

RAMAKRISHNA MISSION VIDYAMANDIRA

BOSE HOUSE CAMPUS

A Cultural & Educational Center

(Rishra, Hooghly)

A Unit of Ramakrishna Mission Saradapitha

Belur Math, Howrah



Brochure For 6 Months Offline Certificate Course On
Basic Artificial Intelligence Skills



“The wavy waters in the picture are symbolic of Karma, the lotus of Bhakti, and the rising-sun of Jnana. The encircling serpent is indicative of Yoga and awakened Kundalini Shakti, while the swan in the picture stands for Paramatman. Therefore, the ideal of the picture is that by the union of Karma, Jnana, Bhakti and Yoga, the vision of the Paramatman is obtained.”

Swami Vivekananda

तन्नो हंसः प्रचोदयात् (Tanno hamsah prachodayat), meaning, “May the Paramatman, Supreme Self [symbolized by] the Swan (hamsa), awaken our [higher] understanding.”

Mission Statement

‘True to the kindred points of Heaven and Home’ - to borrow an evocative line from William Wordsworth’s celebrated poem ‘To a Skylark’ - the ideology of Ramakrishna Mission was formulated by Swami Vivekananda as “Atmano mokshartham jagad hitaya cha” (i.e) ‘For one’s own salvation and for the welfare of the world’). This telling phrase encapsulates an over-arching spiritual ideal in which individual spiritual aspiration and the spirit of altruism co-mingle. A private spiritual life that turns a blind eye to the suffering

humanity, Swami Vivekananda never tired of pointing out, is necessarily a selfish life led in isolation. Recognising as he did the immanent divinity in every living being, Swamiji bequeathed to humanity the ideology of ‘Practical Vedanta’.

The educational domain is an important area where ‘Practical Vedanta’ finds wonderful application. In fact, the luminous mind of Swamiji probed man to his very depth and came up with the astounding revelation that infinite goodness and infinite perfection are lying buried in every man, waiting to be called out. Just as friction brings out the hidden fire from a flint, right kinds of external suggestions would likewise call forth ethical excellence and elements of creativity already present in their potential forms in man. True education, if anything, helps this manifestation through creating “right kinds of external suggestions”. To the extent an academic milieu furnishes such “right kinds of external suggestions”, it serves the purpose of education. Based on this educational ethos of Swami Vivekananda, our College, ever since its inception, has been striving to build up an environment that would help manifest in its learners.

Divinity (i.e. such scintillating values as selflessness, moral courage, truthfulness etc.)

Perfection (i.e. academic excellence



RAMAKRISHNA MISSION VIDYAMANDIRA (MAIN CAMPUS)
BELUR MATH, HOWRAH

RAMAKRISHNA MISSION VIDYAMANDIRA

A vision, born of the irresistible character-force of a mighty spiritual genius, ceases to belong to the realm of speculation – instead it becomes a living force working itself out imperceptibly to find its fulfilment sooner or later. What is today the Ramakrishna Mission Vidyamandira, does indeed trace its origin to such a vision of Swami Vivekananda. True to the Prophet's vision as early as 1898 of a temple of learning combining the elements of the ancient 'Gurukula' tradition of India and the scientific temper of the West, the authorities of the Ramakrishna Mission, Belur Math started 'Vidyamandira' as an Intermediate Arts College in 1941 under the auspices of Saradapitha, a branch of the Ramakrishna Mission.

For history to be made, there must be years – long, gruelling years. From an Intermediate Arts college in 1941 to a three-year degree college in 1966 through to becoming 'a college with potential for excellence' as also being conferred with the autonomy status by UGC in 2010, Vidyamandira's onward march through the passage of years is a fascinating study of an educational Institute's bold strides, despite various odds, into the arena of high education. Also, during the academic session 2006-2007, post-graduate teaching was introduced and in the year 2013 the college established 'Swami Vivekananda Research Centre' to run PhD programmes. Currently, with as many as fourteen undergraduate Hons. Courses, six post-graduate courses, researches in various disciplines and a plethora of Certificate as well as Add-on courses running apace, Vidyamandira can well be likened to a mini-University which has been leaving, all these years, its quiet yet unmistakable impact on the society by sending out academically skilled individuals with high character efficiency...

