



AI & CLOUD AI PROFESSIONAL ACADEMY



AI & CLOUD AI PROFESSIONAL ACADEMY

The AI & Cloud AI Professional Academy from Arcitura provides a formal education and accreditation program dedicated to contemporary AI technology and practices, including predictive AI, generative AI and cloud-based AI, as well as AI engineering and architecture.

For more information, visit the AI & Cloud AI Professional Academy home page:

arcitura.com/ai

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ABOUT THE ARCITURA CURRICULUM



The Arcitura headquarters in Vancouver, Canada from 2012 until the COVID-19 pandemic. Since then, Arcitura staff collaborate remotely, geographically distributed over three continents.

Courses and Modules

➤ Arcitura's curriculum is comprised of over 50 courses and over 120 course modules.

➤ Every Arcitura course is comprised of multiple course modules.

➤ Each course corresponds to a professional certification.



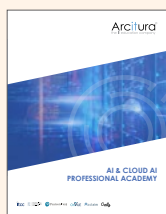
For each course, a separate Official Guide PDF is available for download on the course description page.

arcitura.com/courses

arcitura.com/tracks

Programs, Tracks and Certifications

Arcitura's library of courses and modules is organized into the following programs:



AI & Cloud AI
Professional
Academy



Digital
Transformation
Professional
Academy



Next-Gen IT
Academy



Next-Gen
Data Science
Academy

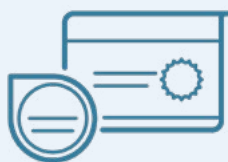


Cloud
Computing
School



Service
Technology
School

Within each program, modules are organized into tracks. Every course has a track that indicates the order in which course modules should be completed. Each track also corresponds to a professional certification. There are over 50 professional certifications, each of which can be attained by passing a certification exam.



Digital Certificates and Badges

➤ Upon fulfilling the completion requirements for a course via eLearning or an instructor-led workshop, you receive a digital Certificate of Completion and a digital Training Badge from Acclaim/Credly.

➤ Upon attaining a certification, you also receive an official digital Accreditation Certificate and a digital Certification Badge from Acclaim/Credly.

arcitura.com/certifications

SELF-STUDY WITH ELEARNING



eLearning Made Easy

Helping you achieve success in your education and career goals is our top priority. At Arcitura, we understand that everyone has different requirements and preferences when it comes to self-study.



All Arcitura courses are available for self-study via eLearning.



Upon purchasing a course, you receive access via an online interactive eLearning platform.



To provide you with the greatest flexibility, you will be offered the option of also accessing the course materials via two additional eLearning formats.



The additional eLearning formats are provided to you upon request and at no extra cost.

arcitura.com/elearning

eLearning Formats



For Everyday Learning

An online interactive eLearning platform with individual lessons, as well as interactive and automatically graded exercises and practice questions.



For Learning On-the-Go

A study kit platform with access to full course documents that support online/offline synching, annotations, comments and custom bookmarks.



For Your Reference

A set of printable PDF documents that you can keep (for all course workbooks and posters).

Each Arcitura eLearning course includes a self-test to help you assess your readiness to take a certification exam. Separate Exam Prep Kits are also available with additional online interactive practice questions that are automatically graded.

INSTRUCTOR-LED TRAINING & COACHING



Arcitura works closely with its network of authorized training partners to provide online and onsite instructor-led training workshops to organizations throughout the world, including many corporations, federal government agencies and numerous Fortune 500 organizations.

Arcitura and its partners have Certified Trainers and supporting staff that are highly experienced in the planning, delivery and management of private and public training events that can be tailored to your learning objectives and scheduling preferences.

arcitura.com/training

Instructor-Led Services



Online Training

Training workshops for Arcitura courses can be delivered by Certified Trainers online via virtual classrooms.



Onsite Training

Training workshops for Arcitura courses can be delivered by Certified Trainers onsite at your location or at an external venue.



Online Coaching

Certified Trainers are available to provide virtual coaching services that can be scheduled on an hourly basis.

For Groups & Individuals



Workshops for Groups or Individuals

Training workshops can be delivered for small and large groups. Online training workshops can also be arranged for individuals.



Coaching for Groups or Individuals

Virtual coaching sessions can be arranged for groups and individuals to provide supplementary guidance and to assist with exam preparation.



Training Programs for Multiple Groups

Larger training programs involving multiple groups can be managed and coordinated and further supplemented with ongoing reporting.

Training Workshops & Optional Exams



Online Exam Proctoring

Exams can be taken online during or after a training workshop via Pearson VUE online proctoring and/or Arcitura direct online proctoring.



Onsite Exam Proctoring at Testing Center

Proctored exams can be taken in-person at Pearson VUE testing centers worldwide subsequent to workshop completion.



Onsite Exam Proctoring during Workshop

Paper-based exams can be taken during an onsite training workshop, either after each workshop day or subsequent to workshop completion.



Workshop Management Features & Benefits



Flexible Scheduling

Training workshop agendas can be tailored to your scheduling requirements.



Blended Learning Options

Blended learning models are supported to combine eLearning self-study with instructor-led training and/or virtual coaching.



Dedicated Workshop Monitors

For larger workshop groups, a dedicated monitor is assigned to facilitate the event in support of the instructor.



Multi-Platform Support

For online workshops, virtual classroom can be provided using a range of platforms, such as Zoom, WebEx and MS Teams.



Training Program Reporting

For groups and larger training programs, regular progress reporting can be provided.



External Venue Management

External venues, such as hotel conference rooms and schools, can be arranged to host onsite workshop events.

Workshop Provisioning Features & Benefits



Complimentary eLearning Accounts

Workshop participants can receive eLearning accounts with course materials, videos and many study resources.



Course Document PDFs for Participants to Keep

In addition to eLearning access, workshop participants can receive and keep printable PDF files of workshop course documents.



Optional Printed Course Materials

Onsite workshops can be provisioned with full-color printed course booklets and reference posters.



Complimentary Evaluation Courses

Workshop participants can receive free access to new courses that complement workshop course topics.



Complimentary Training Badges

Workshop participants can receive official digital training badges from Acclaim/Credly.



Complimentary Certificates of Completion

Workshop participants can receive official digital certificates of completion.





The AI & Cloud AI Professional Academy from Arcitura provides formal education and accreditation programs dedicated to contemporary AI practices, technologies, and architectures for predictive, generative, agentic and physical AI systems.

Exams are available worldwide via online proctoring and on-site delivery by Certified Trainers. Achieving a passing grade on the required exam(s) achieves a certification for which a digital accreditation certificate is automatically issued by Arcitura and a digital certification badge is issued by Acclaim/Credly.

www.arcitura.com/ai

QUESTIONS?

Contact us at: info@arcitura.com



COURSES & CERTIFICATIONS

Arcitura®
CERTIFIED
AI Professional



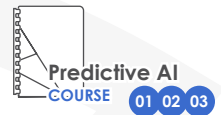
A Certified AI Professional has a proven understanding of common AI concepts, technologies, systems and business applications.



Arcitura®
CERTIFIED
Predictive AI Specialist



A Certified Predictive AI Specialist has gained a proven understanding of predictive AI practices and systems, including model training, learning techniques and neural networks.



Arcitura®
CERTIFIED
Generative AI Specialist



A Certified Generative AI Specialist understands the training, utilization and management of generative AI systems, as well as related algorithms and models.



Arcitura®
CERTIFIED
Agentic AI Specialist



A Certified Agentic AI Specialist has an understanding of how agentic AI systems work in the real world, and how digital and physical autonomous agents can be utilized to collaborate with human workers.



Arcitura®
CERTIFIED
Predictive AI Engineer



A Certified AI Predictive Engineer has proven knowledge of engineering practices associated with a broad range of predictive AI models and neural networks, including practices for AI model training, optimization and retraining.



Arcitura®
CERTIFIED
Generative AI Engineer



A Certified Generative AI Engineer has proven knowledge of established models and neural networks used for content generation, including practices associated with natural language processing.



Arcitura®
CERTIFIED
AI Architect



A Certified AI Architect has proven knowledge of predictive AI and generative AI systems technology architecture, implementation and infrastructure requirements, as well as integration techniques of both systems and supporting data management platforms.



Arcitura®
CERTIFIED
AI Consultant



A Certified AI Consultant has gained a broad range of knowledge to assist with the identification and utilization of different types of AI systems in support of fulfilling business automation requirements and recognizing new opportunities for AI-enablement.



Arcitura®
CERTIFIED
AI Governance & Ethics Specialist



A Certified AI Governance & Ethics Specialist has a proven understanding of governing predictive and generative AI systems throughout their lifecycles, with an emphasis on incorporating controls to ensure fairness, transparency and compliance.



Arcitura®
CERTIFIED
Cloud AI Professional



A Certified Cloud AI Professional has a proven understanding of cloud-based AI technology, infrastructure, automation and services, in support of model training, as well as AI system and data management.



Arcitura®
CERTIFIED
Cloud AI Architect



A Certified Cloud AI Architect has in-depth, proven knowledge of AI-specific cloud architectural models, design patterns and infrastructure to help realize the design, implementation and integration of enterprise- grade, cloud-based AI solutions.



* This course encompasses Modules 1 and 2 from the Cloud Computing School curriculum.



Essential AI Course AI Professional Certification

The Essential AI course provides coverage of predictive AI and generative AI concepts, benefits, challenges and risks. Suitable for IT and business professionals that would like to receive a fundamental understanding of how contemporary AI works and how it can be applied in the real world. This course can be used to prepare for the AI Professional Certification exam.



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Learners are required to complete Module 1 and can then specialize by choosing either Module 4 or 16.



Module 01 | Fundamental Predictive AI

Illustrates how predictive AI can be used and applied in a range of business applications, as well as essential coverage of predictive AI practices and systems. The module explores the most common learning approaches and functional areas that AI systems are used for. All of the content is authored in easy-to-understand, plain English.



Module 04 | Fundamental Generative AI

Explores the application of generative AI within a range of business scenarios and provides fundamental coverage of generative AI concepts, models, best practices and neural networks, including Generative Adversarial Networks (GANs), Variational Encoders (VAEs) and Transformer models. All of the content is authored in easy-to-understand, plain English.



