF
HABIT

Why we do what we
do and how to *change*

Curriculum of Certificate Course in
(Power of Habits)

Curriculum of Certificate Course in Power of Habits

Overview:
The Power Of Habit helps you understand why habits are at the core of everything you do, how you can change them, and what impact that will have on your life, your business and society.

Why Knowledge of Habits is important for students: Any behavior or action you engage in regularly counts as a habit — from having coffee as soon as you get to the office to brushing your teeth just before going to bed.

Some habits can promote physical and mental wellness, while others might have more of an unwanted impact on your everyday life. With a little effort, though, it's possible to change habits that no longer serve you and create new ones that do.

We've partnered with to learn how habits can benefit you, plus get tips on breaking unhelpful habits and replacing them with ones that better support your well-being.
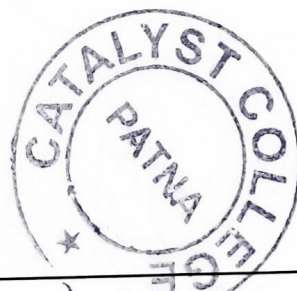
Course Code: **CC/VAC/POH**   Courses Duration: **30 Hours/Classes**

Eligibility for Admission
  • Candidates who are studying BBA/BBM course in the college.

Duration
  • 30 Hours/Class with Theory & Practical

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Structure of Power of Habits

S. No.	Paper Topics	Duration	Remarks	Credit Point/Marks
1	Introduction to habits – 3 step loops	02 Hours	Theory	06 Marks
2	Importance of cue routine reward	2 Hours	Theory	15 Marks
3	changing your habits by substituting just one part of the loop, ;	02 Hours	Theory	05 Marks
4	Willpower is the most important habit	02 Hours	Theory	06 Marks
5	, Strengthening of habits	04 Hours	Theory + Practical	08 Marks
6	Eating habits	03 Hours	Theory + Practical	08 Marks
7	Preventative Habits	04 Hours	Theory + Practical	14 Marks
8	Filling half of your plate with fruits and vegetable	02 Hours	Theory	06 Marks
9	Habits of Mind	03 Hours	Theory & practical	06 Marks
10	Social and communication habits	02 Hours	Theory + Practical	12 Marks
11	Productivity habits	02 Hours	Theory	14 Marks
	Total hours/Class	30 Hours	Total Credit Point /Marks	100 Marks

Fee Structure:

- This ad-on course is offered free of cost to all the students for their skill development. The college does not charge any fees, either for doing the course, practical, examination or certification.

Deigned & Developed By:
The course is designed by Mr. Protik Banerjee approved by HoD and
Board of Study (BOS) of Catalyst College, Patna.

Course Co-ordinator
- Mr. Nitish Rohatgi Dept. of Management, Catalyst College, Patna.

References Books
1. **7 habits of highly effective people – Stephen Covey**
2. Atomic Habits – James Clear
3. Good habits , Bad Habits – Wendy Wood

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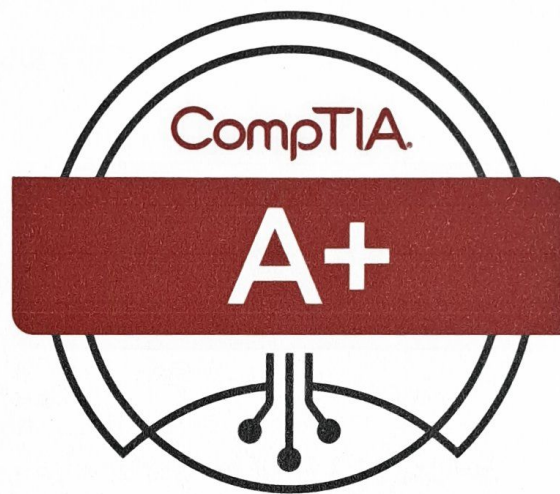Plot No.- C-16(P) Patliputra Industrial Area
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CompTIA.

A+

Curriculum of Certificate Course in
(CompTIA A+)

Curriculum of Certificate Course in

CompTIA A+

Overviews:

CompTIA A+ certified professionals are proven problem solvers. They support today's core technologies from security to cloud to data management and more. CompTIA A+ is the industry standard for launching IT careers into today's digital world.

Course Code : **CC/VAC/CompTIA A+**   Courses Duration : **30 Hours/Classes**

Eligibility for Admission
- Candidates who are studying BCA course in the college.

Duration
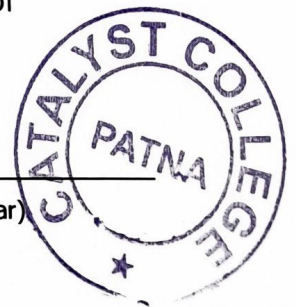- 30 hours class with theory and practical.

Structure of Syllabus CompTIA A+

S. No.	Paper Topics	Duration	Remarks	Credit Point/Marks
1	Computer & its types	02 Hours	01 Hours Each Class Only Theory	04 Marks
2	CPU & its types	02 Hours	Theory + Practical	10 Marks
3	Firmware	02 Hours	Theory + Practical	06 Marks
4	Computer Motherboard	02 Hours	Theory + Practical	08 Marks
5	Power Supply	02 Hours	Theory + Practical	10 Marks
6	Storage and its types	04 Hours	Theory + Practical	10 Marks
7	Mass storage implementation	03 Hours	Theory + Practical	15 Marks
8	Essential Peripherals	04 Hours	Theory + Practical	08 Marks
9	Display technology	02 Hours	Theory + Practical	08 Marks
10	Printer & its types	04 Hours	Theory + Practical	10 Marks
11	Essentials of networking	02 Hours	Theory + Practical	10 Marks
12	Virtualization	01 Hours	Theory + Practical	5 Marks
	Total hours/Class	**30 Hours**	**Total Credit Point /Marks**	**100 Marks**

Fee Structure:

- This ad-on course is offered free of cost to all the students for their skill development. The college does not charge any fees, either for doing the course, practical, examination or certification.

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Deigned & Developed By:
The course is designed by Mr. Murali Manohar, approved by HoD and Board of Study (BOS) of Catalyst College, Patna.
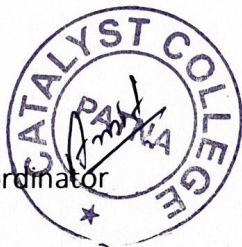
Course Co-ordinator
- Mr. Amit Shukla Sir Dept. of IT, Catalyst College, Patna.

References/Books/Links:

1. **Comptia A+ Certification All-in-One Exam Guide By Mike Meyers**

Course Coordinator

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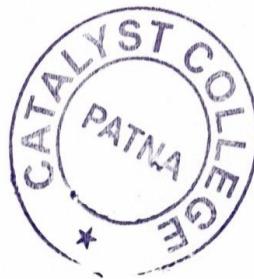
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Advanced Excel

**Curriculum of Certificate Course in
(Advanced Excel)**

Curriculum of Certificate Course in
Advanced Excel

Overviews:

Advanced Excel is a set of skills that allow users to perform complex calculations, data analysis, and automation to process large amounts of data. These skills can be used in a variety of industries and job roles, including data analytics, inventory management, and estimation.

Course Code: **CC/VAC/ADV-EXCEL**   Courses Duration: **60 Hours/Classes**

Eligibility for Admission
• Candidates who are studying BCA course in the college.

Duration
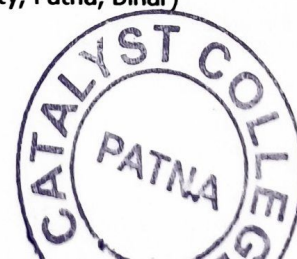• 60 Hours/Class with theory & practical

Structure of Syllabus Advanced Excel

S. No.	Paper Topics	Duration	Remarks	Credit Point/Marks
1	Getting Started with Information Analysis and Reporting	02 Hours	Theory	06 Marks
2	Preparing Data for Analysis, Identifying the Report Types and their Formats. Exploring Excel as a Financial Analysis Tool.	10 Hours	Theory + Practical	15 Marks
3	Using the Sort & Filter Feature, Cell Referencing (Relative, Absolute, Mixed, Fixed, 3D) Processing Data Using Formulas and Functions, Performing Financial Calculations.	04 Hours	Theory	05 Marks
4	Summarizing Data at Macro, Micro Level. Creating and Customizing Graphs, Creating and customizing PivotTable Reports and charts, Slicer,	08 Hours	Theory + Practical	08 Marks
5	Projecting Differences in Data, Types of Trend line, Performing What-If Analysis, Using Scenario Manager. Using Goal Seek, Using Solver.	07 Hours	Theory + Practical	10 Marks
6	Exchanging Data between Various Sources	07 Hours	Theory + Practical	10 Marks
7	Populating Data from the Text File, Internet, Loading Data from tab delimited text file,	09 Hours	Theory + Practical	15 Marks
8	Transferring data to the other formats.	06 Hours	Theory + Practical	08 Marks
9	Protecting workbook, worksheet, Automating Tasks using Macro,	06 Hours	Theory	08 Marks
10	Creating, recording, editing, deleting Macro.	08 Hours	Theory + Practical	15 Marks
	Total hours/Class	**60 Hours**	**Total Credit Point /Marks**	**100 Marks**

Fee Structure:

- This ad-on course is offered free of cost to all the students for their skill development. The college does not charge any fees, either for doing the course, practical, examination or certification.

Deigned & Developed By:

The course is designed by Mr. Raju Upadhyay, approved by HoD and Board of Study (BOS) of Catalyst College, Patna.

Course Co-ordinator

- Mr. Amit Kumar Shukla Dept. of IT, Catalyst College, Patna.

References/Books/Links:

1. https://www.tutorialspoint.com/advanced_excel/index.htm
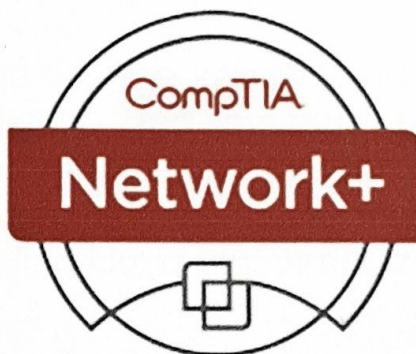2. https://www.elearnmarkets.com/courses/display/advanced-excel-tutorial

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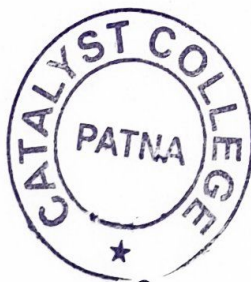Plot No.- C-16(P) Patliputra Industrial Area
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Curriculum of Certificate Course in
(CompTIA N+)

Curriculum of Certificate Course in

CompTIA N+

Overviews:

CompTIA N+ prepares you to support the network regardless of the platform. It forms the foundation you need before specializing in a vendor solution. CompTIA N+ is the only industry certification that covers both wired and wireless networks.

CompTIA's N+ validates the knowledge and skills needed to troubleshoot, configure and manage wired and wireless networks found in companies around the world. CompTIA N+ certifies a professional-level understanding of emerging technologies, including cloud and virtualization technologies.

Course Code : CC/VAC/CompTIA N+   Courses Duration : 40 Hours/Classes

Eligibility for Admission
- Candidates who are studying BCA course in the college.

Duration
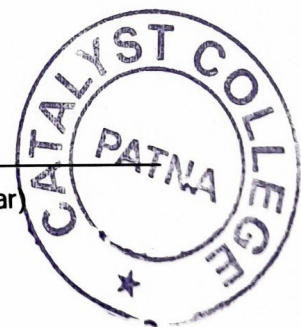- 40 hours class with theory and practical.

Structure of Syllabus CompTIA N+

S. No.	Paper Topics	Duration	Remarks	Credit Point/Marks
1	Network Basics	02 Hours	Theory	04 Marks
2	OSI Model	03 Hours	Theory	10 Marks
3	TCP/IP Model	03 Hours	Theory	06 Marks
4	Media & Cabling	03 Hours	Theory + Practical	08 Marks
5	Ethernet Fundamental	03 Hours	Theory + Practical	10 Marks
6	IP Addressing	05 Hours	Theory + Practical	10 Marks
7	Routing	03 Hours	Theory + Practical	15 Marks
8	Network Services	05 Hours	Theory + Practical	08 Marks
9	WAN concept	02 Hours	Theory + Practical	08 Marks
10	Wireless Network	04 Hours	Theory + Practical	10 Marks
11	Cloud & Data Center	04 Hours	Theory + Practical	10 Marks
12	Network Security	03 Hours	Theory + Practical	5 Marks
	Total hours/Class	**40 Hours**	**Total Credit Point /Marks**	**100 Marks**

Fee Structure:

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Deigned & Developed By:
The course is designed by Mr. Murali Manohar, approved by HoD and Board of
Study (BOS) of Catalyst College, Patna.