HISTORY OF THE BOSE HOUSE CAMPUS



This garden house, belonging as it did to Sri Sarat Chandra Bose, the elder brother of Netaji Subhas Chandra Bose, is said to have scripted a fair bit of history by having none other than Netaji himself setting foot in it. After Netaji's great escape in 1941, this historic house, according to police file No 24 of Police Museum, Kolkata, was used as a meeting place with the representatives of the Japanese Consulate to get news from Netaji.

Probably in May, 1941 a link between the Bose family and the Japanese Consulate was created. Subsequently, Sarat Bose met Japanese Consul General Okazaki at this Garden House. On that day of the first meeting, Sisir Bose drove the car of the Consul bringing him to this house. It is learnt that the next Consul Ohta along with his wife also came to this house several times to meet Sarat Bose. In fact, to avoid the surveillance of British intelligence officers, Mrs. Ohta used to come here wearing saree so that it would appear as if she was coming to attend a social gathering. Indeed, numerous meetings of this kind having taken place here, this house unmistakably lies wreathed in a glorious bit of history pertaining to the last leg of the Indian freedom movement.

Later the descendants of the Bose family sold this property and eventually in 2005 Sri Paritosh M Chakrabarti got the ownership of this property. Finally, this historic Bose House Property has been donated by Sri Paritosh M Chakrabarti and Sreemati Chakrabarti to Ramakrishna Mission Saradapitha, Belur Math for the construction and development of a Cultural and Educational Centre to promote the legacy of Swami Vivekananda and Netaji Subhas Chandra Bose. Now the Bose House Campus is the second campus of Ramakrishna Mission Vidyamandira.



BOSE HOUSE CAMPUS : SPECIAL FEATURES

- Swami Vivekananda's dream was to combine the traditional Upanishadic teachings of India with the knowledge of the West. A bunch of online and offline courses have been started from this campus to contribute towards the actualization of this vision..
- Keeping employability in mind, skill development courses like Digital Skills, Data Analysis, Communicative English, Communicative Hindi or Modern Journalism have been made part of our curriculum.
- Courses like Indian Mythology : Srimad Bhagavatam, Indian Philosophy : Vedanta, Buddhist Studies are meant to make one aware of India's ancient traditions, classical culture etc. These courses are very helpful in higher level research too.
- Courses such as 'Students' Mental Crisis & Intervention', 'Personality Development in the light of Ramakrishna-Vivekananda Movement' will help in combating today's dreaded mental disorders like stress, depression, anxiety and will also help developing effective personality to make one fit for career.
- Art Appreciation, Music Appreciation as well as Drawing & Craft and Music Classes will develop aesthetic sense on one hand and creativity on the other. Apart from higher level research, the vocational oriented learning of these courses today will also shape your career.
- Educational and Cultural Workshops, Seminars and Value Oriented Programs organized from this campus from time to time will be helpful for your skill development as well as values development.
- The various awareness programs and relief activities organized at this campus by the NSS department of Ramakrishna Mission Vidyamandira will be especially helpful in your socialization.
- Srimat Swami Suviranandaji Maharaj, General Secretary of Ramakrishna Math & Ramakrishna Mission officially inaugurated this campus on 21st February 2024, on the day of International Mother Language Day. In the inaugural meeting, Revered Maharaj said that the novelty of this campus of Ramakrishna Mission is that this is a co-educational institution. Girls will also study here. Swamiji said that a bird has two wings; and if both are not equally empowered and strong, then the bird cannot fly well. The governing body of Ramakrishna Mission has decided that both boys and girls will come here non-residentially; for the excellence of their lives.