Module 16 | Fundamental Agentic AI

Establishes the fundamental concepts, building blocks and capabilities of intelligent AI agents that can perceive, reason and act autonomously. Key components of multi-agent agentic AI systems are covered, including the use of large language models (LLMs), environmental models, knowledge graphs, and system prompts. Common benefits and challenges of using agentic AI are described, along with a preliminary exploration of using agents alongside humans in workplace environments.



Predictive AI Course

Predictive AI Specialist Certification

The Predictive AI course provides essential coverage of predictive AI concepts, models and best practices. Common AI analysis and analytics practices are explored within a range of business scenarios, and in-depth coverage of predictive AI model training, learning and data filtering and processing techniques is provided. This course can be used to prepare for the Predictive AI Specialist Certification exam.



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Module 01 | Fundamental Predictive AI

Illustrates how predictive AI can be used and applied in a range of business applications, as well as essential coverage of predictive AI practices and systems. The module explores the most common learning approaches and functional areas that AI systems are used for. All of the content is authored in easy-to-understand, plain English.



Module 02 | Advanced Predictive AI

Provides insight into how predictive AI systems work by exploring common techniques for learning, data processing and manipulation, and AI system performance management. The course module does not cover any mathematical formulas or programming and is intended for general IT professionals.



Module 03 | Predictive AI Lab

Provides a series of case-study driven, lab-style exercises and problems that are designed to test your ability to apply your knowledge of topics covered in previous modules. Completing this lab helps reinforce understanding of preceding topics and further demonstrates how different practices and technologies can be applied together as part of greater solutions.



Generative AI Course

Generative AI Specialist Certification

The Generative AI course provides essential coverage of generative AI concepts, models, best practices, and neural networks, including Generative Adversarial Networks (GANs), Variational Encoders (VAEs) and Transformer models. The course is focused on exploring the application of generative AI within a range of business scenarios. This course can be used to prepare for the Generative AI Specialist Certification exam.



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Module 04 | Fundamental Generative AI

Explores the application of generative AI within a range of business scenarios and provides fundamental coverage of generative AI concepts, models, best practices and neural networks, including Generative Adversarial Networks (GANs), Variational Encoders (VAEs) and Transformer models. All of the content is authored in easy-to-understand, plain English.



Module 05 | Advanced Generative AI

Covers a range of common generative AI networks, models and techniques, including specialized neural networks and practices for managing and optimizing generative AI systems and model training processes. The course module does not cover any mathematical formulas or programming and is intended for general IT professionals.



Module 06 | Generative AI Lab

Provides a series of case-study driven, lab-style exercises and problems that are designed to test your ability to apply your knowledge of topics covered in previous modules. Completing this lab helps reinforce understanding of preceding topics and further demonstrates how different practices and technologies can be applied together as part of greater solutions.



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Agentic AI Course

Agentic AI Specialist Certification

The Agentic AI course provides a detailed, easy-to-understand exploration of autonomous AI systems, the agentic AI technology that drives these systems, and how they are used to provide automation alongside humans in the workplace. The course begins with an overview of common benefits, challenges and risks associated with agentic AI, and then covers a series of fundamental topics pertaining to digital and physical AI agents, how they reason and make decisions, and their use of LLMs. The course then establishes a collection of human-in-the-loop practices and lab-style exercises that demonstrate how agents and humans can effectively collaborate in different real-world scenarios. This course can be used to prepare for the Agentic AI Specialist Certification exam.



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Module 16 | Fundamental Agentic AI

Establishes the fundamental concepts, building blocks and capabilities of intelligent AI agents that can perceive, reason and act autonomously. Key components of multi-agent agentic AI systems are covered, including the use of large language models (LLMs), environmental models, knowledge graphs, and system prompts. Common benefits and challenges of using agentic AI are described, along with a preliminary exploration of using agents alongside humans in workplace environments.



Module 17 | Advanced Agentic AI

Provides a series of practices and techniques that enable agents and humans to collaborate in a workplace as part of the same overall operational solution. Different approaches are explored to accommodate a variety of common tasks and scenarios, whereby agents and humans are positioned with clear boundaries to evaluate and carry out actions collaboratively, with an emphasis on establishing human oversight for failure prevention, safety and to foster agent learning and improvement.



Module 18 | Agentic AI Lab

Provides a series of case-study driven, lab-style exercises and problems that build upon the fundamental topics covered in Module 16, and are focused on the application of the human-agent collaboration techniques described in Module 17. Completing this lab module helps reinforce understanding of preceding topics and further demonstrates how automation via agentic AI systems together with human involvement and oversight can form the basis of next-generation enterprise solutions.



Predictive AI Engineering Course Predictive AI Engineer Certification

The Predictive AI Engineering course covers numerous fundamental and advanced AI engineering topics specific to predictive AI systems, including a neural network design, model training approaches, data preprocessing and feature engineering, model evaluation, validation, scaling, optimization, data bias avoidance, and many more. This course can be used to prepare for the Predictive AI Engineer Certification exam.



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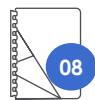
Module 01 | Fundamental Predictive AI
Illustrates how predictive AI can be used and applied in a range of business applications, as well as essential coverage of predictive AI practices and systems. The module explores the most common learning approaches and functional areas that AI systems are used for. All of the content is authored in easy-to-understand, plain English.



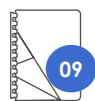
Module 02 | Advanced Predictive AI
Provides insight into how predictive AI systems work by exploring common techniques for learning, data processing and manipulation, and AI system performance management. The course module does not cover any mathematical formulas or programming and is intended for general IT professionals.



Module 07 | Fundamental Predictive AI Engineering
Delves into a range of predictive AI engineering practices and techniques, and further provides a detailed introduction of neural network architecture components. The course module illustrates how and when different practices and components of AI systems with neural networks need to be defined and applied. Finally, the module provides a set of key principles and best practices for carrying out AI engineering techniques.



Module 08 | Advanced Predictive AI Engineering
Covers a series of practices for preparing and working with data for training and running contemporary predictive AI systems and neural networks. It further provides techniques for designing and optimizing neural networks, including approaches for measuring and tuning neural network model performance. The practices and techniques can be applied individually or in different combinations to address a range of common predictive AI system problems and requirements.



Module 09 | Predictive AI Engineering Lab
Provides a series of case-study driven, lab-style exercises and problems that are designed to test your ability to apply your knowledge of topics covered in previous modules. Completing this lab helps reinforce understanding of preceding topics and further demonstrates how different practices and technologies can be applied together as part of greater solutions.



Generative AI Engineering Course Generative AI Engineer Certification

The Generative AI Engineering course covers a wide range fundamental and advanced AI engineering topics specific to the unique requirements of generative AI systems and on-demand content creation. Topics include generative neural network design, model training approaches, creative content manipulation, model evaluation, validation, scaling, optimization, data bias and concept drift avoidance, and many more. This course can be used to prepare for the Generative AI Engineer Certification exam.



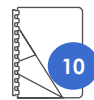
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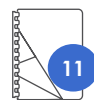
Module 04 | Fundamental Generative AI
Explores the application of generative AI within a range of business scenarios and provides fundamental coverage of generative AI concepts, models, best practices and neural networks, including Generative Adversarial Networks (GANs), Variational Encoders (VAEs) and Transformer models. All of the content is authored in easy-to-understand, plain English.



Module 05 | Advanced Generative AI
Covers a range of common generative AI networks, models and techniques, including specialized neural networks and practices for managing and optimizing generative AI systems and model training processes. The course module does not cover any mathematical formulas or programming and is intended for general IT professionals.



Module 10 | Fundamental Generative AI Engineering
Provides in-depth coverage of essential engineering practices for training and operating generative AI systems, including various data processing, filtering and management techniques specific to creative content generation. The module further covers commonly related topics, such as natural language processing (NLP), transfer learning and the use of pre-trained models.



Module 11 | Advanced Generative AI Engineering
Covers a series of techniques for working with GANs, VAEs, diffusion models, autoregressive models, transforms, as well as transfer learning and reinforcement learning. Topics include managing large datasets, managing iterative model training cycles, fostering creative content output and working with different data formats for content generation purposes. The techniques can be applied individually or in different combinations to address a range of common generative AI system problems and requirements.



Module 12 | Generative AI Engineering Lab
Provides a series of case-study driven, lab-style exercises and problems that are designed to test your ability to apply your knowledge of topics covered in previous modules. Completing this lab helps reinforce understanding of preceding topics and further demonstrates how different practices and technologies can be applied together as part of greater solutions.



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AI Architecture & Design Course

AI Architect Certification

The AI Architecture & Design course covers fundamental and advanced AI systems and technology architecture topics, including design principles, distributed AI computing and scalability and reliability infrastructure, decision-making logic, performance optimization, security and enterprise architecture integration. This course can be used to prepare for the AI Architect Certification exam.



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Module 01 | Fundamental Predictive AI

Illustrates how predictive AI can be used and applied in a range of business applications, as well as essential coverage of predictive AI practices and systems. The module explores the most common learning approaches and functional areas that AI systems are used for. All of the content is authored in easy-to-understand, plain English.



Module 04 | Fundamental Generative AI

Explores the application of generative AI within a range of business scenarios and provides fundamental coverage of generative AI concepts, models, best practices and neural networks, including Generative Adversarial Networks (GANs), Variational Encoders (VAEs) and Transformer models. All of the content is authored in easy-to-understand, plain English.



Module 13 | Fundamental AI Architecture & Design

Provides an essential understanding of AI system and solution architecture. This course module explains the different AI system architecture types, scopes and modes and provides detailed coverage of core AI system modules (including data ingestion, data preprocessing, feature engineering, inference engine and model repository) and monitors (including operations, data, model and ancillary monitors).



Module 14 | Advanced AI Architecture & Design

Explores a range of techniques and complex topics dedicated to AI system design and technology architecture, including scalability models, performance and optimization techniques and resiliency architectures.