Course Co-ordinator
- Mr. Amit Shukla Sir Dept. of IT, Catalyst College, Patna.

References/Books/Links:

1. **Comptia Network+ Certification All-in-One Exam Guide By Mike Meyers**
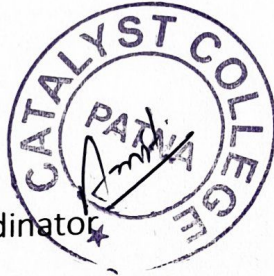
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Curriculum of Certificate Course in
(GO Programming Language)

Curriculum of Certificate Course in GO Programming Language

Overviews:

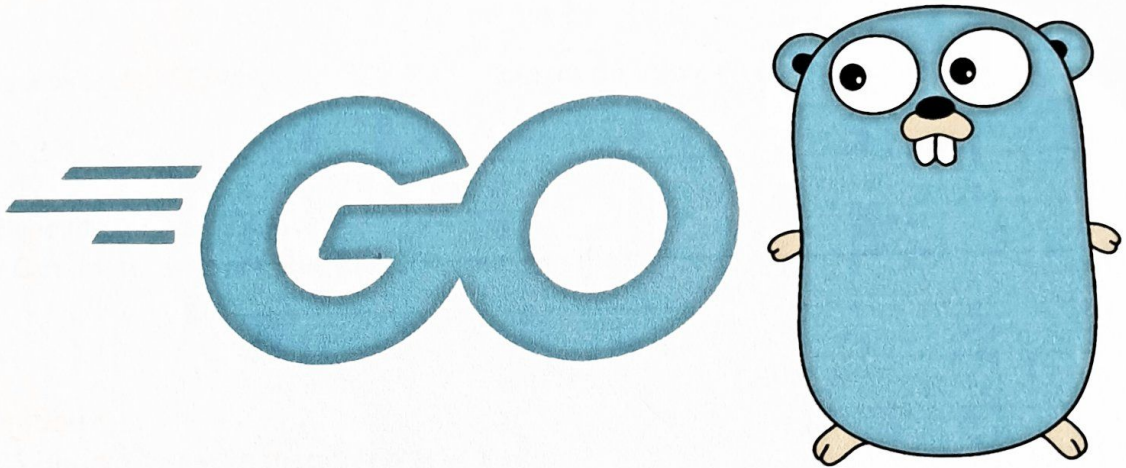Go Programming Language is an Open-Source Programming Language focused on simplicity, reliability, and efficiency. Go was originally designed at Google in 2007. At the time, Google was growing quickly, and code being used to manage their infrastructure was also growing quickly in both size and complexity. These skills can be used in a variety of industries and job roles, including Problem handling, Server management, Client Server based architecture and quick application generator.
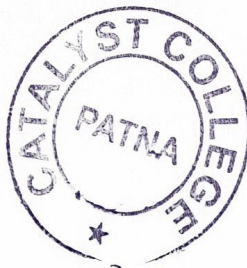
Course Code: **CC/VAC/GP**   Courses Duration: **45 Hours/Classes**

Eligibility for Admission
• Candidates who are studying BCA course in the college.

Duration
• 45 Hours/Class with theory & practical

Structure of Syllabus Go Programming Language

S. No.	Paper Topics	Duration	Remarks	Credit Point/Marks
1	Go programming – overview Go programming – environment setup	02 Hours	Theory + Practical	06 Marks
2	Go programming – Program Structure Go programming – Basic syntax Go programming – data types Go programming – variables	10 Hours	Theory + Practical	15 Marks
3	Go programming – constant Go programming – operators Go programming – decision making Go programming – loops Go programming – functions	04 Hours	Theory	05 Marks
4	Go programming – scope rules Go programming – strings Go programming – arrays Go programming – pointers	05 Hours	Theory + Practical	08 Marks
5	Go programming – structures Go programming – slices	05 Hours	Theory + Practical	10 Marks
6	Go programming – range Go programming – maps	07 Hours	Theory + Practical	10 Marks
7	Go programming – recursion Go programming – error handling	07 Hours	Theory + Practical	15 Marks
8	Go programming – type casting	04 Hours	Theory + Practical	08 Marks
9	Go programming – interfaces	04 Hours	Theory	08 Marks
10	Go programming – Error handling Project Handling	04 Hours	Theory + Practical	15 Marks
	Total hours/Class	**45 Hours**	**Total Credit Point /Marks**	**100 Marks**

Fee Structure:

- This ad-on course is offered free of cost to all the students for their skill development. The college does not charge any fees, either for doing the course, practical, examination or certification.

Deigned & Developed By:
The course is designed by Mr. Amit Kumar Shukla, approved by HoD and Board of Study (BOS) of Catalyst College, Patna.

Course Co-ordinator

- Mr. Amit Kumar Shukla Dept. of IT, Catalyst College, Patna.

References/Books/Links:

1. https://go.dev/
2. https://gopro.com/en/us/
3. Learning Go ISBN:-13:978-9355425333 ISBN:-10:9355425333
4. https://www.javatpoint.com/go-tutorial

Fee Structure:

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1. https://go.dev/
2. https://gopro.com/en/us/
3. Learning Go ISBN:-13:978-9355425333 ISBN:-10:9355425333
4. https://www.javatpoint.com/go-tutorial

Course Coordinator-

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Curriculum of Certificate Course in
(Payroll Management)

Curriculum of Certificate Course in Payroll Management

<u>Overviews</u>:

Payroll management is a critical function within organizations, encompassing the process of administering employee compensation, including wages, bonuses, deductions, and taxes. Effective payroll management ensures that employees are paid accurately and on time, while also meeting compliance requirements with governmental regulations.

Payroll management involves several key components. First is payroll calculation, which requires accuracy in processing wages, overtime, and other compensatory elements according to company policy and labor laws. Then, compliance with regulations is crucial, Payroll managers often work closely with HR to ensure all processes comply with employment laws, including minimum wage, overtime pay, and tax obligations.

Effective payroll systems and knowledgeable professionals can ensure that this complex process is managed smoothly, contributing to organizational stability and trust among employees.

<u>Why knowledge of Payroll Management is Important for HR Students</u>:

Knowledge of payroll management is essential for HR students for several reasons, as it forms an integral part of human resource management and directly impacts employee relations, legal compliance, and organizational efficiency.

1. **Understanding Employee Compensation**: HR students need to understand how payroll systems calculate gross and net pay, including deductions for taxes, retirement contributions, and other benefits.

2. **Legal and Regulatory Compliance**: HR students must be knowledgeable about these laws to ensure organizations adhere to minimum wage standards, overtime laws, and tax compliance.

3. **Cross-Functional Collaboration**: HR students with knowledge of payroll can work more effectively with finance teams, as they'll understand the impact of payroll on budgeting and financial planning.

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4. **Technology and Data Management Skills**: Knowledge of payroll management introduces HR students to data management, software usage, and data security best practices, preparing them for technology-driven roles in HR.

5. **Financial Acumen**: For HR students, understanding payroll management fosters financial acumen, helping them comprehend the financial impact of HR decisions, such as hiring, salary increments, and benefits planning to make an informed decision that align with the company's financial objectives.

6. **Employee Relations and Trust**: Knowledge in payroll management equips HR students to handle payroll issues promptly and effectively, maintaining transparency and trust with employees.

7. **Strategic HR Role**: In many organizations, HR is becoming more strategic, focusing on employee engagement, retention, and talent management.

8. **Global Payroll Management**: HR students with a global payroll perspective will be more prepared to support international teams and ensure compliance across various jurisdictions.

In conclusion, payroll management knowledge prepares HR students to handle one of HR's most sensitive and essential responsibilities. This skill set is invaluable for any HR professional aiming to create a positive workplace and support organizational growth.

Course Code : **CC/VAC/PM**   Courses Duration : **35 Hours/Classes**

Eligibility for Admission
- Candidates who are studying BBA/BBM course in the college.

Duration
- 35 Hours/Class with Theory & Practical

Structure of Syllabus (PAYROLL MANAGEMENT)

S. No.	Paper Topics	Duration	Remarks	Credit Point/Marks
1	Introduction and Importance of Payroll Management	02 Hours	Theory	06 Marks
2	Legal & Regulatory Framework	06 Hours	Theory + Practical	14 Marks
3	Payroll Processing Systems	03 Hours	Theory	10 Marks
4	Compensation Structures	03 Hours	Theory + Practical	06 Marks
5	Payroll Calculations	03 Hours	Theory + Practical	08 Marks
6	Payroll Administration	03 Hours	Theory + Practical	08 Marks
7	Payroll Reporting & Compliance	03 Hours	Theory + Practical	12 Marks
8	Emerging Trends & Future Directions/ Challenges	03 Hours	Theory + Practical	06 Marks
9	Case Studies & Activities	03 Hours	Theory	06 Marks
10	Assessment- Quizzes/Assignments	03 Hours	Theory	12 Marks
11	Project Presentations on payroll related Topics	03 Hours	Theory	12 Marks
	Total hours/Class	**35 Hours**	**Total Credit Point /Marks**	**100 Marks**

Fee Structure:

- *This ad-on course is offered free of cost to all the students for their skill development. The college does not charge any fees, either for doing the course, practical, examination or certification.*

Deigned & Developed By:
The course is designed by **Dr Neshat Qamar(Assistant Professor)** .
Approved by HOD and Board of Study (BOS) of Catalyst College,
Patna.

Course Co-ordinator
- Mr. Nitish Rohatgi Dept. of Management, Catalyst College, Patna.

References/Books/Links:

1. Payroll Management:2024 Edition by Charles Read
2. Payroll Practice Fundamentals by American Payroll Association
3. Fundamentals of Payroll by Vicki M. Lambert
4. Essentials of Payroll: Management and Accounting by Steven M. Bragg

Course Coordinator
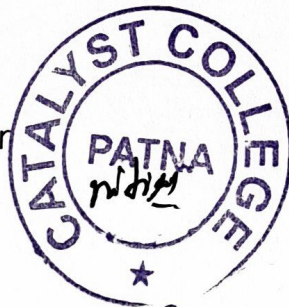
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redhat
Linux

Curriculum of Certificate Course in
Red Hat Enterprises Linux (RHCE)

Curriculum of Certificate Course in

Red Hat Enterprises Linux (RHCE)

Overviews:

RHCE is useful for students or IT professional for handling of Linux based system, server or whole infrastructure. Its different units explain about Linux step by step which makes administration easy for admin and user.

Course Code : **CC/VAC/RHCE**   Courses Duration : **60 Hours/Classes**

Eligibility for Admission
- Candidates who are studying BCA course in the college.

Duration
- 60 hours class with theory and practical.

Structure of Syllabus Red Hat Enterprises Linux (RHCE)

S. No.	Paper Topics	Duration	Remarks	Credit Point/Marks
1	Basic concept of Linux	04 Hours	Theory	04 Marks
2	File & directory Handling with command line and GUI with permission	08 Hours	Theory + Practical	10 Marks
3	Remote Accessing	03 Hours	Theory + Practical	06 Marks
4	Linux installation and software management	04 Hours	Theory + Practical	08 Marks
5	Vi Editor	04 Hours	Theory + Practical	10 Marks
6	Access Control List	03 Hours	Theory + Practical	10 Marks
7	Storage Management & LVM	10 Hours	Theory + Practical	15 Marks
8	Network Services with IPv4 and IPv6	08 Hours	Theory + Practical	08 Marks
9	Managing DNS	03 Hours	Theory + Practical	08 Marks
10	Firewall Management	05 Hours	Theory + Practical	10 Marks
11	Virtualization	04 Hours	Theory + Practical	10 Marks
12	Linux Shell	04 Hours	Theory + Practical	5 Marks
	Total hours/Class	**60 Hours**	**Total Credit Point /Marks**	**100 Marks**

Fee Structure:

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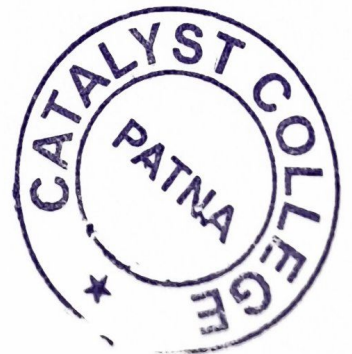
Course Co-ordinator
- Mr. Amit Shukla Sir Dept. of IT, Catalyst College, Patna.