**Brochure For 6 Months
Offline Certificate Course On**

**Basic Artificial
Intelligence Skills**



PROGRAMME FRAMEWORK

Name of the course	Basic Artificial Intelligence Skills
Aims & Objectives	<p>Aims</p> <ol style="list-style-type: none"> 1. Provide non-technical students with foundational AI skills to enhance their employability across various industries. 2. Enable students to understand the practical applications of AI in solving real-world business problems. 3. Equip learners with essential programming, mathematical, and data handling skills necessary for advanced AI studies and professional roles. 4. Develop problem-solving and critical thinking abilities through hands-on projects and coding exercises. 5. Prepare students for entry-level positions in AI-related fields by familiarizing them with industry-standard tools and practices. <p>Objectives</p> <ol style="list-style-type: none"> 1. Understand the Basics of AI: Comprehend the fundamental concepts of AI and its key applications in industries like healthcare, finance, and e-commerce. 2. Acquire Basic Programming Skills: Learn programming languages such as Python, C, or Java, and develop the ability to implement simple AI algorithms. 3. Master Data Preprocessing: Gain knowledge in handling, cleaning, and transforming data for machine learning applications. 4. Develop Mathematical Foundations: Build a foundational understanding of the essential mathematics used in AI, such as probability, linear algebra, and basic calculus. 5. Apply AI Tools: Get hands-on experience using open-source AI tools like Weka and Orange for data analysis and machine learning tasks. 6. Build a Portfolio: Complete practical projects that demonstrate the ability to apply AI techniques to solve industry-related problems, enhancing employability. 7. Prepare for Advanced AI Learning: Lay the groundwork for students to progress into advanced AI and machine learning courses, making them ready for industry-specific AI roles.
Tradition & Background	<p>The course is built upon the longstanding tradition of bridging technical education with industry needs. As AI continues to revolutionize industries globally, it has become essential for professionals across all fields to gain a basic understanding of AI concepts, even those without a formal computer science background. This course draws inspiration from this growing demand, providing non-technical learners with the necessary foundation to thrive in an increasingly AI-driven job market.</p>

	<p>Historically, AI education was reserved for highly technical fields, but with its rapid integration into everyday business processes, the landscape has evolved. Today, AI is not just for engineers and data scientists—it impacts marketing, healthcare, finance, logistics, and more. This course aligns with the modern shift towards making AI accessible to all and focuses on providing foundational skills that empower learners to understand and apply AI tools effectively in their respective industries.</p> <p>The course is designed to help students from diverse backgrounds, ensuring they gain employable AI skills that are highly valued in the global workforce. Through a blend of theoretical learning and hands-on practice, it fosters a new generation of professionals who can leverage AI technologies to drive innovation, solve real-world problems, and enhance business processes.</p>
<p>Important Literature and Texts</p>	<p>"Artificial Intelligence for Beginners" by John Paul Mueller and Luca Massaron A beginner-friendly introduction to AI, covering essential concepts, algorithms, and practical applications, with simple explanations and real-world examples, making it suitable for non-technical learners.</p> <p>"AI: A Very Short Introduction" by Margaret A. Boden This concise text provides an accessible overview of the history, developments, and philosophical implications of AI. It's ideal for students seeking a broad understanding of AI's role in modern industries.</p> <p>"Data Science for Business" by Foster Provost and Tom Fawcett This book introduces core principles of data science and its business applications, helping students understand how AI and machine learning are used to solve business problems.</p> <p>"Hands-On Machine Learning with Scikit-Learn, Keras, and TensorFlow" by Aurélien Géron Though it includes Python, this book's emphasis on practical machine learning techniques and concepts is highly beneficial for learners preparing for AI applications, even if the focus is on other tools and languages.</p> <p>"Introduction to Artificial Intelligence" by Wolfgang Ertel A comprehensive text that covers intelligent agents, search algorithms, machine learning, and neural networks. It provides a solid foundation for beginners interested in AI applications without requiring advanced programming skills.</p> <p>"Artificial Intelligence: A Guide for Thinking Humans" by Melanie Mitchell</p>