Module 15 | AI Architecture & Design Lab

Provides a series of case-study driven, lab-style exercises and problems that are designed to test your ability to apply your knowledge of topics covered in previous modules. Completing this lab helps reinforce understanding of preceding topics and further demonstrates how different practices and technologies can be applied together as part of greater solutions.



AI Professional Consulting Course AI Consultant Certification

The AI Professional Consulting course provides essential coverage of the most important and relevant topics associated with predictive AI, generative AI and agentic AI, as well as fundamental AI architecture and cloud-based AI infrastructure. This well-rounded course equips IT professionals with broad insight into the distinct requirements, characteristics and challenges associated with different types of AI systems for a range of business applications. This course can be used to prepare for the AI Consultant Certification exam.



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Learners are required to complete Modules 1, 4 and 16, and can then specialize by choosing two additional modules from the following selection: 7, 10, 13, 22



Module 01 | Fundamental Predictive AI
Illustrates how predictive AI can be used and applied in a range of business applications, as well as essential coverage of predictive AI practices and systems. The module explores the most common learning approaches and functional areas that AI systems are used for. All of the content is authored in easy-to-understand, plain English.



Module 04 | Fundamental Generative AI
Explores the application of generative AI within a range of business scenarios and provides fundamental coverage of generative AI concepts, models, best practices and neural networks, including Generative Adversarial Networks (GANs), Variational Encoders (VAEs) and Transformer models. All of the content is authored in easy-to-understand, plain English.



Module 16 | Fundamental Agentic AI
Establishes the fundamental concepts, building blocks and capabilities of intelligent AI agents that can perceive, reason and act autonomously. Key components of multi-agent agentic AI systems are covered, including the use of large language models (LLMs), environmental models, knowledge graphs, and system prompts. Common benefits and challenges of using agentic AI are described, along with a preliminary exploration of using agents alongside humans in workplace environments.

Any two modules from:



Module 07 | Fundamental Predictive AI Engineering
Delves into a range of predictive AI engineering practices and techniques, and further provides a detailed introduction of neural network architecture components. The course module illustrates how and when different practices and components of AI systems with neural networks need to be defined and applied. Finally, the module provides a set of key principles and best practices for carrying out AI engineering techniques.

— and/or —



Module 10 | Fundamental Generative AI Engineering
Provides in-depth coverage of essential engineering practices for training and operating generative AI systems, including various data processing, filtering and management techniques specific to creative content generation. The module further covers commonly related topics, such as natural language processing (NLP), transfer learning and the use of pre-trained models.

— and/or —



Module 13 | Fundamental AI Architecture & Design
Provides an essential understanding of AI system and solution architecture. This course module explains the different AI system architecture types, scopes and modes and provides detailed coverage of core AI system modules (including data ingestion, data preprocessing, feature engineering, inference engine and model repository) and monitors (including operations, data, model and ancillary monitors).

— and/or —



Module 22 | Cloud AI Technology & Automation
Focuses on cloud computing technology, infrastructure and practices specific to establishing and running cloudbased predictive AI and generative AI solutions. Topics include GPU and TPU for AI learning workloads, cloud-based AI services such as AWS SageMaker, Azure Machine Learning and Google AI Platform for model development, training and deployment, as well as mechanisms for scaling AI applications in the cloud, data storage and pipeline options.



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AI Governance & Ethics Course

AI Governance & Ethics Specialist Certification

The AI Governance & Ethics course establishes the foundations of AI governance with precepts, processes and roles that address the on-going governance of AI systems. The governance of training and production data is covered, along with controls and considerations associated with ethical practice, model explainability and regulatory compliance. This course further extends AI governance practices and considerations in cloud-based environments. This course can be used to prepare for the AI Governance & Ethics Specialist Certification exam.



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Module 01 | Fundamental Predictive AI

Illustrates how predictive AI can be used and applied in a range of business applications, as well as essential coverage of predictive AI practices and systems. The module explores the most common learning approaches and functional areas that AI systems are used for. All of the content is authored in easy-to-understand, plain English.



Module 04 | Fundamental Generative AI

Explores the application of generative AI within a range of business scenarios and provides fundamental coverage of generative AI concepts, models, best practices and neural networks, including Generative Adversarial Networks (GANs), Variational Encoders (VAEs) and Transformer models. All of the content is authored in easy-to-understand, plain English.



Module 16 | Fundamental Agentic AI

Establishes the fundamental concepts, building blocks and capabilities of intelligent AI agents that can perceive, reason and act autonomously. Key components of multi-agent agentic AI systems are covered, including the use of large language models (LLMs), environmental models, knowledge graphs, and system prompts. Common benefits and challenges of using agentic AI are described, along with a preliminary exploration of using agents alongside humans in workplace environments.



Module 19 | Fundamental AI Governance & Ethics

Introduces the essential components of AI governance and explores the ethical considerations surrounding the usage and management of predictive and generative AI systems. Topics include fairness, transparency, privacy and accountability, as well as potential risks and biases within AI models. A vanilla governance framework is introduced, along with common precepts and processes for the governance of training data, production data, and cloud-based AI environments in addition to embedding ethical and responsible practices and monitoring agents into AI system designs.



Module 20 | Advanced AI Governance & Ethics

Delves deeper into predictive and generative vAI governance frameworks by introducing common roles and additional processes for areas such as bias mitigation, explainability and long-term AI oversight. Additional topics addressed include aligning AI development with social values, responsible use and regulatory requirements, as well as advanced methods for data monitoring, management and filtering. Further cloud computing-related topics are included to address data privacy, regional data storage and other common data-related policies.



Module 21 | AI Governance & Ethics Lab

Provides a series of case-study driven, lab-style exercises and problems that are designed to test your ability to apply your knowledge of topics covered in previous modules. Completing this lab helps reinforce understanding of preceding topics and further demonstrates how different practices and technologies can be applied together as part of greater solutions.



Cloud AI Technology & Automation Course

Cloud AI Professional Certification

The Cloud AI Technology & Automation course provides essential coverage of concepts and technologies for cloud-based AI systems, including infrastructure resources for reliability and scaling, AI data management, AI system deployment models, using containerization with AI systems, cloud AI serverless architecture, as well as integration of AI services with cloud-native applications. This course can be used to prepare for the Cloud AI Professional Certification exam.



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Module 01 | Fundamental Predictive AI

Illustrates how predictive AI can be used and applied in a range of business applications, as well as essential coverage of predictive AI practices and systems. The module explores the most common learning approaches and functional areas that AI systems are used for. All of the content is authored in easy-to-understand, plain English.



Module 04 | Fundamental Generative AI

Explores the application of generative AI within a range of business scenarios and provides fundamental coverage of generative AI concepts, models, best practices and neural networks, including Generative Adversarial Networks (GANs), Variational Encoders (VAEs) and Transformer models. All of the content is authored in easy-to-understand, plain English.



Module 22 | Cloud AI Technology & Automation

Focuses on cloud computing technology, infrastructure and practices specific to establishing and running cloudbased predictive AI and generative AI solutions. Topics include GPU and TPU for AI learning workloads, cloud-based AI services such as AWS SageMaker, Azure Machine Learning and Google AI Platform for model development, training and deployment, as well as mechanisms for scaling AI applications in the cloud, data storage and pipeline options.



Cloud AI Course & Certification Prerequisite

If you are new to cloud computing, it is recommended that you complete the Essential Cloud Computing course from the Cloud Computing School program prior to starting a Cloud AI course. The attainment of the corresponding Cloud Professional certification is a prerequisite for taking Cloud AI certification exams. The Essential Cloud Computing course and the Cloud Professional certification encompass Modules 1 and 2 of the Cloud Computing School curriculum.

Visit arcitura.com/cc for further details.



Cloud AI Architecture & Design Course

Cloud AI Architect Certification

The Cloud AI Architecture & Design course covers the technology architecture of cloud-based AI systems, including cloud automation and infrastructure relevant to AI processing, serverless architectural models for AI, AI system monitoring, logging and auditing, AI in multi-cloud and hybrid architectures, as well as AI-related cloud services and infrastructure models. This course can be used to prepare for the Cloud AI Architect Certification exam.



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Module 01 | Fundamental Predictive AI

Illustrates how predictive AI can be used and applied in a range of business applications, as well as essential coverage of predictive AI practices and systems. The module explores the most common learning approaches and functional areas that AI systems are used for. All of the content is authored in easy-to-understand, plain English.



Module 04 | Fundamental Generative AI

Explores the application of generative AI within a range of business scenarios and provides fundamental coverage of generative AI concepts, models, best practices and neural networks, including Generative Adversarial Networks (GANs), Variational Encoders (VAEs) and Transformer models. All of the content is authored in easy-to-understand, plain English.



Module 22 | Cloud AI Technology & Automation

Focuses on cloud computing technology, infrastructure and practices specific to establishing and running cloudbased predictive AI and generative AI solutions. Topics include GPU and TPU for AI learning workloads, cloud-based AI services such as AWS SageMaker, Azure Machine Learning and Google AI Platform for model development, training and deployment, as well as mechanisms for scaling AI applications in the cloud, data storage and pipeline options.



Module 23 | Cloud AI Architecture & Design

Explores cloud-based architectural models and design patterns specific to predictive AI and generative AI applications, including the selection and configuration of specialized cloud AI infrastructure, AI-optimized compute instances and network topologies for data-intensive workloads, as well as strategies for integrating AI services within existing cloud environments. Topics also include the utilization of containerization and multi-clouds, as well as scalability, failover and security considerations.

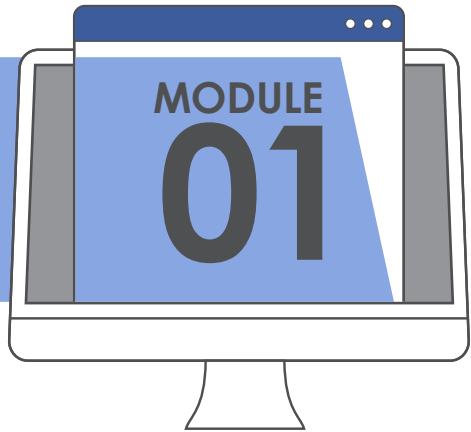


Module 24 | Cloud AI Architecture & Design Lab

Provides a series of case-study driven, lab-style exercises and problems that are designed to test your ability to apply your knowledge of topics covered in previous modules. Completing this lab helps reinforce understanding of preceding topics and further demonstrates how different practices and technologies can be applied together as part of greater solutions.