References/Books/Links:

1. RHCSA/RHCE Red Hat Linux Certification Study Guide (Exams Ex200 & Ex300) Paperback – Illustrated, 16 April 2016
   by Michael Jang (Author), Alessandro Orsaria (Author)
2. Red Hat Certified Engineer (RHCE) Ansible Automation Study Guide by Alex Soto Bueno, Andrew Block
   Released July 2025 Publisher(s): O'Reilly Media, Inc. ISBN: 9781098162139

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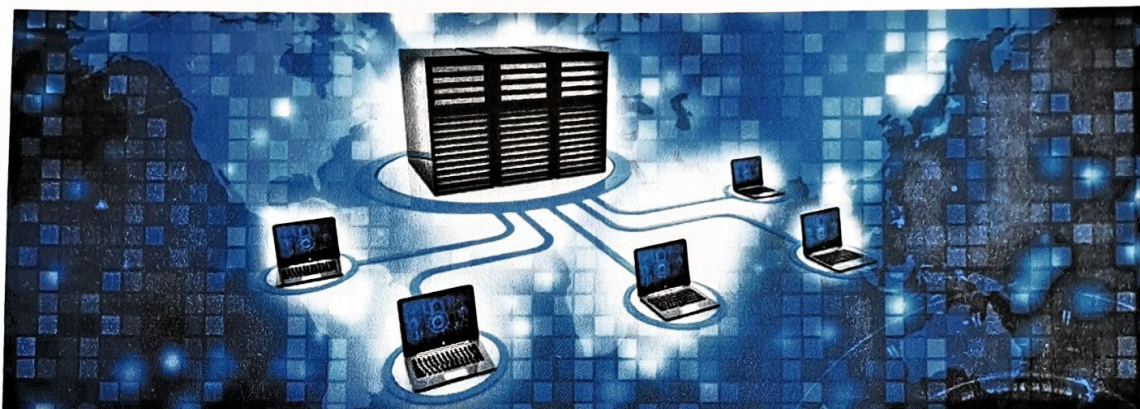
Curriculum of Certificate Course in
CISCO Certified Network Associates (CCNA)

Curriculum of Certificate Course in

Cisco Certified Network Associates
(CCNA)

Overviews:

It validates knowledge and skills in network fundamentals and access, IP connectivity, IP services, security fundamentals, and more. Students can make IT career in any direction by learning about Cisco devices with its features and earning a Cisco Certified Network Associate (CCNA) certification.

Course Code : **CC/VAC/CCNA**　　Courses Duration : **40 Hours/Classes**

Eligibility for Admission
- Candidates who are studying BCA course in the college.

Duration
- 40 hours class with theory and practical.

Structure of Syllabus Cisco Certified Network Associates (CCNA)

S. No.	Paper Topics	Duration	Remarks	Credit Point/Marks
1	Concept of Network, Network devices, Topology, media	04 Hours	Theory	04 Marks
2	OSI Model & TCP/IP Model	04 Hours	Theory + Practical	10 Marks
3	IPv4 & IPv6	02 Hours	Theory + Practical	06 Marks
4	Basic Configuration of Switch, VLAN, CDP, Switching Loop	04 Hours	Theory + Practical	08 Marks
5	Remote Accessing with Telnet & SSh	04 Hours	Theory + Practical	10 Marks
6	Router and Routing concept	02 Hours	Theory + Practical	10 Marks
7	OSPFv2	04 Hours	Theory + Practical	15 Marks
8	NAT, NTP, DHCP	04 Hours	Theory + Practical	08 Marks
9	Data Packet filtration with ACL	02 Hours	Theory + Practical	08 Marks
10	IP Sec & VPN	04 Hours	Theory + Practical	10 Marks
11	Wireless Security	04 Hours	Theory + Practical	10 Marks
12	Troubleshooting	02 Hours	Theory + Practical	5 Marks
	Total hours/Class	**40 Hours**	**Total Credit Point /Marks**	**100 Marks**

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Fee Structure:

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Deigned & Developed By:

The course is designed by Mr. Murali Manohar, approved by HoD and Board of Study (BOS) of Catalyst College, Patna.

Course Co-ordinator

- Mr. Amit Shukla Sir Dept. of IT, Catalyst College, Patna.

References/Books/Links:

1. CCNA 200-301 Official Cert Guide Library By Wendell Odom, David Hucaby, Jason Gooley

Course Coordinator

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Curriculum of Certificate Course in
(Ethical Hacking)

Curriculum of Certificate Course in
Ethical Hacking

Overviews:

Ethical hacking is a technology career with specific skills, and cybersecurity certifications help people break into the field. Many ethical hacking jobs still require a bachelor's degree in information technology, or another technology or cybersecurity related degree. However more employers are considering candidates without degrees in favor of experience and certifications. The most proficient ethical hackers have a combination of a degree, experience and certifications.

Ethical hackers should also have a working knowledge of infrastructure technology including Linux servers, Cisco network controls, virtualization, Citrix and Microsoft Exchange. Computer programming experience and understanding of various programming languages is required for advanced positions.
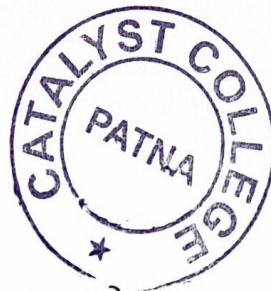
Course Code : **CC/VAC/EH**   Courses Duration : **50 Hours/Classes**

Eligibility for Admission
- Candidates who are studying BCA course in the college.

Duration
- 50 Hours/Class with Theory & Practical

Structure of Syllabus Ethical Hacking

S. No.	Paper Topics	Duration	Remarks	Credit Point/Marks
1	Introduction about Ethical Hacking, Computer Network, IP address and Ports	02 Hours	Theory	06 Marks
2	OSI Model & TCP/IP Model, Domain, DNS and its zones	05 Hours	Theory + Practical	15 Marks
3	Capturing and Analyzing Network Packet with Wireshark	02 Hours	Theory + Practical	05 Marks
4	Linux with its features and its basic commands	04 Hours	Theory + Practical	08 Marks
5	Foot-printing & Network scanning	05 Hours	Theory + Practical	10 Marks
6	Enumeration & Types of Enumeration	05 Hours	Theory + Practical	10 Marks
7	Enumeration – NetBIOS, SNMP, NFS	06 Hours	Theory + Practical	15 Marks
8	Vulnerability Assessment , Vulnerability Analysis	04 Hours	Theory + Practical	08 Marks
9	Spoofing & Sniffing	06 Hours	Theory + Practical	08 Marks
10	Hacking Web Application, Wireless Network	06 Hours	Theory + Practical	10 Marks
11	Use of Key logger and NMAP	05 Hours	Theory + Practical	05 Marks
	Total hours/Class	**50 Hours**	**Total Credit Point /Marks**	**100 Marks**

Fee Structure:

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The course is designed by Mr. Murali Manohar, approved by HoD and
Board of Study (BOS) of Catalyst College, Patna.

Course Co-ordinator
- Mr. Amit Kumar Shukla Dept. of IT, Catalyst College, Patna.

References/Books/Links:

1. Hacking: The art of exploitation. by Jon Erickson
2. Breaking into information security: Learning the ropes 101 by Andy Gill
3. Hacking for beginners by Julian James McKinnon
4. Hands-on ethical hacking and network defense by Michael T. Simpson
5. Mastering hacking: The art of information gathering & scanning by Harsh Bothra
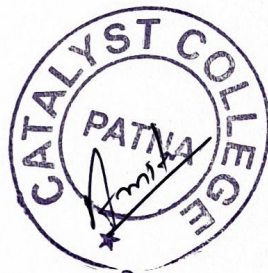
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Curriculum of Certificate Course in (Digital Marketing & Social Media)
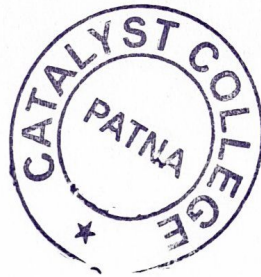
Curriculum of Certificate Course in
Digital Marketing & Social Media

Overviews:

A beginner's digital marketing course introduces the fundamental concepts, tools, and techniques for marketing products or services online. The course typically covers key areas like social media marketing, search engine optimization (SEO), pay-per-click advertising (PPC), email marketing, content creation, analytics, and strategy planning. By the end, learners should understand how to create, manage, and analyze digital campaigns effectively.

Course Code : **CC/VAC/SMDM**

Courses Duration : **30 Hours/Classes**

Eligibility for Admission
- Candidates who are studying BCA/BScIT/BBM course in the college.
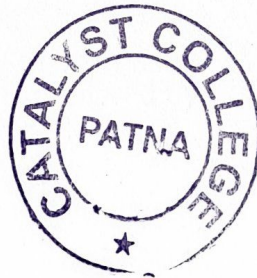
Duration
- 30 Hours/Class with theory & practical

S. No.	Paper Topics	Duration	Remarks	Credit Point/Marks
1	Introduction to Digital Marketing	02 Hours	Theory	05 Marks
2	Basics of Website Development and Analytics	04 Hours	Theory + Practical	15 Marks
3	Search Engine Optimization (SEO)	04 Hours	Theory	05 Marks
4	Social Media Marketing	04 Hours	Theory + Practical	15 Marks
5	Content Marketing	04 Hours	Theory + Practical	10 Marks
6	Email Marketing	04 Hours	Theory + Practical	10 Marks
7	Introduction to Paid Advertising (PPC)	04 Hours	Theory + Practical	5 Marks
8	Analytics and Reporting	04 Hours	Theory + Practical	15 Marks
	Total hours/Class	30 Hours	Total Credit Point /Marks	100 Marks

Fee Structure:

- This ad-on course is offered free of cost to all the students for their skill development. The college does not charge any fees, either for doing the course, practical, examination or certification.

Deigned & Developed By:
The course is designed by Priya Ratnam, approved by HoD and Board of Study (BOS) of Catalyst College, Patna.

Course Co-ordinator

- Mr. Amit Shukla Dept. of IT, Catalyst College, Patna.

Catalyst College (An Affiliated College to Patliputra University, Patna, Bihar)
www.catalystcollege.in

References/Books/Links:

1. The Zen of Social Media Marketing: An Easier Way to Build Credibility, Generate Buzz, and Increase Revenue, Shama Hyder.
2. Digital Marketing for Dummies, Ryan Deiss.
3. Marketing 4.0: Moving from Traditional to Digital, Philip Kotler.

Course Co-ordinator

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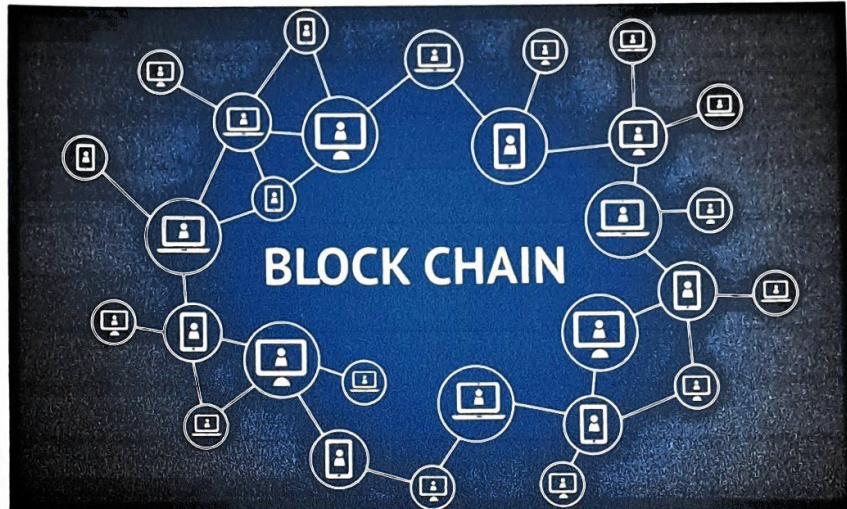
BLOCK CHAIN

Curriculum of Certificate Course in (Blockchain)

Curriculum of Certificate Course in Blockchain

Overviews:

Blockchain technology has generated massive interest among governments, enterprises, and academics, because of its capability of providing a transparent, secured, tamper-proof solution for interconnecting different stakeholders in a trustless setup. In January 2021, the Ministry of Electronics and Information Technology (MeiTY), Government of India, published the first draft of the "National Strategy on Blockchain" that highlights 17 potential applications that are of national interest. Against this backdrop, this subject will cover the basic design principles of Blockchain technology and its applications over different sectors. Additionally, the course also provides tutorials on setting up blockchain applications using one of the well-adopted permissionless blockchain platforms - Ethereum, and one permissioned blockchain platform - Hyperledger.