	<p>This accessible book explores the past, present, and future of AI, focusing on its capabilities, challenges, and ethical implications. It is perfect for non-technical students who are keen to understand the broader context of AI's impact on society.</p> <p>"Machine Learning Yearning" by Andrew Ng While this book includes some technical content, it is written with a focus on practical advice and strategies for implementing machine learning systems, making it valuable for non-programmers interested in understanding machine learning from a conceptual standpoint.</p> <p>"Introduction to Data Mining" by Pang-Ning Tan, Michael Steinbach, and Vipin Kumar This text provides an introduction to data mining concepts and methods, which are essential for understanding AI. It covers essential topics like classification, clustering, and association analysis, using tools like Weka for practical application.</p>
<p>Learned scholars and their contribution</p>	<p>John McCarthy Known as the father of Artificial Intelligence, McCarthy coined the term "Artificial Intelligence" in 1956. He developed the LISP programming language, which became the foundation for many AI research projects. His work in formalizing AI theories laid the groundwork for many AI applications in various industries.</p> <p>Marvin Minsky A pioneer in AI, Minsky co-founded the MIT AI Laboratory and made significant contributions to the development of machine learning and neural networks. His work on cognitive theories and artificial neural networks has influenced the understanding of human-like intelligence in machines.</p> <p>Geoffrey Hinton Often referred to as the "godfather of deep learning," Hinton's research in neural networks and backpropagation has revolutionized AI, particularly in image recognition, natural language processing, and speech recognition. His work is foundational for AI's application in diverse industries.</p> <p>Yoshua Bengio A leading figure in deep learning, Bengio's research in neural networks has led to significant advances in AI. He contributed to the development of algorithms that have improved the ability of machines to learn from data, especially in complex, large-scale applications like speech and vision.</p> <p>Andrew Ng A key contributor to the development of machine learning and online education, Ng co-founded Google Brain and has made AI and machine learning more accessible to non-technical audiences through his popular</p>

	<p>online courses. His focus on making AI practical and scalable for businesses aligns with the core objectives of this course.</p> <p>Foster Provost Known for his work in data science, Provost has co-authored key texts that link data mining and machine learning with business decision-making. His contributions to understanding the practical applications of AI in business, particularly in predictive analytics, have been vital for developing AI solutions in industry.</p>
<p>Basic tenets and Schools of thought</p>	<p>Practical Application of AI Basic Tenet: AI is not just about theory; it is about applying knowledge to real-world problems. This course emphasizes the practical application of AI concepts in various industries, ensuring that learners understand how AI can be used to solve business challenges, optimize processes, and drive innovation. Example: Using AI to enhance customer service, automate repetitive tasks, and improve decision-making processes in businesses.</p> <p>Accessibility and Inclusivity in AI Basic Tenet: AI should be accessible to all, regardless of technical background. The course aims to make AI concepts understandable for non-technical students, focusing on conceptual understanding, basic coding, and application in business scenarios rather than deep technical coding. Example: Using open-source tools like Weka and Orange to apply AI techniques without requiring advanced programming skills.</p> <p>Ethical AI and Responsible Development Basic Tenet: Ethical considerations in AI development are crucial. This course stresses the importance of developing AI systems that are transparent, fair, and accountable. Students will be introduced to the ethical dilemmas AI may present, such as biases in data and decision-making, and how to mitigate these issues. Example: Discussing AI bias and fairness while creating AI models for hiring or lending decisions.</p> <p>Human-AI Collaboration Basic Tenet: AI should be seen as a tool to augment human capabilities, not replace them. The course emphasizes the idea that AI can complement human intelligence and help individuals and organizations make more informed, data-driven decisions. Example: AI-powered decision-support systems that assist healthcare professionals in diagnosing diseases rather than replacing doctors.</p>

Interdisciplinary Approach to AI

Basic Tenet: AI is a field that draws from multiple disciplines, including computer science, mathematics, statistics, and even ethics and philosophy. This course embraces an interdisciplinary approach, incorporating business, data science, and social sciences to help students understand AI's broader impact and potential.