Fundamental Predictive AI



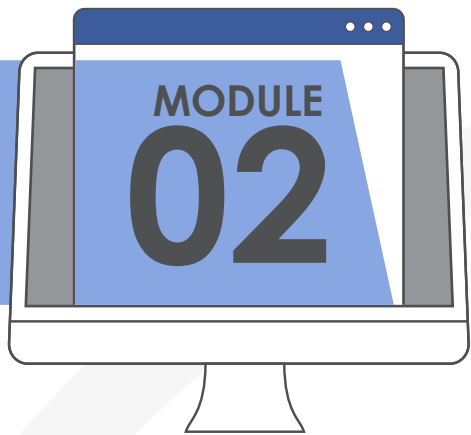
This course module illustrates how predictive AI can be used and applied in a range of business applications, as well as essential coverage of predictive AI practices and systems. The module explores the most common learning approaches and functional areas that AI systems are used for. All of the content is authored in easy-to-understand, plain English.

The following primary topics are covered:

- Predictive AI Business and Technology Drivers
- Predictive AI Benefits
- Common Risks and Challenges of Using Predictive AI
- Business Problem Categories Addressed by AI
- Types of Predictive AI
- Common Predictive AI Learning Approaches
- Understanding Predictive AI Learning and Model Training
- Step-by-Step Training Loop Process
- Supervised Learning, Unsupervised Learning, Continuous Learning
- Heuristic Learning, Semi-Supervised Learning, Reinforcement Learning
- Common Predictive AI Functional Designs, Computer Vision, Pattern Recognition
- Robotics, Natural Language Processing (NLP)
- Speech Recognition, Natural Language Understanding (NLU)
- Understanding AI Models and Neural Networks



Advanced Predictive AI



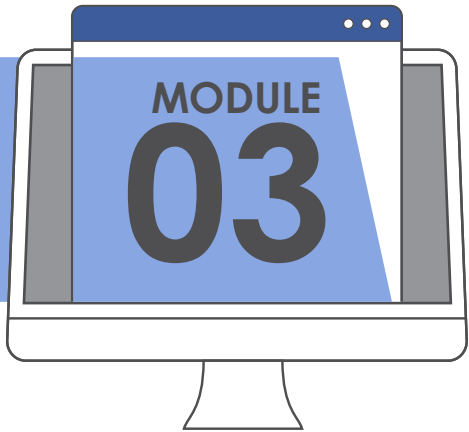
This course module provides insight into how predictive AI systems work by exploring common techniques for learning, data processing and manipulation, and AI system performance management. The course module does not cover any mathematical formulas or programming and is intended for general IT professionals.

The following primary topics are covered:

- Understanding Supervised Learning
- Understanding Unsupervised Learning
- Essential Analytics Techniques and Processes
- Introduction to Feature Encoding and Feature Imputation
- Introduction to Dimensionality Reduction
- Introduction to Data Wrangling
- Introduction to Model Evaluation and Training Performance Evaluation
- Introduction to Baseline Modeling and Model Optimization
- Introduction to Overfitting Avoidance
- Introduction to Transfer Learning



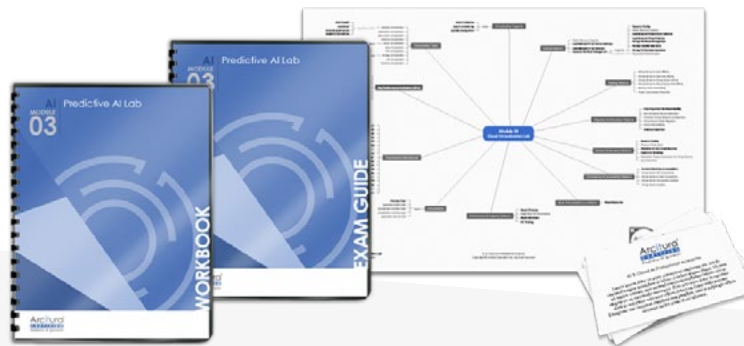
Predictive AI Lab



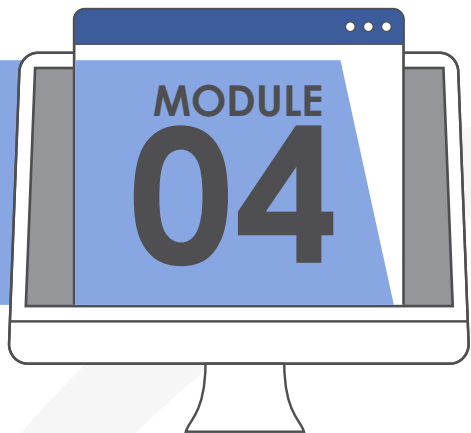
This course module provides a series of case-study driven, lab-style exercises and problems that are designed to test your ability to apply your knowledge of topics covered in previous modules. Completing this lab helps reinforce understanding of preceding topics and further demonstrates how different practices and technologies can be applied together as part of greater solutions.

The following exercises are provided:

- Reading Exercise 3.1: Case Study Background: ADM
- Lab Exercise 3.2: Burdensome Model Training
- Lab Exercise 3.3: Neural Network Selection
- Lab Exercise 3.4: Making Difficult Decisions That Could Save Lives
- Reading Exercise 3.5: Case Study Background: PMI
- Lab Exercise 3.6: Defining How Robots Learn and Neural Network Selection
- Lab Exercise 3.7: Neural Network Selection and Complex Learning Challenges
- Lab Exercise 3.8: Dealing with an Underperforming Model
- Reading Exercise 3.9: Case Study Background: HHA
- Lab Exercise 3.10: Dynamic Forecasting with Multi-Analysis
- Lab Exercise 3.11: Deep Profile Data and Finding Hidden Preferences
- Lab Exercise 3.12: Realtime Adaptive Pricing



Fundamental Generative AI



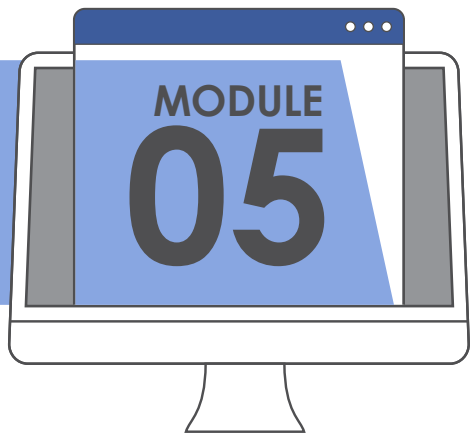
This course module explores the application of generative AI within a range of business scenarios and provides fundamental coverage of generative AI concepts, models, best practices and neural networks, including Generative Adversarial Networks (GANs), Variational Encoders (VAEs) and Transformer models. All of the content is authored in easy-to-understand, plain English.

The following primary topics are covered:

- Generative AI Business and Technology Drivers
- Generative AI Benefits
- Common Risks and Challenges of Using Generative AI
- Business Problem Categories Addressed by Generative AI
- Understanding Models, Algorithms and Neural Networks
- Types of Generative AI
- Understanding Generative Adversarial Networks (GANs)
- Understanding Variational Encoders (VAE)
- Understanding Transformers
- Steps to Building AI Systems
- Generative AI Best Practices



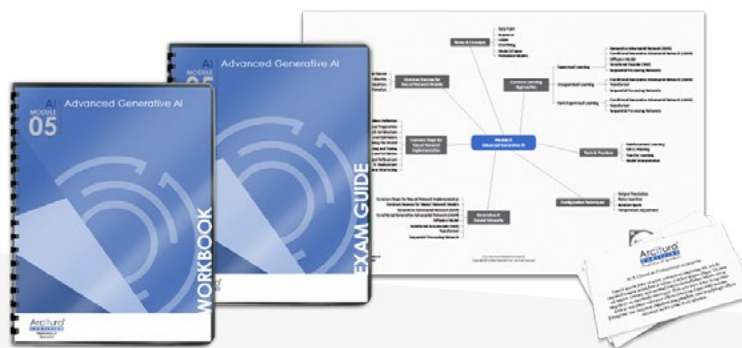
Advanced Generative AI



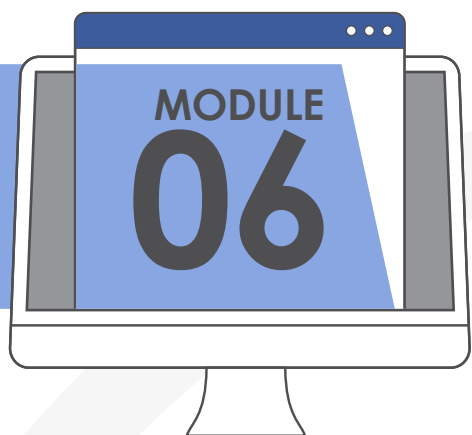
This course module covers a range of common generative AI networks, models and techniques, including specialized neural networks and practices for managing and optimizing generative AI systems and model training processes. The course module does not cover any mathematical formulas or programming and is intended for general IT professionals.