Course Code: **CC/VAC/BL**   Courses Duration: **32 Hours/Classes**

Eligibility for Admission
- Candidates who are studying BCA/BScIT course in the college.

Duration
- 32 Hours/Class with theory & practical

Structure of Syllabus Blockchain

S. No.	Paper Topics	Duration	Remarks	Credit Point/Marks
1	Introduction to Blockchain Technology and its Importance	02 Hours	Theory	06 Marks
2	Basic Crypto Primitives I – Cryptographic Hash	02 Hours	Theory + Practical	15 Marks
3	Basic Crypto Primitives II – Digital Signature	04 Hours	Theory	05 Marks
4	Evolution of the Blockchain Technology	04 Hours	Theory + Practical	08 Marks
5	Elements of a Blockchain	03 Hours	Theory + Practical	10 Marks
6	Blockchain Consensus I – Permissionless Models	02 Hours	Theory + Practical	10 Marks
7	Blockchain Consensus II – Permissioned Models	04 Hours	Theory + Practical	10 Marks
8	Smart Contract Hands On I – Ethereum Smart Contracts (Permissionless Model)	03 Hours	Theory + Practical	08 Marks
9	Smart Contract Hand On II – Hyperledger Fabric (Permissioned Model)	02 Hours	Theory	08 Marks
10	Decentralized Identity Management	02 Hours	Theory + Practical	10 Marks
11	Blockchain Interoperability	02 Hours	Theory + Practical	05 Marks
12	Blockchain Applications	02 Hours	Theory + Practical	05 Marks
	Total hours/Class	**32 Hours**	**Total Credit Point /Marks**	**100 Marks**
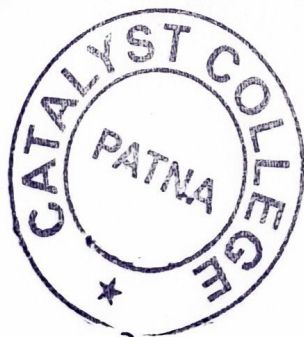
Fee Structure:
- This ad-on course is offered free of cost to all the students for their skill development. The college does not charge any fees, either for doing the course, practical, examination or certification.

Deigned & Developed By:
The course is designed by Mr. Raju Upadhyay, approved by HoD and Board of Study (BOS) of Catalyst College, Patna.

Course Co-ordinator
- Mr. Amit Kumar Shukla Dept. of IT, Catalyst College, Patna.

References/Books/Links:

1. Mastering Blockchain: A deep dive into distributed ledgers, consensus protocols, smart contracts, DApps, cryptocurrencies, Ethereum, and more, 3rd Edition, Imran Bashir, Packt Publishing,2020,ISBN:9781839213199,book website:https://www.packtpub.com/product/mastering-blockchain-thirdedition/9781839213199

2. Hyperledger Tutorials - https://www.hyperledger.org/use/tutorials

3. Ethereum Development Resources - https://ethereum.org/en/developers

4. Online materials and case studies

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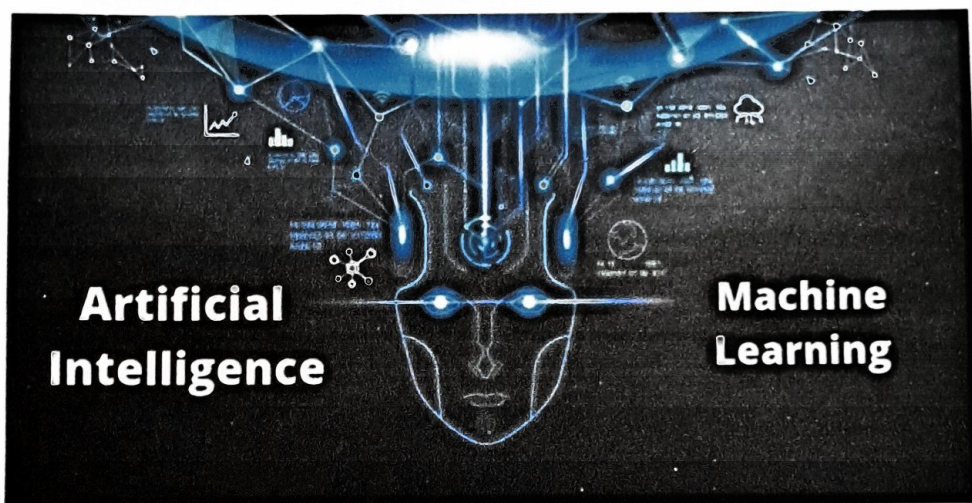
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Curriculum of Certificate Course in
(Artificial Intelligence & Machine Learning)

Curriculum of Certificate Course in Artificial Intelligence & Machine Learning

Overviews:

With the increased availability of data from varied sources there has been increasing attention paid to the various data driven disciplines such as analytics and machine learning. In this course we intend to introduce some of the basic concepts of machine learning from a mathematically well motivated perspective. We will cover the different learning paradigms and some of the more popular algorithms and architectures used in each of these paradigms.

Course Code: **CC/VAC/AI&ML**   Courses Duration: **60 Hours/Classes**

Eligibility for Admission
• Candidates who are studying BCA/BScIT course in the college.

Duration
• 60 Hours/Class with theory & practical

Structure of Syllabus AIML

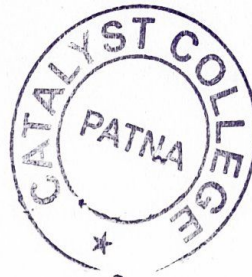| S. No.	Paper Topics	Duration	Remarks	Credit Point/Marks
1	Probability Theory, Linear Algebra, Convex Optimization - Overview	04 Hours	Theory	06 Marks
2	Introduction: Statistical Decision Theory - Regression, Classification, Bias Variance	04 Hours	Theory + Practical	10 Marks
3	Linear Regression, Multivariate Regression, Subset Selection, Shrinkage Methods, Principal Component Regression, Partial Least squares	04 Hours	Theory+ Practical	05 Marks
4	Linear Classification, Logistic Regression, Linear Discriminant Analysis	04 Hours	Theory + Practical	05 Marks
5	Perceptron, Support Vector Machines	05 Hours	Theory + Practical	05 Marks
6	Neural Networks - Introduction, Early Models, Perceptron Learning, Backpropagation, Initialization, Training & Validation, Parameter Estimation - MLE, MAP, Bayesian Estimation	06 Hours	Theory + Practical	10 Marks
7	Decision Trees, Regression Trees, Stopping Criterion & Pruning loss functions, Categorical Attributes, Multiway Splits, Missing Values, Decision Trees - Instability Evaluation Measures	06 Hours	Theory + Practical	10 Marks
8	Bootstrapping & Cross Validation, Class Evaluation Measures, ROC curve, MDL, Ensemble Methods - Bagging, Committee Machines and Stacking, Boosting	06 Hours	Theory + Practical	08 Marks
9	Gradient Boosting, Random Forests, Multi-class Classification, Naive Bayes, Bayesian Networks	04 Hours	Theory	08 Marks
10	Undirected Graphical Models, HMM, Variable Elimination, Belief Propagation	04 Hours	Theory + Practical	15 Marks
11	Partitional Clustering, Hierarchical Clustering, Birch Algorithm, CURE Algorithm, Density-based Clustering	05 Hours	Theory + Practical	08 Marks

12	Gaussian Mixture Models, Expectation Maximization	04 Hours	Theory + Practical	05 Marks
13	Learning Theory, Introduction to Reinforcement Learning, Optional videos (RL framework, TD learning, Solution Methods, Applications)	04 Hours	Theory + Practical	05 Marks
	Total hours/Class	**60 Hours**	**Total Credit Point /Marks**	**100 Marks**

Fee Structure:

- This ad-on course is offered free of cost to all the students for their skill development. The college does not charge any fees, either for doing the course, practical, examination or certification.

Deigned & Developed By:
The course is designed by Mr. Amit Kumar Shukla, approved by HoD and Board of Study (BOS) of Catalyst College, Patna.

Course Co-ordinator
- Mr. Amit Kumar Shukla Dept. of IT, Catalyst College, Patna.

References/Books/Links:

1. The Elements of Statistical Learning, by Trevor Hastie, Robert Tibshirani, Jerome H. Friedman (freely available online)
2. Pattern Recognition and Machine Learning, by Christopher Bishop (optional)
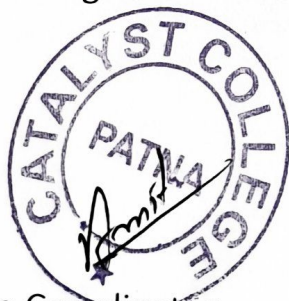
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python programming ™

Curriculum of Certificate Course in
(Python Programming)

Curriculum of Certificate Course in
Python Programming

Overview of Python

Python is a high-level, interpreted programming language known for its simplicity, readability, and versatility. It was created by Guido van Rossum and first released in 1991. Python emphasizes code readability and allows developers to express concepts in fewer lines of code compared to languages like C or Java.

Course Code: **CC/VAC/Python**   Courses Duration: **60 Hours/Classes**

Eligibility for Admission
• Candidates who are studying BCA course in the college.

Duration
• 60 Hours/Class with theory & practical
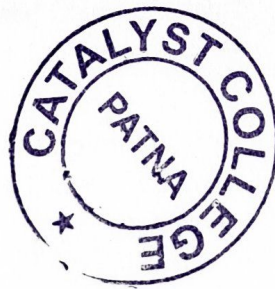
Structure of Syllabus Python Programming

S. No.	Paper Topics	Duration	Remarks	Credit Point/Marks
1	Python programming – overview Python programming – environment setup	02 Hours	Theory + Practical	07 Marks
2	Python programming – Program Structure Python programming – Basic syntax Python programming – data types Go programming – variables	07 Hours	Theory + Practical	8 Marks
3	Python programming – constant Python programming – operators Python programming – decision making Python programming – loops Python programming – functions	04 Hours	Theory + Practical	05 Marks
4	Python programming – List Python programming – Tuples Python programming – Sets Python programming – Dictionary	05 Hours	Theory + Practical	08 Marks
5	Python programming – String Python programming – slicing	05 Hours	Theory + Practical	7 Marks
6	Python programming – Function and its arguments Python programming – Default Argument, Keyword Argument, Arbitrary Arguments List	07 Hours	Theory + Practical	7 Marks
7	Python programming – Intro to File System, Writing data to file, Reading data from file. Python programming – Methods of file objects	06 Hours	Theory + Practical	8 Marks
8	Python programming – Exception handling, Syntax Errors, Exceptions, try, except, finally	04 Hours	Theory + Practical	08 Marks
9	Python programming – Module, Creating Modules, Import a module, import the names, executing modules as scripts	04 Hours	Theory+ Practical	08 Marks
10	Python programming – Class and Objects, instance objects, method objects, constructor, destructor, overloading, overriding	05 Hours	Theory + Practical	12 Marks
11	Python programming – Regular Expression, date and time libraries, dealing with Excel, GUI, Web Scrapping	05 Hours	Theory + Practical	10 Marks

12	Python programming – Python Analytic, Numpy, Scipy, Pandas, Matplotlib, Scikitlearn, Statsmodels, Seaborn, Urillib2	06 Hours	Theory + Practical	12 Marks
	Total hours/Class	**60 Hours**	**Total Credit Point /Marks**	**100 Marks**

Fee Structure:

- This ad-on course is offered free of cost to all the students for their skill development. The college does not charge any fees, either for doing the course, practical, examination or certification.