Example: Exploring AI applications in business decision-making, customer behaviour prediction, and ethical considerations in AI use.

Schools of Thought in AI for this Course**Applied AI and Data Science**

Focus on leveraging data-driven insights and AI techniques to solve real-world business problems. This school emphasizes practical applications, predictive analytics, and data mining to support decision-making.

Example: Using machine learning algorithms to analyse sales data and predict market trends for businesses.

Human-Centric AI

This school focuses on AI that enhances human experiences and improves human capabilities. AI is seen as a tool to assist, rather than replace, humans in complex tasks, fostering collaboration between humans and machines.

Example: Building AI systems for personalized customer experiences, such as recommendation systems that suggest products based on user preferences.

AI Ethics and Responsible Innovation

This school emphasizes the need for AI systems to be ethical, transparent, and accountable. It stresses the importance of developing AI with a focus on fairness, equity, and societal impact.

Example: Teaching how to avoid algorithmic biases when implementing AI for hiring processes or loan approvals.

Industry-Specific AI Applications

This school tailors AI techniques to specific industries, making AI more relevant to particular sectors like healthcare, finance, and retail. The focus is on how AI can solve specific problems and add value to industry operations.

Example: Implementing AI in supply chain management to predict demand and optimize inventory.

Cognitive and Machine Learning-Based AI

This school focuses on machine learning and deep learning methods, including neural networks, which are central to AI's ability to learn from data and improve over time.

	<p>Example: Using machine learning algorithms to analyse customer feedback and adapt marketing strategies based on sentiment analysis.</p> <p>These tenets and schools of thought will guide students through a practical, ethical, and interdisciplinary understanding of AI, preparing them for industry-relevant roles and fostering responsible AI innovation.</p>
Applied aspects	<ol style="list-style-type: none"> AI-Powered Decision Making in Businesses <ul style="list-style-type: none"> Application: Students will learn how AI supports data-driven decision-making in industries like finance, marketing, and operations. These skills make them valuable for roles such as business analysts and operations managers. Example: Training students to use AI tools for predictive analytics, such as forecasting sales trends or optimizing inventory levels. Automation and Process Optimization <ul style="list-style-type: none"> Application: AI-driven automation is transforming workflows by streamlining repetitive tasks. Students will gain hands-on experience in building models that automate data entry, customer service, and report generation, which are in high demand across industries. Example: Implementing chatbots for customer service or automating data collection processes. Data Analysis and Visualization <ul style="list-style-type: none"> Application: Mastering AI techniques for analysing and visualizing data prepares students for roles like data analysts or visualization experts, which are crucial in decision-making roles across multiple sectors. Example: Using tools to clean, process, and visualize data for actionable business insights. Customer Personalization and Retention <ul style="list-style-type: none"> Application: AI is increasingly used to create personalized customer experiences, such as recommendation systems and targeted marketing. This enhances employability in marketing, sales, and customer relationship management roles. Example: Training models to analyse customer behaviour and preferences to suggest relevant products or services. AI in Industry-Specific Roles <ul style="list-style-type: none"> Application: By understanding how AI is applied in specific industries like healthcare, logistics, and retail, students can target specialized roles that leverage AI for operational improvements. Example: Predicting equipment failures in manufacturing using machine learning models or analysing patient health records to assist in medical diagnostics. Entry-Level AI Roles <ul style="list-style-type: none"> Application: The course prepares students for entry-level roles such as AI technicians, junior data analysts, or AI project coordinators by teaching them foundational AI concepts and practical applications.