The following primary topics are covered:

- Ethical Guardians and Output Translators
- Pre-Trained Language Models (PLMs) and Transfer Learning
- Noise Injection, Temperature Adjustment and Random Sparks
- Working with Generative Adversarial Networks (GANs)
- Working with Variational Encoders (VAE)
- Working with Transformers
- Working with Conditional Generative Adversarial Networks (cGAN)
- Working with Recurrent Neural Networks (RNNs) and Long Short-Term Memory (LSTM)
- Large Language Models (LLM) and Natural Language Processing (NLP)
- Model Evaluation and Training Performance Evaluation
- Baseline Modeling and Model Optimization
- Overfitting Avoidance



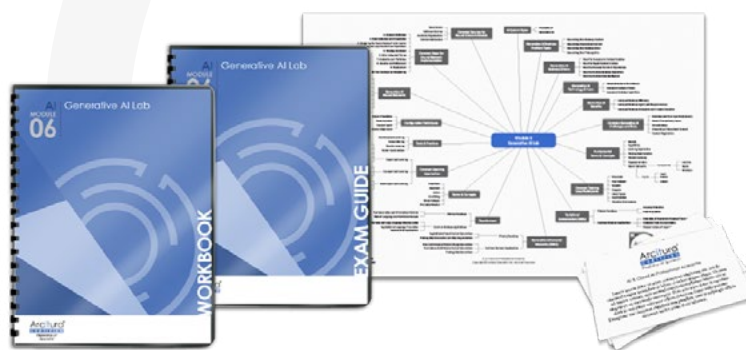
Generative AI Lab



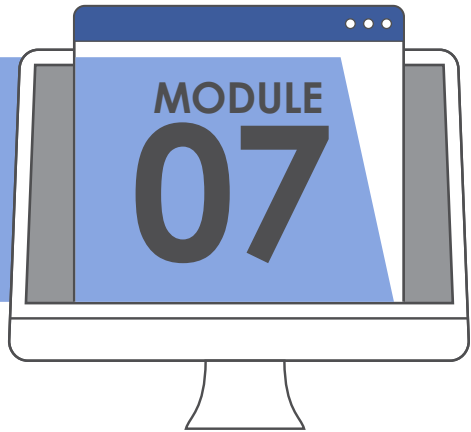
This course module provides a series of case-study driven, lab-style exercises and problems that are designed to test your ability to apply your knowledge of topics covered in previous modules. Completing this lab helps reinforce understanding of preceding topics and further demonstrates how different practices and technologies can be applied together as part of greater solutions.

The following exercises are provided:

- Reading Exercise 6.1: Case Study Background: ACG
- Lab Exercise 6.2: Inadequate Content Quality and Model Confusion
- Lab Exercise 6.3: Lack of Brand Safety and Inefficient Workflow
- Lab Exercise 6.4: Declining Content Output Quality
- Reading Exercise 6.5: Case Study Background: Wordy MAC Communications
- Lab Exercise 6.6: Out-of-Date Content Delivery Process and Insufficient Quality
- Lab Exercise 6.7: Cost-Prohibitive Training and Lacking Content
- Lab Exercise 6.8: Natural Language Challenges
- Reading Exercise 6.9: Case Study Background: Medi-Cycle Innovations
- Lab Exercise 6.10: Outdated Applications and Changing Market
- Lab Exercise 6.11: Critical Mode Collapse



Fundamental Predictive AI Engineering



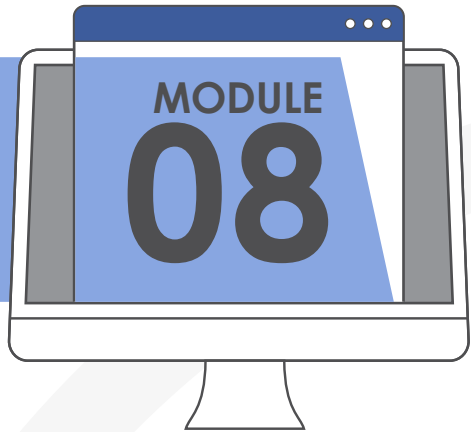
This course module delves into a range of predictive AI engineering practices and techniques, and further provides a detailed introduction of neural network architecture components. The course module illustrates how and when different practices and components of AI systems with neural networks need to be defined and applied. Finally, the module provides a set of key principles and best practices for carrying out AI engineering techniques.

The following primary topics are covered:

- Predictive AI Model Selection and Hyperparameter Tuning
- Predictive AI Model Deployment, Monitoring and Maintenance
- Predictive AI Bias Detection and Mitigation
- Predictive AI Model Explainability and Interpretability
- Predictive AI Model Evaluation and Validation Techniques
- Data Preprocessing Techniques, Overfitting and Regularization
- Performance Optimization Techniques for Predictive AI Models
- Understanding Predictive Neural Networks and Models
- Neural Network Types, Neurons, Layers, Links, Weights
- Loss, Hyperparameters, Learning Rate, Bias, Epoch
- Activation Functions (Sigmoid, Tanh, ReLU, Leaky ReLU, Softmax, Softplus)
- Neuron Cell Types (Input, Backfed, Noisy, Hidden, Probabilistic, Spiking, Recurrent, Memory, Kernel, Convolution, Pool, Output, Match Input, etc.)
- Common Neural Network Architectures for Predictive AI Systems



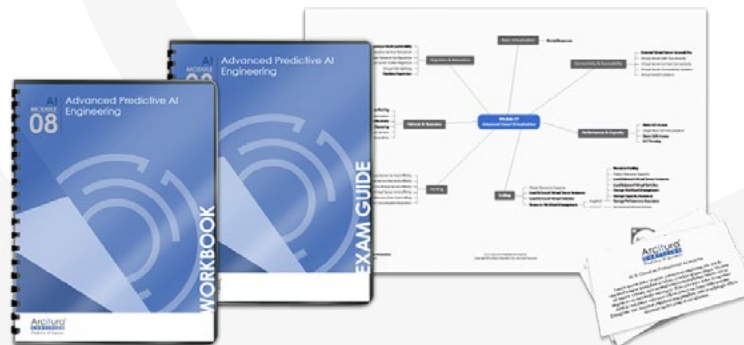
Advanced Predictive AI Engineering



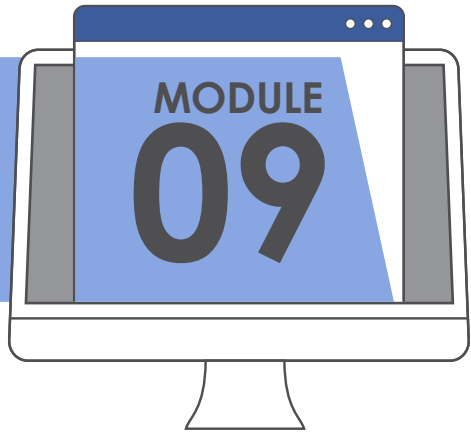
This course covers a series of practices for preparing and working with data for training and running predictive AI systems and neural networks. It provides engineering techniques for designing and optimizing neural networks, including approaches for measuring and tuning neural network model performance. The practices that can be applied individually or in different combinations to address a range of common predictive AI system problems and requirements.

The following primary topics are covered:

- Data Wrangling Patterns for Preparing Data for Predictive Neural Network Input
- Feature Encoding for Converting Categorical Features
- Feature Imputation for Inferring Feature Values
- Feature Scaling for Training Datasets with Broad Features
- Text Representation for Converting Data while Preserving Semantic and Syntactic Properties
- Dimensionality Reduction to Reduce Feature Space for Predictive Neural Network Input
- Supervised Learning Patterns for Training Neural Network Models
- Supervised Network Configuration for Establishing the Number of Neurons in Network Layers
- Image Identification for using a Convolutional Pattern Neural Network
- Sequence Identification for using a Long Short Term Memory Neural Network
- Unsupervised Learning Patterns for Training Pattern Neural Network Models
- Pattern Identification for Visually Identifying Patterns via a Self Organizing Map
- Content Filtering for Producing Recommendations
- Model Evaluation Patterns for Measuring Predictive Neural Network Performance
- Training Performance Evaluation for Assessing Predictive Neural Network Performance
- Prediction Performance Evaluation for Predictive Neural Networks in Production
- Baseline Modeling for Assessing and Comparing Complex Predictive Neural Networks
- Model Optimization Patterns for Refining and Adapting Predictive Neural Networks
- Overfitting Avoidance for Tuning a Predictive Neural Network
- Frequent Model Retraining for Keeping a Neural Network in Synch with Current Data
- Transfer Learning for Accelerating Predictive Neural Network Training



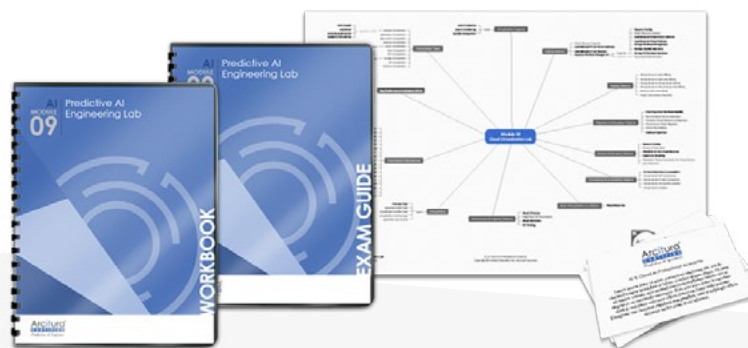
Predictive AI Engineering Lab



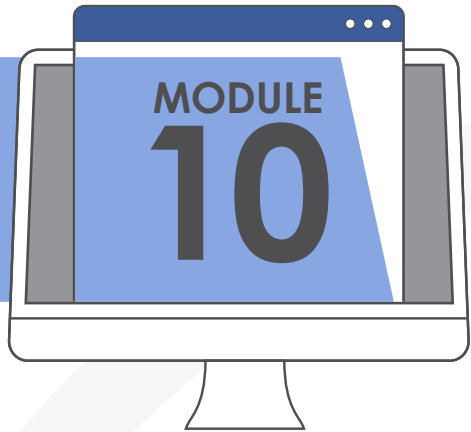
This course module provides a series of case-study driven, lab-style exercises and problems that are designed to test your ability to apply your knowledge of topics covered in previous modules. Completing this lab helps reinforce understanding of preceding topics and further demonstrates how different practices and technologies can be applied together as part of greater solutions.