Deigned & Developed By:

The course is designed by Mr. Ravi Kumar Soni, approved by HoD and Board of Study (BOS) of Catalyst College, Patna.

Course Co-ordinator

- Mr. Amit Kumar Shukla Dept. of IT, Catalyst College, Patna.

References/Books/Links:

1. https://docs.python.org/
2. https://www.w3schools.com/python/
3. https://www.javatpoint.com/python-tutorial
4. https://www.geeksforgeeks.org/python-programming-language-tutorial/

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Curriculum of Certificate Course in
Amazon Web Services (AWS) Cloud

Curriculum of Certificate Course in

Amazon Web Services (AWS) Cloud

Overviews:

You'll be guided through a recommended curriculum built by AWS experts that you can take at your own pace. Complete the full plan, or choose the courses that interest you. After you complete this plan, you'll have a better understanding of AWS Cloud benefits, core services, pricing, and security. You'll also have gained foundational skills to help you enter careers in the cloud, IT, or development.

Course Code : **CC/VAC/AWS**   Courses Duration : **35 Hours/Classes**

Eligibility for Admission
- Candidates who are studying BCA course in the college.

Duration
- 35 hours class with theory and practical.

Structure of Syllabus Amazon Web Services (AWS) Cloud

S. No.	Paper Topics	Duration	Remarks	Credit Point/Marks
1	Introduction about AWS	01 Hours	Theory	05 Marks
2	Job roles in cloud service	04 Hours	Theory	10 Marks
3	AWS Cloud Practitioner Essentials	04 Hours	Theory	15 Marks
4	AWS Billing and Cost Management	04 Hours	Theory	10 Marks
5	AWS Well-Architected Foundations	06 Hours	Theory	15 Marks
6	AWS Foundation	02 Hours	Theory	10 Marks
7	AWS Cloud Adoption Framework	03 Hours	Theory + Practical	15 Marks
8	Amazon Simple Storage Service(S3)	04 Hours	Theory + Practical	05 Marks
9	VPC	04 Hours	Theory + Practical	05 Marks
10	Cloud Front & IAM	04 Hours	Theory + Practical	10 Marks
	Total hours/Class	**35 Hours**	**Total Credit Point /Marks**	**100 Marks**

Fee Structure:

- This ad-on course is offered free of cost to all the students for their skill development. The college does not charge any fees, either for doing the course, practical, examination or certification.

Deigned & Developed By:

The course is designed by Mr. Murali Manohar, approved by HoD and Board of Study (BOS) of Catalyst College, Patna.

Course Co-Ordinator

- Mr. Amit Shukla Sir Dept. of IT, Catalyst College, Patna.

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References/Books/Links:
1. Amazon Web Services: The Definitive Guide for Beginners and
   Advanced Users by Parul Dubey

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Curriculum of Certificate Course in
Cloud Computing

Cloud Computing

Overviews:

Cloud computing is a scalable services consumption and delivery platform that provides on-demand computing service for shared pool of resources, namely servers, storage, networking, software, database, applications etc., over the Internet. It is a model for enabling ubiquitous, on-demand access to a shared pool of configurable computing resources, which can be rapidly provisioned and released with minimal management effort. This course will introduce various aspects of cloud computing, including fundamentals, management issues, security challenges and future research trends. This will help students (both UG and PG levels) and researchers to use and explore the cloud computing platforms.

Course Code : **CC/VAC/CC**   Courses Duration : **30 Hours/Classes**

Eligibility for Admission
- Candidates who are studying BCA course in the college.

Duration
- 30 hours class with theory and practical.

Structure of Syllabus Cloud Computing

S. No.	Paper Topics	Duration	Remarks	Credit Point/Marks
1	Cloud Computing Overview	04 Hours	Theory	05 Marks
2	**Datacenter**	06 Hours	Theory + Practical	10 Marks
3	History of Cloud Computing	05 Hours	Theory + Practical	15 Marks
4	Cloud Service Model	05 Hours	Theory + Practical	10 Marks
5	Cloud Deployment Model	04 Hours	Theory + Practical	15 Marks
6	Cloud Architecture	02 Hours	Theory + Practical	10 Marks
7	Virtualization	04 Hours	Theory + Practical	15 Marks
8	Virtual Machine & Storage	04 Hours	Theory + Practical	05 Marks
9	Standard of Data Center design	05 Hours	Theory + Practical	05 Marks
10	Introduction of AWS & GCP	05 Hours	Theory + Practical	10 Marks
	Total hours/Class	**40 Hours**	**Total Credit Point /Marks**	**100 Marks**

Fee Structure:
- This ad-on course is offered free of cost to all the students for their skill development. The college does not charge any fees, either for doing the course, practical, examination or certification.

Deigned & Developed By:
The course is designed by Mr. Murali Manohar, approved by HoD and Board of Study (BOS) of Catalyst College, Patna.

Course Co-ordinator
- Mr. Amit Shukla Sir Dept. of IT, Catalyst College, Patna.

References/Books/Links:
1. Cloud Computing: Principles and Paradigms, Editors: Rajkumar Buyya, James Broberg, Andrzej M. Goscinski, Wiley,2011
2. Enterprise Cloud Computing - Technology, Architecture, Applications, Gautam Shroff, Cambridge University Press, 2010
3. Cloud Computing Bible, Barrie Sosinsky, Wiley-India, 2010
4. Cloud Security: A Comprehensive Guide to Secure Cloud Computing, Ronald L. Krutz, Russell Dean Vines, Wiley- India,2010
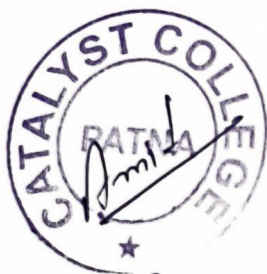
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Curriculum of Certificate Course in
(Rural Marketing)

Curriculum of Certificate Course in Rural Marketing

Overviews: The course aims to provide students an introduction about the concepts and issues of rural marketing and to develop an understanding about the functions and management of agencies working for rural area. Course will also provide knowledge to the students about Rural Consumer Behavior and product demand and different services provided in rural area.

Course Code : **CC/VAC/RUM**   Courses Duration : **42 Hours/Classes**

Eligibility for Admission
- Candidates who are studying BBA /BBM course in the college.

Duration
- 42 Hours/Class with theory only

Structure of Syllabus Rural Marketing (RM)

S. No.	Paper Topics	Duration	Remarks	Credit Point/Marks
1	Rural economy – introduction, classification of Indian economy, characteristics of rural economy	02 Hours	Theory	06 Marks
2	Distinction between rural and urban market, local self-government in rural area marketing environment in rural area	4Hours	Theory	15 Marks
3	Rural consumer scope of rural marketing profile of rural consumer, rural consumer behavior	04 Hours	Theory	05 Marks
4	Consumer buying behavior, Factors influencing rural consumers during purchase a product, decision making process - Segmentation bases	04 Hours	Theory	14 Marks
5	Rural marketing mix 4A and 4P Product concepts and classification, rural product categories, Agricultural Produce	04 Hours	Theory	08 Marks
6	Branding in rural market, Fake brand, packaging for rural market	04 Hours	Theory	08 Marks
7	Pricing decision pricing strategy pricing for rural market Distribution system in rural market	06 Hours	Theory	06 Marks
8	Evolution of modern retail in rural area, Hariyali kissaan Bazar, ITC-e-chaupal sagar , distribution model –rural centric distribution model – haats, van , pps , cooperative societies – warana bazar	04 Hours	Theory	14 Marks
9	Promotional strategy for rural market, promotion mix - Creating adverting for rural audiences – conventional	03 Hours	Theory	06 Marks
10	Rural services marketing – ICT in rural areas	05 Hours	Theory	12 Marks
11	Common service centers, financial services in Rural market, Rural healthcare, Education, Telecommunication	05 Hours	Theory	06 Marks
	Total hours/Class	**42 Hours**	**Total Credit**	**100 Marks**

Fee Structure:
- This ad-on course is offered free of cost to all the students for their skill development. The college does not charge any fees, either for doing the course, practical, examination or certification.

Deigned & Developed By:
The course is designed by Mr. Sujeet Kumar Suman. approved by HoD and Board of Study (BOS) of Catalyst College, Patna.

Course Co-ordinator
- Mr. Nitish Kumar Rohatgi Dept. of Management, Catalyst College, Patna.

References/Books/Links:
1. "Rural Marketing" by Pradeep Kashyap
2. " Rural Development in India" by Vasant Desai
3. "Consumer Behaviour" by Dr. S. I. Gupta
4. "Marketing Management" by Philip Kotler
5. "Rural Development Principles Policies and Management" by Katar Singh

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Microsoft®

C E R T I F I E D

Systems Engineer

Curriculum of Certificate Course in
Microsoft Certified System Engineer
(MCSE)

Curriculum of Certificate Course in

Microsoft Certified System Engineer (MCSE)

Overviews:

It validates knowledge and skills in management of client and server based network architecture. It provides skill of data sharing, centralized handling, domain based client management, different server based services, Mail server, security fundamentals, and more. Students can make IT career in any direction by learning about Microsoft OS Services.

Course Code : **CC/VAC/MCSE**   Courses Duration : 50 Hours/Classes

Eligibility for Admission

- Candidates who are studying BCA course in the college.

Duration

- 50 hours class with theory and practical.

Structure of Syllabus Microsoft Certified System Engineer (MCSE)

S. No.	Paper Topics	Duration	Remarks	Credit Point/Marks
1	Server Overview & Installation	04 Hours	Theory	05 Marks
2	Services explanation & Hyper-V	06 Hours	Theory + Practical	10 Marks
3	DHCP and its configuration	09 Hours	Theory + Practical	15 Marks
4	DNS, Zones and configuration	09 Hours	Theory + Practical	10 Marks
5	Remote Accessing with Direct Access with VPN	06 Hours	Theory + Practical	15 Marks
6	ADDS	02 Hours	Theory + Practical	10 Marks
7	ADDS site and replication	04 Hours	Theory + Practical	15 Marks
8	Network Load Balancing	04 Hours	Theory + Practical	05 Marks
9	Active Directory Certificate Service	05 Hours	Theory + Practical	05 Marks
10	IP Sec & VPN	05 Hours	Theory + Practical	10 Marks
	Total hours/Class	**40 Hours**	**Total Credit Point /Marks**	**100 Marks**

Fee Structure:

- This ad-on course is offered free of cost to all the students for their skill development. The college does not charge any fees, either for doing the course, practical, examinations or certification.

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Deigned & Developed By:
The course is designed by Mr. Murali Manohar, approved by HoD and Board of Study (BOS) of Catalyst College, Patna.

Course Co-ordinator
- Mr. Amit Shukla Sir Dept. of IT, Catalyst College, Patna.

References/Books/Links:

1. MCSE Core Required Exams in a Nutshell by William R. Stanek.
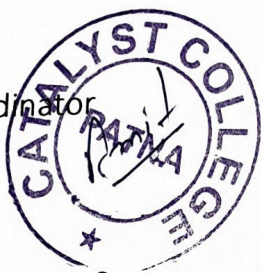
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Drupal™

Curriculum of Certificate Course
in
(DRUPAL)

Curriculum of Certificate Course in DRUPAL

Overviews: Drupal is a free, open-source Content Management System (CMS) written in PHP. It's a robust, scalable, and flexible platform for building various types of websites, applications, and digital experiences.