	<ul style="list-style-type: none"> ○ Example: Assisting in developing AI solutions for businesses, such as fraud detection systems or supply chain optimization. <p>7. Portfolio Development for Employability</p> <ul style="list-style-type: none"> ○ Application: Students will complete hands-on projects during the course, showcasing their ability to apply AI techniques to solve real-world problems. This portfolio will significantly enhance their employability. ○ Example: Developing a sentiment analysis project for social media or creating a basic recommendation system for e-commerce. <p>8. AI Tools Proficiency</p> <ul style="list-style-type: none"> ○ Application: Proficiency in open-source tools enables students to use cost-effective solutions widely recognized in industries, enhancing their job readiness. ○ Example: Building classification models to analyse business data or creating visualizations with Orange to present insights. <p>9. Problem-Solving and Critical Thinking</p> <ul style="list-style-type: none"> ○ Application: Learning to approach problems with AI-based solutions equips students with critical thinking skills, which are highly valued in roles like operations management and strategic planning. ○ Example: Designing a rule-based system to optimize resource allocation in small businesses. <p>10. Foundation for Advanced Roles</p> <ul style="list-style-type: none"> ○ Application: The basic skills gained in this course serve as a stepping stone for students to pursue advanced AI roles, such as machine learning engineers or AI researchers, once they complete further training. ○ Example: Transitioning to advanced AI studies with a solid understanding of AI basics and industry applications. <p>This course ensures students develop practical, job-ready AI skills, aligning their learning with the specific needs of the job market and enhancing their employability in a competitive, AI-driven economy.</p>
Connect with the contemporary knowledge system	<p>This course aligns with the contemporary knowledge system by integrating foundational AI concepts with practical tools and real-world applications. It bridges traditional learning methods with modern industry needs, emphasizing hands-on experience using open-source tools and case studies from current AI implementations in sectors like healthcare, finance, and retail. By focusing on employability and the latest advancements in AI, the course ensures students are well-equipped to navigate and contribute to the evolving digital landscape.</p>
Valuable excerpts from ancient texts	<p>Ancient Indian texts offer timeless wisdom that complements modern AI education by emphasizing ethical principles, logical reasoning, and the responsible use of knowledge. These teachings provide a philosophical</p>

foundation for applying AI in ways that benefit society. Key excerpts include:

The Bhagavad Gita

Key Principle: "Yogasthaḥ kuru karmāṇi" (Perform your duty while being steadfast in yoga and without attachment).

Relevance: This encourages ethical responsibility and focus on societal well-being over personal gains—principles critical for developing unbiased and fair AI systems.

The Upanishads

Key Principle: "Sa Vidya Ya Vimuktaye" (True knowledge is that which liberates).

Relevance: Highlights the importance of using knowledge, including AI, to solve real-world problems and improve lives, aligning AI's purpose with human progress and sustainability.

Arthashastra by Kautilya

Key Principle: Strategic thinking and governance.

Relevance: Teaches how to apply intelligence (artificial or human) strategically to enhance decision-making and manage resources effectively in industries and businesses.

The Yoga Sutras of Patanjali

Key Principle: "Chitta Vritti Nirodhah" (Control over mental fluctuations leads to clarity).

Relevance: Emphasizes the importance of focus and mindfulness, akin to building AI systems that are precise, efficient, and free from unnecessary biases.

Vedanta Philosophy

Key Principle: The interconnectedness of all existence.

Relevance: Encourages AI practitioners to recognize the broader impact of technology on society, promoting collaboration and holistic development.

The Mahabharata

Key Principle: Ethical decision-making in complex scenarios.

Relevance: Resonates with the challenges in designing AI systems that must make decisions impacting multiple stakeholders, ensuring fairness and accountability.

By drawing from these ancient Indian texts, the course imparts a sense of ethical responsibility and a commitment to leveraging AI for the greater good, fostering a balanced integration of technology and human values.

Future Prospects

The Basic AI Skills for Employability Enhancement course opens numerous opportunities for students in both career and academic domains. The growing adoption of AI across industries ensures that foundational AI knowledge is not just valuable but essential in the modern workforce.

1. Career Opportunities

Entry-Level Roles: Graduates of this course can pursue roles such as AI assistants, data entry analysts, or junior AI technicians, focusing on data handling and basic AI applications.

Cross-Industry Demand: AI is transforming sectors like healthcare, finance, retail, manufacturing, and education, creating job opportunities for professionals with AI skills tailored to specific industries.