The following exercises are provided:

- Reading Exercise 9.1: Case Study: Big Online Bazaar (BOB) Industries
- Lab Exercise 9.2: Preparing Model Training Data
- Lab Exercise 9.3: Refining the Model
- Lab Exercise 9.4: Choosing the Right Model
- Reading Exercise 9.5: Case Study: Finance Link Connect (FLC) Services
- Lab Exercise 9.6: Configuring the Neural Network
- Lab Exercise 9.7: Improving Predictions with Missing Features
- Lab Exercise 9.8: Recognizing Images and Patterns for Fraud Protection
- Lab Exercise 9.9: Processing Numerical and Textual Input
- Reading Exercise 9.10: Case Study Background: SocialMeer Media Services
- Lab Exercise 9.11: Creating Categorized User Groups and Identifying Common Interests
- Lab Exercise 9.12: Establishing Active Buyers Categories



Fundamental Generative AI Engineering



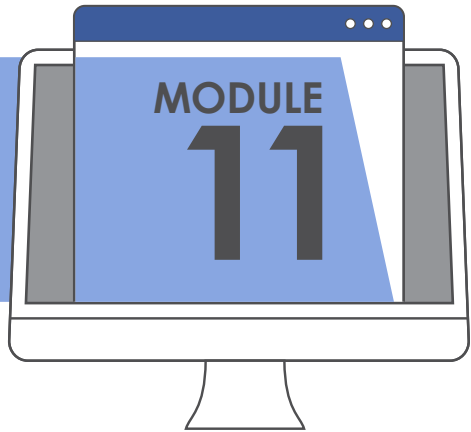
This course module provides in-depth coverage of essential engineering practices for training and operating generative AI systems, including various data processing, filtering and management techniques specific to creative content generation. The module further covers commonly related topics, such as natural language processing (NLP), transfer learning and the use of pre-trained models.

The following primary topics are covered:

- Data Representation and Encoding
- Latent Space and its Manipulation
- Prompt Engineering
- Metrics for Evaluating Generative Models
- Generative AI Model Selection and Hyperparameter Tuning
- Generative AI Model Deployment, Monitoring and Maintenance
- Generative AI Bias Detection and Mitigation
- Generative AI Model Explainability and Interpretability
- Model Evaluation and Validation Techniques for Generative AI
- Data Preprocessing Techniques, Overfitting and Regularization
- Performance Optimization Techniques for Generative AI Models
- Understanding Generative Neural Networks and Models
- Neural Network Types, Neurons, Layers, Links, Weights in Generative AI
- Loss, Hyperparameters, Learning Rate, Bias, Epoch in Generative AI
- Activation Functions (Leaky ReLU, Tanh, ReLU, Softmax, Sigmoid, Softplus)
- Neuron Cell Types (Input, Backfed, Noisy, Hidden, Probabilistic, Spiking, Recurrent, Memory, Kernel, Convolution, Pool, Output, Match Input, etc.)
- Common Neural Network Architectures for Generative AI Systems



Advanced Generative AI Engineering



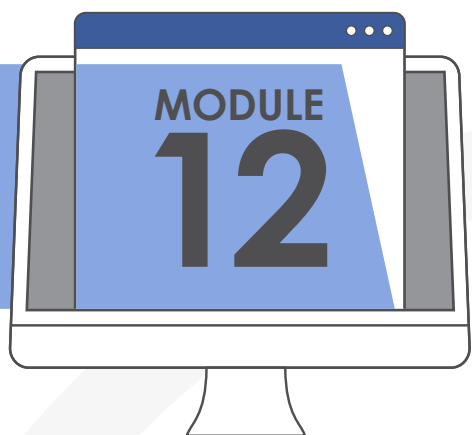
This course module covers a series of techniques for working with GANs, VAEs, diffusion models, autoregressive models, transformers, as well as transfer learning and reinforcement learning. Topics include managing large datasets, managing iterative model training cycles, fostering creative content output and working with different data formats for content generation purposes. The techniques can be applied individually or in different combinations to address a range of common generative AI system problems and requirements.

The following primary topics are covered:

- Data Wrangling for Preparing Data for Generative Model Input
- Feature Encoding for Optimizing Generative Model Input
- Feature Imputation for Enhancing Data for Generative Model Input
- Feature Scaling for Optimizing Data for Generative Model Input
- Text Representation for Converting Data for Generative Model Input
- Dimensionality Reduction to Reduce Feature Space for Generative Model Input
- Unsupervised Learning for Training Generative Models
- Generative Model Configuration for Defining the Number of Neurons in Network Layers
- Image Generation for Using a Generative Adversarial Network
- Sequence Generation for Using a Long Short Term Memory Neural Network
- Supervised Learning Patterns for Training Generative Models
- Identifying Patterns via a Generative Adversarial Network
- Content Filtering for Removing Unsafe Content
- Model Evaluation Patterns for Measuring Generative Model Performance
- Training Performance Evaluation for Assessing Generative Model Performance
- Content Generation Performance Evaluation for Predicting Generative Model Performance in Production
- Baseline Modeling for Assessing and Comparing Complex Generative Models
- Model Optimization Patterns for Refining and Adapting Generative Models
- Overfitting Avoidance for Tuning a Generative Model
- Frequent Model Retraining for Keeping a Generative Model in Synch with Current Data
- Transfer Learning for Accelerating Generative Model Training
- Reinforcement Learning for Generative Models



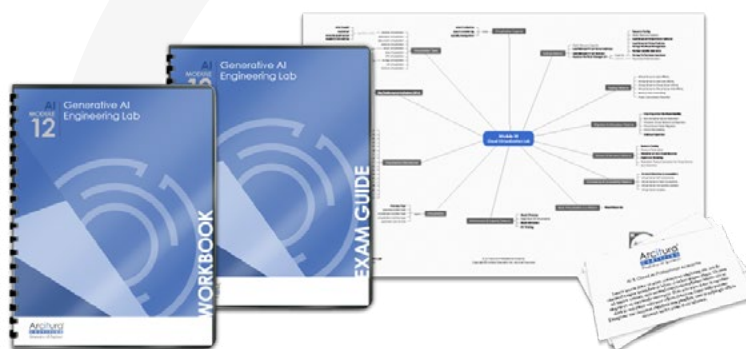
Generative AI Engineering Lab



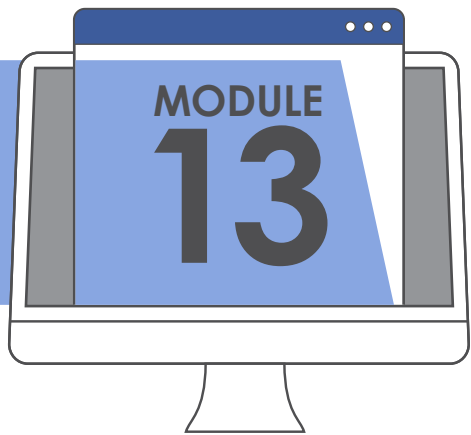
This course module provides a series of case-study driven, lab-style exercises and problems that are designed to test your ability to apply your knowledge of topics covered in previous modules. Completing this lab helps reinforce understanding of preceding topics and further demonstrates how different practices and technologies can be applied together as part of greater solutions.

The following exercises are provided:

- Reading Exercise 12.1: Case Study: GLN Energy
- Lab Exercise 12.2: Optimizing Data Representation for Technical Logs
- Lab Exercise 12.3: Customizing & Steering the Generative Model
- Lab Exercise 12.4: Deployment & Field Usage Evaluation
- Reading Exercise 12.5: Case Study: YX2 Studios
- Lab Exercise 12.6: Refining the Visual Creative Workflow
- Lab Exercise 12.7: Aligning AI Copy with Brand Voice
- Lab Exercise 12.8: Specializing & Deploying for Client Pitches
- Reading Exercise 12.9: Case Study: ASECT Research Group
- Lab Exercise 12.10: Multi-Layered Problem



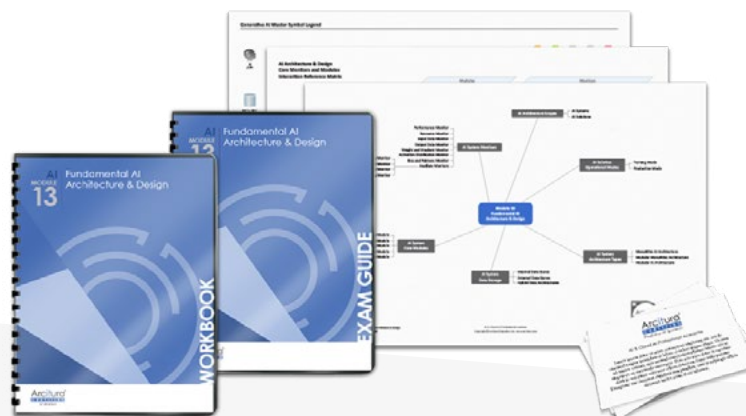
Fundamental AI Architecture & Design



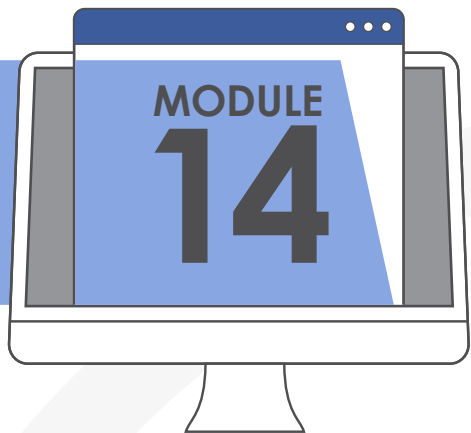
This course module provides an essential understanding of AI system and solution architecture. It explains the different AI system architecture types, scopes and modes and provides detailed coverage of core AI system modules (including data ingestion, data preprocessing, feature engineering, inference engine and model repository) and monitors (including operations, data, model and ancillary monitors).