Key Features:
1. Modular architecture
2. Extensive community-driven ecosystem (70,000+ modules)
3. Highly customizable and configurable
4. Strong security features
5. Scalability and performance optimization
6. Multi-language support
7. Responsive design
8. Integration with third-party services (APIs)

Objectives:
1. Understand Drupal basics (nodes, entities, fields)
2. Learn Drupal terminology (modules, themes, distributions)
3. Install and configure Drupal
4. Create content types and fields
5. Manage users and roles

Project-Based Learning
1. Build a simple blog using Drupal
2. Create a custom Drupal theme
3. Implement Drupal commerce for e-commerce

Course Code: **CC/VAC/Drupal**   Courses Duration: **35 Hours/Classes**

Eligibility for Admission
- Candidates who are studying BCA/BScIT/BBM course in the college.
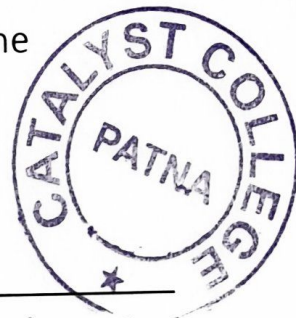
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Duration
  • 35 Hours/Class with theory & practical

Structure of Syllabus DRUPAL

S. No.	Paper Topics	Duration	Remarks	Credit Point/Marks
1	Module 1: Introduction to Drupal, Drupal Basics	02 Hours	Theory	06 Marks
2	Installing Drupal, Nodes and content types	04 Hours	Theory + Practical	15 Marks
3	Content Creation and Management	02 Hours	Theory + Practical	05 Marks
4	Creating and editing content	04 Hours	Theory + Practical	08 Marks
5	Content types and fields, Image and file management	04 Hours	Theory + Practical	10 Marks
6	User Management and Access Control	04 Hours	Theory + Practical	10 Marks
7	Site Building and Configuration	04 Hours	Theory + Practical	10 Marks
8	Theming and Design	04 Hours	Theory + Practical	06 Marks
9	Project Design(Informational website, blog etc)	3 Hours	Theory + Practical	15 Marks
10	Project Design(Ecommerce website)	4 Hours	Theory + Practical	15 Marks
	Total hours/Class	**35 Hours**	**Total Credit Point /Marks**	**100 Marks**

Fee Structure:

  • This ad-on course is offered free of cost to all the students for their skill development. The college does not charge any fees, either for doing the course, practical, examination or certification.

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Deigned & Developed By:
The course is designed by Niraj Kumar Singh approved by HoD and
Board of Study (BOS) of Catalyst College, Patna.

Course Co-ordinator
- Mr. Amit Kumar Shukla Dept. of IT, Catalyst College, Patna.
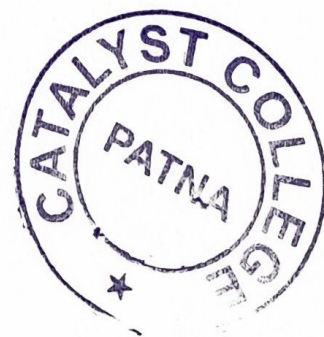
References/Books/Links:

1. "Drupal 8 Development" by Chaz Chumley
2. "Drupal 8 Theming" by Dani Nordin
3. "Learning Drupal 8" by Travis Tomlinson
4. "Drupal 9 Development" by Chaz Chumley
5. "Mastering Drupal 8" by Nate Haug

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Curriculum of Certificate Course in
(Banking System In India)

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Curriculum of Certificate Course in Banking System In India

Overviews:

The banking system in India is a well-structured and regulated framework that plays a pivotal role in the country's economic development. It facilitates the flow of capital and credit in the economy, supports industrial growth, provides financial inclusion, and contributes to the overall financial stability of the nation.

The banking system in India operates under the regulatory framework established by the Reserve Bank of India (RBI), which is the central bank of the country. The system comprises multiple layers of institutions, ranging from central banks to commercial banks and cooperative banks.

Course Code: **CC/VAC/BSI**   Courses Duration: **30 Hours**

Eligibility for Admission
- Candidates who are studying BBA course in the college.

Duration
- 30 Hours/Class with theory and practical

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Structure of Syllabus Banking System in India

Sl. No.	Paper Topics	Duration	Remarks	Credit Point/Marks
1	Reserve Bank of India (RBI)	02 Hours	Theory	08 Marks
2	Commercial Banks	01 Hours	Theory	12 Marks
3	Cooperative Banks	02 Hours	Theory	08 Marks
4	Development Banks and Non-Banking Financial Companies (NBFCs)	04 Hours	Theory	08 Marks
5	Microfinance Institutions (MFIs)	04 Hours	Theory	08 Marks
6	Payment Banks and Small Finance Banks	04 Hours	Theory	08 Marks
7	Banking Services	04 Hours	Theory	12 Marks
8	Monetary and Credit Policy	02 Hours	Theory	08 Marks
9	Regulation and Supervision	03 Hours	Theory	08 Marks
10	Financial Inclusion and Digital Banking	02 Hours	Theory	12 Marks
11	Challenges and Issues in the Indian Banking System	02 Hours	Theory	08 Marks
	Total hours/Class	30 Hours	Total Credit Point /Marks	100 Marks

Fee Structure:

- This ad-on course is offered free of cost to all the students for their skill development. The college does not charge any fees, either for doing the course, practical, examination or certification.

Deigned & Developed By:

The course is designed by Mr. Sinku Singh (Asst. Prof.) approved by HoD and Board of Study (BOS) of Catalyst College, Patna.

Course Co-ordinator

- Mr. Nitish Rohatgi Dept. of Management, Catalyst College, Patna.

References/Books/Links:
1. "Indian Financial System" by M. Y. Khan
2. "Banking Theory and Practice" by K.C. Shekhar and Lekshmy Shekhar
3. "Money, Banking, and Finance" by N.K. Sinha
4. "Indian Banking: Performance, Challenges, and Reforms" by R.K. Uppal

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LibreOffice

Curriculum of Certificate Course in (LibreOffice Suite Writer)

Curriculum of Certificate Course in LibreOffice Suite Writer

Overviews:

LibreOffice Writer is a word processor and publishing tool similar to Microsoft Office Word and Corel WordPerfect. Writer easily reads Microsoft Word documents (.docx, .doc), and you can also save your work in Microsoft Word format.

Text frames and linking give you the power to tackle desktop publishing tasks for newsletters, flyers and much more, with layouts just like you want them to be. Writing documents online is easy now. LibreOffice Writer can display multiple pages while you are editing - ideal for complex documents. Perfect editor that requires no download!

Key features:

- Templates and styles
- A spelling and grammar checker
- Word and character count
- Page-layout methods, including frames, columns, and tables
- Embedding or linking of graphics, spreadsheets, and other objects
- Built-in drawing tools
- Master documents — to group a collection of documents into a single document
- Change tracking during revisions
- The ability to import and edit PDF files.
- Database integration, including a bibliography database
- Indexing
- AutoCorrect and AutoComplete
- Saving files to the cloud

Course Code : CC/VAC/LO   Courses Duration : 30 Hours/Classes

Eligibility for Admission
- Candidates who are studying BCA course in the college.

Duration
- 30 Hours/Class with theory & practical

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Structure of Syllabus LibreOffice Suite Writer

S. No.	Paper Topics	Duration	Remarks	Credit Point/Marks
1	Installation and Introduction to libreoffice 6.3.5 suite.	02 Hours	Theory	06 Marks
2	About LibreOffice Writer Various tool in Writer How to open a new and existing document. Typing text and basic formatting in Writer Alignment options in Writer.	03 Hours	Theory + Practical	15 Marks
3	Typing text and basic formatting in Writer	03 Hours	Theory	05 Marks
4	Inserting images, hyperlinks, bookmarks in Writer	03 Hours	Theory + Practical	08 Marks
5	Tables and table properties in Writer	05 Hours	Theory + Practical	12 Marks
6	Viewing and printing a document in Writer	05 Hours	Theory + Practical	11 Marks
7	Using Find Replace and Auto-correct	02 Hours	Theory + Practical	15 Marks
8	Creating Newsletters	02 Hours	Theory + Practical	10 Marks
9	Header, Footer and Notes	02 Hours	Theory	08 Marks
10	Using Track changes	02 Hours	Theory + Practical	05 Marks
11	Typing in local languages	01 Hours	Theory + Practical	05 Marks
	Total hours/Class	**30 Hours**	**Total Credit Point /Marks**	**100 Marks**

Fee Structure:

- This ad-on course is offered free of cost to all the students for their skill development. The college does not charge any fees, either for doing the course, practical, examination or certification.

Deigned & Developed By:

The course is designed by Mr. Raju Upadhyay, approved by HoD and Board of Study (BOS) of Catalyst College, Patna.

Course Co-ordinator

- Mr. Amit Shukla Dept. of IT, Catalyst College, Patna.

References/Books/Links:

1. https://spoken-tutorial.org/tutorial-search/?search_foss=LibreOffice+Suite+Writer+6.3&search_language=English
2. https://books.libreoffice.org/en/GS70/GS7001-IntroducingLO.html

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Curriculum of Certificate Course in
(Informatica)

Curriculum of Certificate Course in Informatica

Overviews:

Informatica is one of the most innovative ETL tools available today, look no further than SLA, the best Informatica Training Institute in Chennai. Our Informatica training syllabus includes both theoretical instruction and hands-on exercises. The Informatica course curriculum covers both introductory and advanced topics and is continuously revised to reflect changes in the field.

Informatica's course syllabus is well-organized and up-to-date with current trends in the IT field. We provide a comprehensive and professionally relevant Informatica Training curriculum. The candidate will have more self-confidence during the interviews as a result of this.

Course Code: CC/VAC/Informatica   **Courses Duration: 35 Hours/Classes**

Eligibility for Admission
- Candidates who are studying BCA course in the college.

Duration
- 35 Hours/Class with theory & practical

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Structure of Syllabus Informatica

S. No.	Paper Topics	Duration	Remarks	Credit Point/Marks
1	Data warehouse basics	03 Hours	Theory	10 Marks
2	Power Center 8.6 Power Center Administration	03 Hours	Theory + Practical	15 Marks
3	Repository Administrationn	04 Hours	Theory	10 Marks
4	Using the designer transformation creation	04 Hours	Theory + Practical	15 Marks
5	XML sources and monitoring loads	04 Hours	Theory + Practical	15 Marks
6	Using the workflow manager	04 Hours	Theory + Practical	15 Marks
7	Workflow tasks	06 Hours	Theory + Practical	10 Marks
8	Performance tuning in ETL	07 Hours	Theory + Practical	10 Marks
	Total hours/Class	35 Hours	Total Credit Point /Marks	100 Marks

Fee Structure:

- This ad-on course is offered free of cost to all the students for their skill development. The college does not charge any fees, either for doing the course, practical, examination or certification.

Deigned & Developed By:
The course is designed by Mr. Ravi Soni, approved by HoD and Board of Study (BOS) of Catalyst College, Patna.

Course Co-ordinator

- Mr. Amit Kumar Shukla Dept. of IT, Catalyst College, Patna.

References/Books/Links:
1. Informatica Italian Edition | by Massimiliano Fiordelisi
2. Learning Informatica Cloud Services : Learn the art of implementing ETL on Cloud by Rahul Malewar
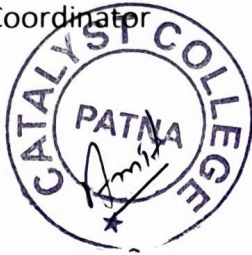
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Curriculum of Certificate Course in
(Retail Management)

Curriculum of Certificate Course in
RETAIL MANAGEMENT

Overviews:

Retail Management as a subject provides students with an understanding of the processes and strategies involved in managing retail businesses. It covers a wide range of topics, including store operations, merchandising, customer relationship management, supply chain management, and the use of technology in retailing.

Why is Retail Management so important?
Retail management is essential for driving business growth, ensuring operational efficiency, meeting customer expectations, and sustaining long-term profitability in the fast-paced and ever-evolving retail industry.
Retail Management is crucial for several reasons, as it plays a pivotal role in ensuring the success and sustainability of retail businesses.
In a highly competitive retail environment, efficient management practices allow businesses to differentiate themselves through superior customer service, innovative products, and operational excellence, gaining an edge over competitors.

The **objective of retail management** is to ensure that a retail business operates efficiently and effectively, meeting customer needs while achieving financial and operational goals. It involves overseeing various aspects of the retail operation, from inventory management and customer service to pricing and marketing strategies.

Course Code: **CC/VAC/RM**   Courses Duration: **45 Hours**

Eligibility for Admission
- Candidates who are studying BBA/BBM course in the college.