Skill-Based Roles: Proficiency in tools like Weka, Scilab, and Orange makes students ready for roles in data analysis, customer behaviour prediction, and automation.

2. Advancement to Specialized Roles

This course provides a foundation for advanced AI learning, enabling students to transition into roles such as data scientists, machine learning engineers, and AI researchers after further studies.

Specialization areas like natural language processing, computer vision, and AI ethics are natural progressions for students pursuing higher studies in AI.

3. Research Opportunities

Academic Research: The course equips students with the basics needed to contribute to AI research, enabling them to explore topics like data-driven decision-making and ethical AI.

Collaborative Projects: Students can collaborate with academic and industry experts on projects that tackle pressing real-world challenges.

Publications: Basic skills in AI can lead to contributions in research papers and journals as students advance in their understanding of AI methodologies.

4. Entrepreneurship in AI Applications

With a foundation in AI, students can innovate by developing AI-powered solutions for startups or small businesses.

AI applications in automation, personalization, and predictive analytics offer significant opportunities for entrepreneurship in diverse fields.

5. Lifelong Relevance of AI Skills

As AI continues to evolve, skills in understanding and applying AI concepts will remain relevant across career paths.

Foundational AI knowledge prepares students for future technological advancements, ensuring adaptability in a rapidly changing job market.

By completing this course, students will be well-prepared to leverage AI as a tool for enhancing their employability, contributing to impactful research,

and pursuing further specialization in the dynamic and ever-expanding field of Artificial Intelligence.

CURRICULUM

TOTAL CREDIT : 3	FULL MARKS : 100
EACH CREDIT : 15 HOURS	COMPREHENSIVE ASSESSMENT : 20
COURSE DURATION : 6 MONTHS	PERIODIC ASSESSMENT: 80

	COURSE CONTENT	HOURS
UNIT 1	Introduction to Computing and Programming Basics	9
Module I	Understanding Computers and Software: Basics of computer architecture (CPU, memory, storage). Operating systems: Overview of Windows, Linux, and macOS. Introduction to software tools used in programming.	
Module II	Programming Fundamentals: Basics of coding: Syntax, variables, and data types. Control structures: Loops and conditional statements. Writing simple programs in C and Java.	
Module III	Debugging and Code Optimization: Understanding common errors and debugging techniques. Writing efficient code: Best practices. Hands-on activity: Fixing and optimizing basic programs.	
UNIT 2	Foundations of Mathematics for AI	9
Module I	Linear Algebra Basics: Vectors, matrices, and their operations. Matrix multiplication and its role in AI.	
Module II	Probability and Statistics: Basic concepts: Mean, median, mode, and variance. Probability distributions and Bayes' theorem. Activity: Writing small programs to calculate probabilities.	
Module III	Introduction to Calculus: Derivatives and integrals: Concepts and applications in AI. Gradient descent and optimization basics.	
UNIT 3	Data Handling and Preprocessing	9
Module I	Understanding Data: Types of data: Structured and unstructured. Introduction to datasets and their components.	
Module II	Data Cleaning and Transformation: Handling missing values and duplicates. Normalization, scaling, and encoding.	
Module III	Introduction to Data Visualization: Basics of data visualization: Charts, graphs, and plots.	

	Hands-on: Creating simple visualizations for a dataset.	
UNIT 4	Logical Thinking and Problem-Solving	
Module I	Algorithmic Thinking: Breaking down problems into smaller steps. Writing pseudocode for basic algorithms. Activity: Designing an algorithm to solve a real-world problem.	9
Module II	Introduction to Data Structures: Arrays, lists, and basic operations. Simple search and sort algorithms. Hands-on practice: Writing a sorting program in C.	
Module III	Understanding AI Logic Basics of decision-making systems. Introduction to rule-based logic.	
UNIT 5	Overview of Artificial Intelligence and Its Applications	
Module I	What is AI? Definition and history of AI. Key areas of AI: Machine learning, robotics, NLP, etc. Activity: Watching and discussing case studies of AI applications.	9
Module II	AI in Everyday Life: How AI powers search engines, chatbots, and recommendation systems. Exploring AI in industries like healthcare, finance, and education.	
Module III	Preparing for Advanced AI Studies Understanding the prerequisites for advanced AI learning. Tools and resources for self-study in AI. Building a roadmap to transition to the advanced course.	