The following primary topics are covered:

- AI Architecture vs. AI Engineering Comparison
- AI Product Architectures vs. Custom AI Architectures
- AI Architecture Scopes (System and Solution)
- AI Solution Operational Modes (Training and Production)
- AI System Architecture Types (Monolithic, Modular, Hybrid)
- AI Solution Data Storage (Internal, External, Hybrid)
- AI System Core Modules
- Data Ingestion for Common Predictive AI and Generative AI Data Sources
- Data Preprocessing in Predictive AI and Generative AI Systems
- Feature Engineering in Predictive AI and Generative AI Systems
- Inference Engine in Predictive AI and Generative AI Systems
- Model Repository in Predictive AI and Generative AI Systems
- Operations Monitors (Performance, Resource)
- Data Monitors (Input, Output)
- Model Monitors (Weight and Gradient, Activation Distribution, Bias and Fairness)
- Ancillary Monitors (Explainability, Robustness and Adversarial Attack, Data Quality, Data Labeling)



Advanced AI Architecture & Design



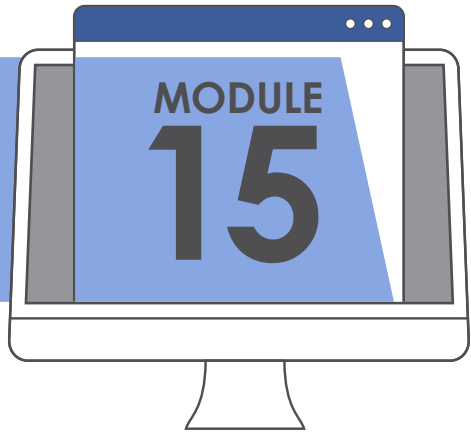
This course explores a range of techniques and complex topics dedicated to AI system design and technology architecture, including scalability models, performance and optimization techniques and resiliency architectures.

The following primary topics are covered:

- AI System Scalability Patterns
- Distributed Data Processing and Data Caching
- Data Partitioning and Sharding
- Incremental Processing
- Hardware Acceleration
- Autoscaling and Load Balancing
- Continuous Learning
- AI System Performance Patterns
- Parallelism and Concurrency
- Edge Caching and Vectorization
- Data Compression
- Lazy Loading
- AI System Resiliency Patterns
- Fault Tolerance
- Graceful Degradation
- Chaos Engineering



AI Architecture & Design Lab



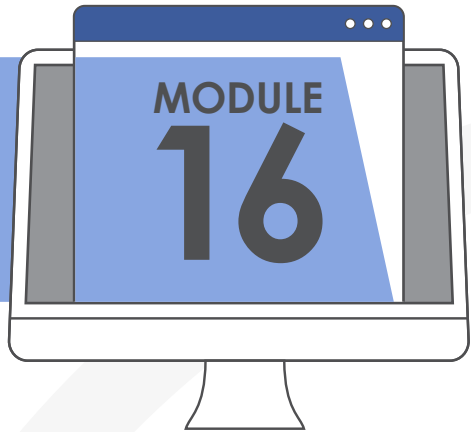
This course module provides a series of case-study driven, lab-style exercises and problems that are designed to test your ability to apply your knowledge of topics covered in previous modules. Completing this lab helps reinforce understanding of preceding topics and further demonstrates how different practices and technologies can be applied together as part of greater solutions.

The following exercises are provided:

- Reading Exercise 15.1: Case Study Background: IVA
- Lab Exercise 15.2: Model Training for Realtime Predictions
- Lab Exercise 15.3: Realtime Computations & Resource Exhaustion
- Lab Exercise 15.4: System Scalability & Model Accuracy
- Lab Exercise 15.5: Reliable Content Generation & System Errors
- Reading Exercise: 15.6 Case Study Background: HealthV
- Lab Exercise 15.7: LLM Training for Personalized Content Generation
- Lab Exercise 15.8: Content Delivery Optimization & Remote Access
- Lab Exercise 15.9: Data Volume & Resource Constraints
- Lab Exercise 15.10: Realtime Monitoring & Fluctuating Workloads



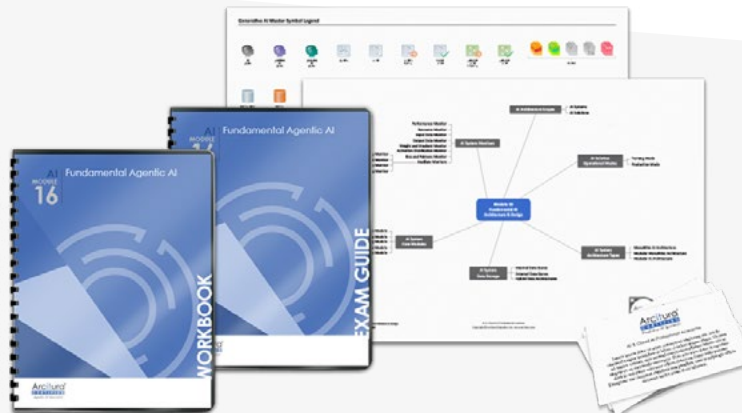
Fundamental Agentic AI



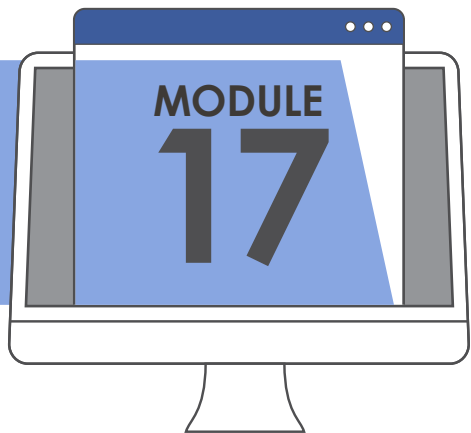
This course module establishes the fundamental concepts, building blocks and capabilities of intelligent AI agents that can perceive, reason and act autonomously. Key components of multi-agent agentic AI systems are covered, including the use of large language models (LLMs), environmental models, knowledge graphs, and system prompts. Common benefits and challenges of using agentic AI are described, along with a preliminary exploration of using agents alongside humans in workplace environments.

The following primary topics are covered:

- AI Basics
- Understanding Agentic AI
- Agentic AI Business Problem Types
- Agentic AI Business Drivers
- Agentic AI Technology Drivers
- Agentic AI Benefits
- Agentic AI Challenges and Risks
- Digital and Physical Agents
- Agent Actions, Perceptions and Reasoning
- Large Language Models (LLMs)
- The Agent-Environment Interaction Loop
- Environmental Models and Knowledge Graphs
- Types of Agents
- LLMs and Agent Reasoning
- User Prompts and System Prompts
- LLMs and Shared Context
- Understanding Agent Reasoning
- Human-Agent Collaboration
- Human Roles in Human-Agent Collaboration
- Understanding Human-in-the-Loop



Advanced Agentic AI



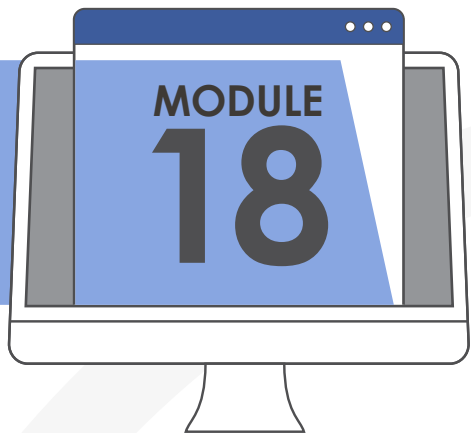
This course module provides a series of practices and techniques that enable agents and humans to collaborate in a workplace as part of the same overall operational solution. Different approaches are explored to accommodate a variety of common tasks and scenarios, whereby agents and humans are positioned with clear boundaries to evaluate and carry out actions collaboratively, with an emphasis on establishing human oversight for failure prevention, safety and to foster agent learning and improvement.

The following primary topics are covered:

- Human-in-the-Loop
- Mixed-Initiative Handover
- Orchestration with Agents
- Human-Agent Collaborative Task Delegation & Handover Techniques
- Agent Role Classification
- Knowledge Limit Reporting
- Dynamic Task Allocation
- Human-Agent Cognitive Transparency & Trust Techniques
- Interactive Probing
- Parallel Explainer Agent
- Human-Agent Correction & Safety Techniques
- Staged Execution
- Reversible Action
- Correction and Refinement Loop



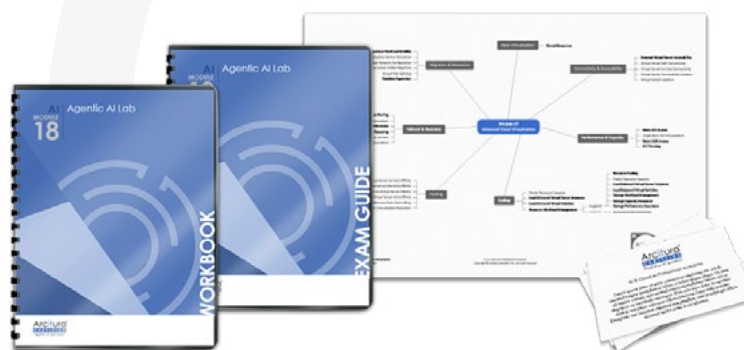
Agentic AI Lab



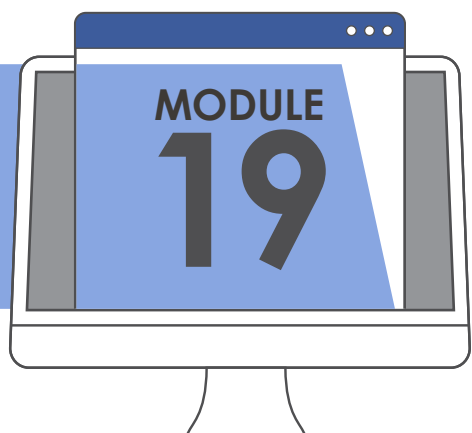
This course module provides a series of case-study driven, lab-style exercises and problems that build upon the fundamental topics covered in Module 16, and are focused on the application of the human-agent collaboration techniques described in Module 17. Completing this lab module helps reinforce understanding of preceding topics and further demonstrates how automation via agentic AI systems together with human involvement and oversight can form the basis of next-generation enterprise solutions.