Duration
- 45 Hours/Class with Theory + Practical

Structure of Syllabus Retail Management (RM)

S. No.	Paper Topics	Duration	Remarks	Credit Point/Marks
1	Introduction and Perspectives on Retailing	05 Hours	Theory	10 Marks
2	Theories of Retailing	04 Hours	Theory	06 Marks
3	Retailing strategy for Setting up organization	04 Hours	Theory	08 Marks
4	Retail planning	03 Hours	Theory	06 Marks
5	Store Management	04 Hours	Theory	10 Marks
6	Visual Merchandising Store Management	04 Hours	Theory	06 Marks
7	Relationship Marketing	04 Hours	Theory	08 Marks
8	International Retailing	04 Hours	Theory	06Marks
9	Case Studies	04 Hours	Theory +Practical	10 Marks
10	Presentation (Topic)	04 Hours	Theory + Practical	15 Marks
11	Project Work / Presentation	04 Hours	Practical	15 Marks
	Total hours/Class	**46 Hours**	**Total Credit Point /Marks**	**100 Marks**

Fee Structure:

- This ad-on course is offered free of cost to all the students for their skill development. The college does not charge any fees, either for doing the course, practical, examination or certification.

Deigned & Developed By:

The course is designed by Mr. Anil Kumar approved by HoD and Board of Study (BOS) of Catalyst College, Patna.

Course Co-ordinator

- Mr. Nitish Rohatgi Dept. of Management, Catalyst College, Patna.

References/Books/Links:

1. Sales & Distribution Management: Tapan K. Panda & Sunil Sahadev. 6/e. Oxford University Press.2012.

2. Sales Management by Charles. Futrell. 6/e. Thomson South Western. 2003.

3. Retail Management - Levy & Weitz. TMH. latest edition.

4. Retail Management - Chetan Bajaj. Oxford University press.

5. Retail Management-A Global Perspective: Text and Cases. Dr.Harjit Singh. S.Chand. 2018.

6. Sales & Retail Management, an Indian perspective by Dr.S.L Gupta. 1/e. Excel Books. 2007.

7. Salesmanship and Sales Management-P.K Sahu & K C Raut. 3/e. Vikas Publishing House.

8. Integrated Retail Management - James R. Ogden & Denise Trodden. Biztantra. Latest Edition.

9. Retail Marketing Management - Dravid Gilbert. 2/e. Pearson Education
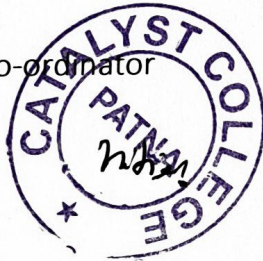
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Curriculum of Certificate Course in
(Body Language)

Curriculum of Certificate Course in Body Language

Overviews:

Body language is a non-verbal communication which involves physical expression, gesture, posture, eye contact etc. It plays a vital role in communication and culture. People use it subconsciously and sometimes instinctively. Different facial language convey different message. While conveying information body language has an important role to play. This course will enable the students to get to know all about Body Language and how to use it effectively. They will be better prepared for facing interview as well. In social communication it also complements verbal communication.
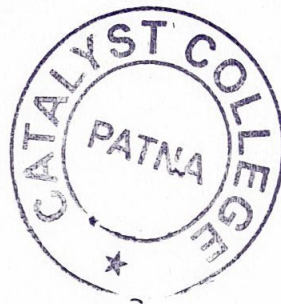
Course Code : **CC/VAC/BL**   Courses Duration : **30 Hours/Classes**

Eligibility for Admission
- Candidates who are studying BCA course in the college.

Duration
- 2 Months (30 Hours/Class) (Per Days 2 Hours Theory + Practical)

Structure of Syllabus Body Language

S. No.	Paper Topics	Duration	Remarks	Credit Point/Marks
1	What is Body Language? What is Non-verbal Communication?	2 hours	2 hours 1 hr. each class	6 Marks
2	What is its importance in daily life?	2Hours	02 Hours Each Class Theory + Practical	6 Marks
3	7 elements of Body Language	2 Hours	01 Hour Each Class Only Theory	8 Marks
4	5 C's of Body Language	2 Hours	02 Hours Each Class Theory + Practical	6 Marks
5	Gesture	2 Hours	01 Hour Each Class Theory + Practical	8 Marks
6	Posture	3 Hours	01 Hour Each Class Theory + Practical	8 Marks
7	Facial Expression	3 Hours	02 Hours Each Class Theory + Practical	8 Marks
8	Eye Contact	2 Hours	02 Hours Each Class Theory + Practical	8 Marks
9	Handshake	2 Hours	01 Hour Each Class Only Theory	8 Marks
10	Debate	2 Hours	01 Hour Each Class Theory + Practical	8 Marks
11	Proxemics	2 Hours	01 Hour Each Class	5 Marks
12	Haptics	2 Hours	Theory + Practical	4 Marks
13	Active Listening	2 Hours	01 Hour Each Class	2 Marks
14	Kinesics	2 Hours	Theory + Practical	2 Marks
	Total	**30 Hours**	**Marks**	**100 Marks**

Fee Structure:

- This ad-on course is offered free of cost to all the students for their skill development. The college does not charge any fees, either for doing the course, practical, examination or certification.

Deigned & Developed By:

The course is designed by Nilanjan Bose, approved by HoD and Board of Study (BOS) of Catalyst College, Patna.

Course Co-ordinator

- Mr. Nitish Kumar Rahotgi, Dept. of English, Catalyst College, Patna.

References/Books/Links:

1. Body Language by Vinay Mohan Sharma
2. Understanding Body Language by SCOTT ROUSE
3. Body Language by ZOE S GRASS
4. **The Definitive Book of Body Language By Allan Pease**

Course Coordinator

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THE INTERNET OF THINGS (IOT):
— CONNECTING THE WORLD AROUND US —

Curriculum of Certificate Course in
(Internet of Things)

Curriculum of Certificate Course in
Internet of Things (IOT)

Overviews: The Internet of Things (IoT) describes the network of physical objects— "things"—that are embedded with sensors, software, and other technologies for the purpose of connecting and exchanging data with other devices and systems over the internet.
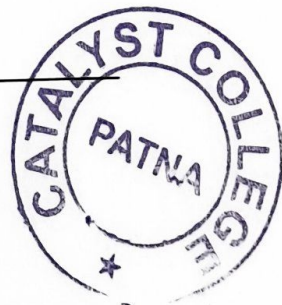
Why is Internet of Things (IoT) so important?

Over the past few years, IoT has become one of the most important technologies of the 21st century. Now that we can connect everyday objects—kitchen appliances, cars, thermostats, baby monitors—to the internet via embedded devices, seamless communication is possible between people, processes, and things.

By means of low-cost computing, the cloud, big data, analytics, and mobile technologies, physical things can share and collect data with minimal human intervention. In this hyperconnected world, digital systems can record, monitor, and adjust each interaction between connected things. The physical world meets the digital world—and they cooperate.

What technologies have made IoT possible?

While the idea of IoT has been in existence for a long time, a collection of recent advances in a number of different technologies has made it practical.

- **Access to low-cost, low-power sensor technology**
  Affordable and reliable sensors are making IoT technology possible for more manufacturers.

- **Connectivity**
  A host of network protocols for the internet has made it easy to connect sensors to the cloud and to other "things" for efficient data transfer.

- **Cloud computing platforms**
  The increase in the availability of cloud platforms enables both businesses and consumers to access the infrastructure they need to scale up without actually having to manage it all.

- **Machine learning and analytics**
  With advances in machine learning and analytics, along with access to varied and vast amounts of data stored in the cloud, businesses can gather insights faster and more easily. The emergence of these allied technologies continues to push the boundaries of IoT and the data produced by IoT also feeds these technologies.

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- **Artificial intelligence (AI)**

  AI is driving an increase in demand for cloud computing services and data centers, as large amounts of data are required in AI model training to detect patterns or predict numbers.

Course Code : **CC/VAC/IOT**   Courses Duration : **90 Hours/Classes**

Eligibility for Admission
- Candidates who are studying BCA course in the college.

Duration
- 90 Hours/Class with Theory & Practical

Structure of Syllabus Internet of Things (IOT)

S. No.	Paper Topics	Duration	Remarks	Credit Point/Marks
1	Introduction to internet of things	02 Hours	Theory	06 Marks
2	Domain speciation of IoT	12 Hours	Theory + Practical	15 Marks
3	IoT and M2M	08 Hours	Theory	05 Marks
4	IoT system management with NETCONF-YANG	10 Hours	Theory + Practical	06 Marks
5	IoT platforms design methodology	10 Hours	Theory + Practical	08 Marks
6	IoT system-Logical design using python	10 Hours	Theory + Practical	08 Marks
7	IoT physical devices & endpoints	12 Hours	Theory + Practical	14 Marks
8	IoT physical servers & cloud offerings	09 Hours	Theory + Practical	06 Marks
9	Case Studies illustrating IoT design	07 Hours	Only Theory	06 Marks
10	Data analytics for IoT	10 Hours	Theory + Practical	12 Marks
11	Tools for IoT	10 Hours	Theory + Practical	14 Marks
	Total hours/Class	**90 Hours**	**Total Credit Point /Marks**	**100 Marks**

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Fee Structure:

- This ad-on course is offered free of cost to all the students for their skill development. The college does not charge any fees, either for doing the course, practical, examination or certification.

Deigned & Developed By:
The course is designed by Mr. Pankaj Chandra Sinha approved by HoD and Board of Study (BOS) of Catalyst College, Patna.

Course Co-ordinator
- Mr. Pankaj Chandra Sinha Dept. of IT, Catalyst College, Patna.

References/Books/Links:

1. "Internet of Things (IoT): Principles, Paradigms and Applications of IoT (English Edition)" BY Dr. Kamlesh Lakhwani
2. "Learning Internet of Things" by Peter Waher
3. "Precision: Principles, Practices and Solutions for the Internet of Things" by Timothy Chou.

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Communication skills

Curriculum of Certificate Course in (Communication Skills)

Curriculum of Certificate Course in Communication Skills

Overviews:

Communication skill is really important in our daily life as it helps building relationship by sharing information, ideas. It also helps resolving conflicts or issues. It is the way of conveying and receiving information effectively. It can be done verbally or in non-verbal way. The entire communication process contains sender, receiver, encoding, decoding and feedback. Debate, GD Speech - all will enhance the communication skill of the students. In this cut throat competitive era good communication skill will always take you ahead of others.

Course Code : **CC/VAC/CS**   Courses Duration : **40 Hours/Classes**

Eligibility for Admission
- Candidates who are studying BCA/BBA/BBM/BScIT course in the college.

Duration
- 40 hours/class with Theory & Practical

Structure of Syllabus Communication Skills

S. No.	Paper Topics	Duration	Remarks	Credit Point/Marks
1	What is Communication? Its features.	02 Hours	Theory	06 Marks
2	Describing people with the help of adjectives.	6Hours	Theory + Practical	15 Marks
3	How to introduce yourself (**WHO AM I**)	04 Hours	Theory	05 Marks
4	Describing Pictures	04 Hours	Theory + Practical	08 Marks
5	Talking about your hobbies.	05 Hours	Theory + Practical	10 Marks
6	Talking about your interest	05 Hours	Theory + Practical	10 Marks
7	Talking about your past	06 Hours	Theory + Practical	15 Marks
8	Talking about your school days	04 Hours	Theory + Practical	08 Marks
9	Group discussion on specific topics	02 Hours	Theory	08 Marks
10	Debate on given topic	02 Hours	Theory + Practical	15 Marks
	Total hours/Class	**45 Hours**	**Total Credit Point /Marks**	**100 Marks**

Fee Structure:

- This ad-on course is offered free of cost to all the students for their skill development. The college does not charge any fees, either for doing the course, practical, examination or certification.

Deigned & Developed By:
The course is designed by Nilanjan Bose, approved by HoD and Board
of Study (BOS) of Catalyst College, Patna.

Course Co-ordinator
  - Mr. Nitish Kumar Rahotagi Dept. of English, Catalyst College, Patna.

References/Books/Links:
1. The Quick and Easy way to Effective Speaking by Dale Carnegie
2. How to Talk to Anyone by Leil Lowndeis
3. The fine Art of small talk by Debra Fine
4. Communication Skills By Sanjay Kumar

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ADVANCED COMPUTER PROGRAMMING

Curriculum of Certificate Course in Advanced Computer Programming

Curriculum of Certificate Course in
Advanced Computer Programming

Overviews:
Web development refers to the creating, building, and maintaining of websites. It includes aspects such as web design, web publishing, web programming, and database management. It is the creation of an application that works over the internet i.e. websites.

Course Code: **CC/VAC/WDP**   Courses Duration: **60 Hours/Classes**

Eligibility for Admission
- Candidates who are studying BCA\BSC.IT course in the college.