SUGGESTED READINGS

- **"Artificial Intelligence for Beginners" by John Paul Mueller & Luca Massaron**
 - A beginner-friendly introduction to AI concepts and applications, ideal for non-technical learners.
- **"AI: A Very Short Introduction" by Margaret A. Boden**
 - A concise overview of AI's history, developments, and future, providing foundational understanding.
- **"Introduction to Artificial Intelligence" by Wolfgang Ertel**
 - Comprehensive coverage of AI principles and techniques, tailored for beginners without a technical background.
- **"Artificial Intelligence: A Guide for Humans" by Dr. Subhash Kak**
 - This book offers a comprehensive introduction to the philosophical and technological aspects of AI, written by a renowned Indian scholar in the field of AI and cognitive sciences.
- **"Data Science and Big Data Analytics" by Dr. Arshad Khan**
 - A practical guide that focuses on the importance of data science and AI, particularly in the context of big data, with examples from industry applications.

ASSESSMENT	
COMPREHENSIVE ASSESSMENT (20)	PERIODIC ASSESSMENT (80)
<ul style="list-style-type: none"> • Project Work • Term Paper • Essay Writing • Inter forum Debate • Extempore • Quiz 	Theory : 50 <ul style="list-style-type: none"> • CBT Evaluation • Online Test • Objective Test • Class Assignment • Home Assignment • Paper Presentation
	Viva-voce : 20 <ul style="list-style-type: none"> • Oral Exam • Group Discussion • Role Play • Quiz
	Class Performance : 10

ELIGIBILITY CRITERIA

- Academic Qualification: Qualified Secondary or equivalent level of examination
- Age: No bar
- Gender: No bar

PROGRAMME DETAILS

- Duration of the Course: 6 Months
- Total Hours: 45
- Mode of Instruction: Offline
- Medium of Instruction: English, Bengali, and Hindi
- N.B-75% attendance in the classes is mandatory
- At the end of the course, all the participants will be given certificates by Swami Vivekananda Research Centre (SVRC), Ramakrishna Mission Vidyamandira.
- During the conductance of the course the decision of the college authority is final.

BOSE HOUSE CAMPUS : AT A GLANCE





Our Courses

Digital Skill : From Basic to Advanced

Communicative English

Modern Journalism

Drawing & Music Classes

Students Mental Crisis & Intervention

Indian Philosophy : Vedanta

Indian Mythology : Shrimad Bhagavatam

Apprication of Indian Art & Crafts

Apprication of Indian Music

SEE ALL COURSES



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“শ্রীরামকৃষ্ণ ও স্বামী বিবেকানন্দের নিকট আমি যে কত খণী তাহা ভাষায় কি করিয়া প্রকাশ করিব ? তাহাঁদের পুণ্য প্রভাবে আমার জীবনের প্রথম উল্লেখ । ‘নিবেদিতার’ মতো আমিও মনে করি যে, রামকৃষ্ণ ও বিবেকানন্দ একটা অখন্ড ব্যক্তিত্বের দুই রূপ । আজ যদি স্বামীজি জীবিত থাকিতেন, তিনি নিশ্চয়ই আমার গুরু হইতেন - অর্থাৎ তাঁকে নিশ্চয়ই আমি গুরুরূপে বরণ করিতাম । যাহা হউক, যতদিন জীবিত থাকিব ততদিন ‘রামকৃষ্ণ-বিবেকানন্দের’ একান্ত অনুগত ও অনুরক্ত থাকিব, একথা বলা বাহুল্য।”

- সুভাষচন্দ্র বসু