Duration
- 60 Hours/Class with Theory & Practical

Structure of Syllabus Advance Computer Programming with HTML/CSS/JS.

S. No.	Paper Topics	Duration	Remarks	Credit Point/Marks
1	Introducton to HTML • Tags and Attributes • Prepare HTML Document Structure	02 Hours	Theory	06 Marks
2	Introduction to CSS(Cascading Style Sheet) • Types of CSS(Inline, Internal and External) • CSS Properties and Values	10 Hours	Theory + Practical	15 Marks
3	Introduction to JavaScript • Data types, Variables, Operators, Functions etc. • DOM(Document Object Model) Concept and Methods	02 Hours	Theory	05 Marks
4	OOPS Concept in JS. • Object, Class, Abstraction, Inheritance, Encapsulation, Polymorphism	04 Hours	Theory + Practical	08 Marks
5	Bootstraps Introduction for web Development • Framework and Library • How to use for Developing Dynamic Website	07 Hours	Theory + Practical	10 Marks
6	Introduction to Backend Development Technology • Server side scripting language PHP, OR ASP.NET, VB.NET etc.	07 Hours	Theory + Practical	10 Marks
7	Introduction to RDBMS • Table creation, View of Database, Relationship, keys	08 Hours	Theory + Practical	15 Marks

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8	Introduction to SQL Commands • DDL(Data Definition Language) • DML(Data Manipulation Language) • DCL(Data Control Language) • TCL	06 Hours	Theory + Practical	08 Marks
9	DDL Commands	6 Hours	Theory + Practical	08 Marks
10	Project work and Presentation	08 Hours	Theory + Practical	15 Marks
	Total hours/Class	**60 Hours**	**Total Credit Point /Marks**	**100 Marks**

Fee Structure:

- This ad-on course is offered free of cost to all the students for their skill development. The college does not charge any fees, either for doing the course, practical, examination or certification.

Deigned & Developed By:

The course is designed by Mr. Ram Lakhan Singh, approved by HoD and Board of Study (BOS) of Catalyst College, Patna.

Course Co-ordinator

- Mr. Amit Kumar Shukla Dept. of IT, Catalyst College, Patna.

References/Books/Links:

1. Clean Code, Author: Robert Cecil Martin
2. https://www.w3schools.com/html/html_lists.asp
3. Learning PHP, MYSQL and JS, Author: Robin Nixon

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CATALYST COLLEGE
Plot No.- C-16(P) Patliputra Industrial Area
Patliputra, Patna-13

Principal

Course Coordinator

CATALYST COLLEGE

An Unit of Vijayam Educational Trust, A Registered Non-Profit Charitable Trust

Affiliated to Patliputra University, Patna

Curriculum of Certificate Course in
(Interview Handling Skill)

Catalyst College (An Affiliated College to Patliputra University, Patna, Bihar)
www.catalystcollege.in

Curriculum of Certificate Course in
INTERVIEW HANDLING SKILLS

Overviews:

The programme aims at grooming the participants through sensitizing them about proper behaviour, socially and professionally, in formal circumstances. The main initiative of the programme is to inculcate self-confidence and enhance self-esteem for the improvement of personality of the participants. Prepare their resume, develop and Groom corporate habits and culture. Face frequently asked interview questions. The course helps them to Understand the importance of respect as a critical corporate value thereby Creating the right impression in Interviews.

Course Code : **CC/VAC/IHS**   Courses Duration : **50 Hours/Classes**

Eligibility for Admission
- Candidates who are studying BCA/BBM/BScIT course in the college.

Duration
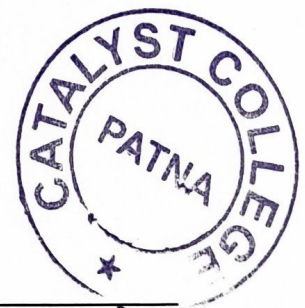- 50 Hours/Class with Theory & Practical

Structure of Syllabus **Interview Handling Skills**

S. No.	Paper Topics	Duration	Remarks	Credit Point/Marks
1	Definition Objectives and needs. Types of Interview Concepts. Question Answers	02 Hours	Theory	05 Marks
2	Self-Awareness To Know your personality. Personal SWOT Question Answers	05 Hours	Theory + Practical	10 Marks
3	Grooming, Body Language, Verbal Nonverbal cues. Power Of Clothes Questions Answers	05 Hours	Theory + Practical	10 Marks
4	Types Of Interview Questions. Behavioural Competency, Situational, Technical Questions Questions Answers	03 Hours	Theory + Practical	10 Marks
5	Interview FAQ General Questions Questions Answers	05 Hours	Theory + Practical	10 Marks
6	Resume Building. Build a strong profiles through effective resume writing	04 Hours	Theory + Practical	10 Marks
7	Discussions Objectives For Resume Question Answer	09 Hours	Theory + Practical	15 Marks
8	Group Discussions – Types And Importance.	05 Hours	Theory + Practical	07 Marks
9	Corporate Readiness Flexibility To learn how to be flexible while playing multiple roles. Question Answer	06 Hours	Theory + Practical	08 Marks
10	Mock Interview. Creating Real Life situations	06 Hours	Practical	15 Marks
	Total hours/Class	**50 Hours**	**Total Credit Point /Marks**	**100 Marks**

Fee Structure:

- This ad-on course is offered free of cost to all the students for their skill development. The college does not charge any fees, either for doing the course, practical, examination or certification.

Catalyst College (An Affiliated College to Patliputra University, Patna, Bihar)
www.catalystcollege.in

Deigned & Developed By:
The course is designed by Sanjana Sinha approved by HoD and Board
of Study (BOS) of Catalyst College, Patna.

Course Co-ordinator
- Mr. Nitish Kumar Rahotgi Dept. of Management, Catalyst College,
Patna.

References/Books/Links:

1. How to succeed At Behavioral Job Interview By: Martha Gage
2. https://i0.wp.com/knowledgeenthusiast.com/wp-content/uploads/2023/10/

3. The Interview Book By: James Innes

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Curriculum of Certificate Course in
(Time Management)

Curriculum of Certificate Course in Time Management

Overview of Time Management

Time management refers to the process of planning and exercising conscious control over the amount of time spent on specific activities. It aims to improve productivity, efficiency, and work-life balance. Effective time management helps individuals prioritize tasks, avoid procrastination, and reduce stress by ensuring deadlines are met and goals are achieved.

Objectives of Time Management

1. **Enhance Productivity**: Maximize the output by organizing and prioritizing tasks.

2. **Achieve Goals**: Break down long-term goals into manageable tasks and complete them systematically.

3. **Reduce Stress**: Minimize the anxiety caused by tight schedules or unorganized workflows.

4. **Improve Decision-Making**: Allocate time for critical thinking and better judgment.

5. **Promote Work-Life Balance**: Ensure adequate time is allocated for personal and professional activities.

6. **Optimize Resource Use**: Utilize available resources effectively within a limited timeframe.

7. **Eliminate Procrastination**: Encourage focus and timely completion of tasks.

Time management is essential for achieving personal and professional success, fostering efficiency, and maintaining overall well-being.

Course Code: **CC/VAC/TM**   Courses Duration : **35 Hours/Classes**

Eligibility for Admission
- Candidates who are studying BBA/BCA/BScIT/BBM course in the college.

Duration
- 35 Hours/Class with Theory & Practical

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Structure of Syllabus Time Management

S. No.	Paper Topics	Duration	Remarks	Credit Point/Marks
1	Introduction to Time Management	02 Hours	Theory	06 Marks
2	Goals and Priorities	03 Hours	Theory	15 Marks
3	Planning & Scheduling	02 Hours	Theory	05 Marks
4	Time Management Techniques	03 Hours	Theory + Practical	06 Marks
5	Stress and Time Management	05 Hours	Theory + Practical	08 Marks
6	Work-life Balance	05 Hours	Theory	08 Marks
7	Stress and Time Management	03 Hours	Theory	14 Marks
8	Quizzes & Assignments	03 Hours	Theory	06 Marks
9	Evaluation & Improvement	03 Hours	Theory	06 Marks
10	Games & Activities	03 Hours	Theory + Practical	12 Marks
11	PPT Presentations	03 Hours	Theory + Practical	14 Marks
	Total hours/Class	35 Hours	Total Credit Point /Marks	100 Marks

Fee Structure:

- This ad-on course is offered free of cost to all the students for their skill development. The college does not charge any fees, either for doing the course, practical, examination or certification.

Catalyst College (An Affiliated College to Patliputra University, Patna, Bihar)
www.catalystcollege.in

Designed & Developed By:
The course is designed by Dr Neshat Qamar(Assistant Professor)
approved by HOD and Board of Study (BOS) of Catalyst College,
Patna.

Course Co-ordinator
- Mr.Nitish Kumar Rohatgi, Dept. of Management, Catalyst College,
Patna.

References/Books/Links:
1. Time Warrior: How to Defeat Procrastination, People- Pleasing,Self-doubt,Over- Commitment, Broken Promises & Chaos:Steve Chandler
2. Time Management for Entrepreneurs by Dan Kennedy
3. Getting Thinks Done: The Art of Stress -Free Productivity by David Allen
4. The Seven Habits of Highly Effective People: Stephen R. Covey

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HRM
HUMAN RESOURCE MANAGEMENT

EMPLOYEE TRAINING RECRUITMENT VALUE REWARDING SUCCESS MOTIVATING OBJECTIVE PLANNING RETENTION

Curriculum of Certificate Course in
(Human Resource Management)

Curriculum of Certificate Course in
Human Resource Management (HRM)

Overviews: To give a conceptual understanding of human resource practices in organizations. Learning Outcome: On completing the course students will be able to: Understand and develop insights and knowledge base of various concepts and Functions of Human Resource Management Learn the latest trends in Human Resource Management.

Why Knowledge of HRM is important for studens : Human resource management is a significant strategy in the organizational structure that holds greater importance in managing the workforce and internalizing the organization's values in employees, which would further enhance the overall positivity, productivity, and profitability of an organization.

Human resources are crucial assets for a company, as major workflow in an organization is dependent on its workforce performance and efficiency.

So, human resource management is vital for any organization to keep up with the organization's ethos and accomplish the desired objective of development without dilemmas, disputes, and conflicts.

Course Code: **CC/VAC/HRM**   Courses Duration: **35 Hours/Classes**

Eligibility for Admission
- Candidates who are studying BBA course in the college.

Duration
- 35 Hours/Class with theory & practical

Structure of Human Resource Management (HRM)

S. No.	Paper Topics	Duration	Remarks	Credit Point/Marks
1	Introduction of Human Resource Management	02 Hours	Theory	06 Marks
2	Procurement of HR	2 Hours	Theory	15 Marks
3	Job analysis---process of job analysis, job description, analysis;	02 Hours	Theory	05 Marks
4	Difference between recruitment and selection, process- test, interview, placement, induction	02 Hours	Theory	06 Marks
5	Training and Development: Concepts; importance;	04 Hours	Theory + Practical	08 Marks
6	Coaching and mentoring; Management Development Programs; Training process outsourcing.	02 Hours	Theory + Practical	08 Marks
7	Performance Appraisal, and Compensation	04 Hours	Theory + Practical	14 Marks
8	Performance appraisal-need and Importance, process & types	02 Hours	Theory	06 Marks
9	Case Studies illustrating to PA	03 Hours	Theory & practical	06 Marks
10	Overview of HRM Trends and Challenges	02 Hours	Theory + Practical	12 Marks
11	Strategic HRM, Electronic HRM, Green HRM,	05 Hours	Theory + Practical	14 Marks
	Total hours/Class	**35 Hours**	**Total Credit Point /Marks**	**100 Marks**

Fee Structure:

- This ad-on course is offered free of cost to all the students for their skill development. The college does not charge any fees, either for doing the course, practical, examination or certification.

Deigned & Developed By:
The course is designed by Mr Protik Banerjee approved by HoD and

Board of Study (BOS) of Catalyst College, Patna.

Course Co-ordinator
- Mr. Nitish Rohatgi Dept. of Management Catalyst College, Patna.

References Books
1. "Text Book of HRM. Gary Dessler
2. Human Resource Management – Ashwathappa
3. Human Resource Management : Decenzo Robbins

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