The following exercises are provided:

- Reading Exercise 18.1: Case Study Background: NLV
- Lab Exercise 18.2 Autonomous Dispatch and Warehouse Management Control
- Lab Exercise 18.3 Customs Document Processing and Recurring Error Prevention
- Lab Exercise 18.4 Adaptive Task Routing and Operational Transparency
- Reading Exercise 18.5: Case Study Background: MVH
- Lab Exercise 18.6 Physical Transport and Preparation Safety
- Lab Exercise 18.7 Robotic Arm Control
- Lab Exercise 18.8 Robotic Mobility
- Lab Exercise 18.9 Autonomous Machine Behavior Challenges



Fundamental AI Governance & Ethics



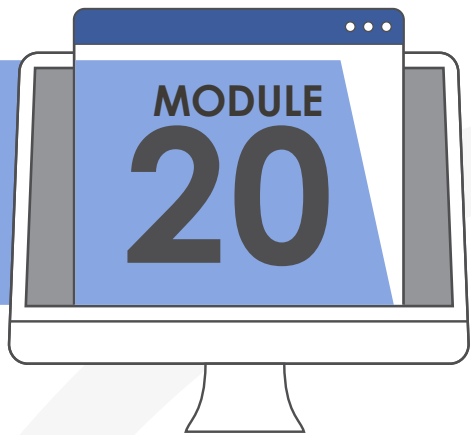
This course module introduces the essential components of AI governance and explores the ethical considerations surrounding autonomous and agentic AI systems. Topics include fairness, transparency, privacy, and accountability, as well as risks of goal misalignment and bias. A vanilla governance framework is introduced, covering precepts for training data, production data, and cloud-based AI, in addition to embedding ethical practices and autonomy oversight into AI system designs.

The primary topics covered include:

- Introduction to AI Governance and the Fundamental Principles of Ethical AI
- Understanding Fairness, Accountability, Transparency and Explainability (FATE) in Autonomous Systems
- Addressing Bias and Discrimination in AI Algorithms and Agentic Decision-Paths
- Understanding the role of Data Governance within an AI Governance Framework
- Governing the Collection and Management of Training Data
- Ensuring Data Quality and Tracking Data Lineage
- Techniques for Addressing and Mitigating Bias in Datasets
- Examining Ethical Considerations Throughout an AI System's Lifecycle
- Understanding the Tools and Techniques Available for Ethical AI Design
- Utilizing Risk Assessment Frameworks to Identify and Manage Potential AI Risks
- Defining Agentic AI: Governance of Autonomy, Goal Alignment, and Recursive Reasoning



Advanced AI Governance & Ethics



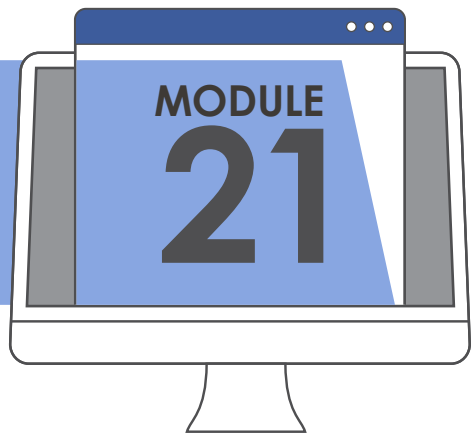
This course module delves deeper into governance frameworks, introducing roles for bias mitigation, explainability, and agentic oversight. Additional topics addressed include aligning AI with social values, regulatory requirements, and governing autonomous tool-use. Advanced methods for monitoring behavioral drift, human-on-the-loop intervention, and data management are addressed, alongside cloud-related policies for privacy, regional data storage, and other common data-related policies.

The primary topics covered include:

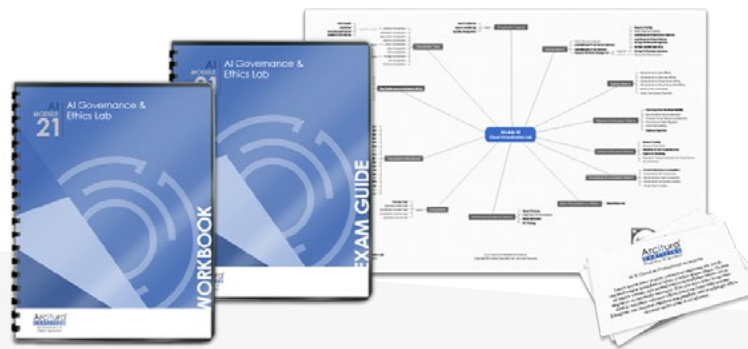
- Governance Precepts and Processes for Training Data, including Sensitive Data and Representativeness
- Governance Precepts and Processes for Production Data, including Monitoring for Behavioral Drift and Continuous Fairness
- Establishing AI Oversight and Auditing Mechanisms for Multi-Step Agentic Workflows
- Bias Mitigation Strategies and Achieving Explainability in Complex AI Models
- Operationalizing Ethical Principles and Aligning AI with Values and Social Responsibility
- Adapting to Evolving Standards and Regulations
- Creating an AI Ethics Code of Conduct and Communicating AI Ethics to the Organization
- Using AI Governance to Foster a Culture of Ethical AI Innovation
- Proactive Risk Management and Incident Response for Autonomous Failures and Cascading Errors
- Understanding Governance-related Cloud AI Automation Mechanisms
- Governing Tool-Use and API Interaction: Security and Ethics of Agents in Digital Environments
- Human-in-the-Loop (HITL) vs. Human-on-the-Loop (HOTL): Establishing “Kill-Switches” and Intervention Thresholds



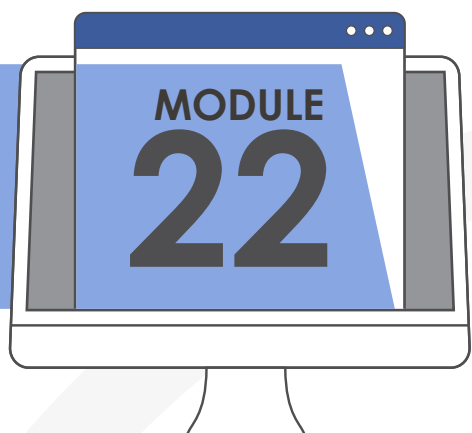
AI Governance & Ethics Lab



This course module provides a series of case-study driven, lab-style exercises and problems that are designed to test your ability to apply your knowledge of topics covered in previous modules. Completing this lab helps reinforce understanding of preceding topics and further demonstrates how different practices and technologies can be applied together as part of greater solutions.



Cloud AI Technology & Automation



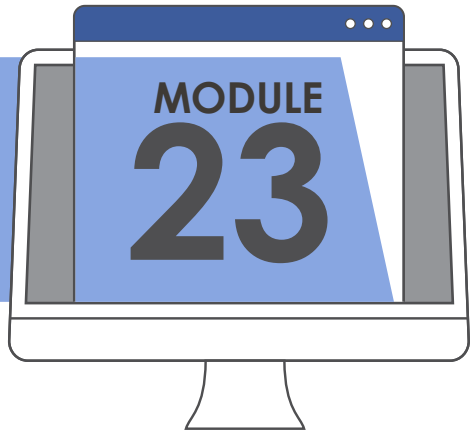
This course module focuses on cloud computing technology, infrastructure and practices specific to establishing and running cloud-based predictive AI and generative AI solutions. Topics include GPU and TPU for AI learning workloads, cloud-based AI services such as AWS SageMaker, Azure Machine Learning and Google AI Platform for model development, training and deployment, as well as mechanisms for scaling AI applications in the cloud, data storage and pipeline options.

The following primary topics are covered:

- Overview of Cloud Computing Related to Predictive AI and Generative AI
- Fundamental Cloud AI Infrastructure
- Types of Cloud Infrastructure (GPUs, TPUs) and their AI Applications
- AI Services in the Cloud
- Exploring AWS SageMaker, Azure Machine Learning and Google AI Platform
- Leveraging Pre-Built AI APIs
- Managing AI Data in the Cloud
- AI Data Storage (Object Storage, Data Warehouses, Data Lakes)
- Building and Training AI Models in the Cloud
- Training Models with Cloud-based Services
- Deploying AI Models in the Cloud
- Data Compliance and Governance in AI
- Monitoring and Optimizing AI Workloads
- Security and Privacy Considerations



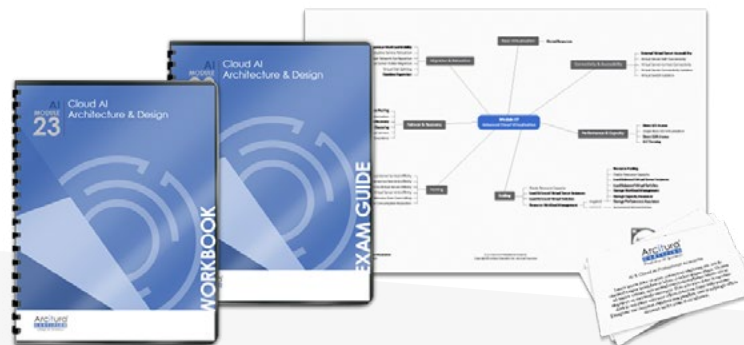
Cloud AI Architecture & Design



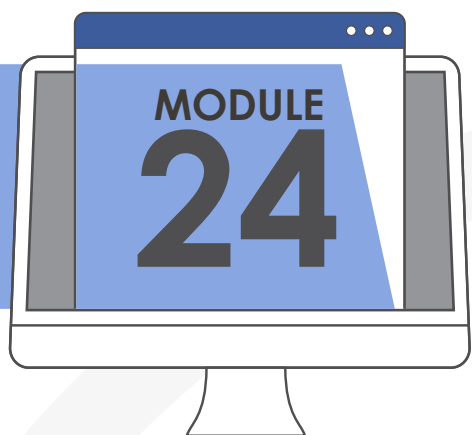
This course module delves into complex architectural models and design patterns, as well as deployment strategies and optimization techniques for AI solutions. Topics covered include designing for high availability and fault tolerance in AI applications, implementing sophisticated data streaming architectures for real-time AI analytics, as well as exploring the utilization of containerization and microservices for AI systems.

The following primary topics are covered:

- Principles of Advanced AI Architecture Design
- Hyper-Scaling AI Infrastructure
- Real-Time Data Architectures for AI
- Microservices and Service Meshes in AI Applications
- Advanced Security Architectures for AI Systems, including Zero-Trust Models
- Lifecycle Management of Cloud-Based AI
- AI-Specific Resource Management and Automation
- Managing State and Dataflow in AI Applications
- Distributed AI Systems and Patterns for Data Flow
- Monitoring and Observability of AI Systems
- Disaster Recovery and Business Continuity
- Interoperability and Standardization in AI Architecture



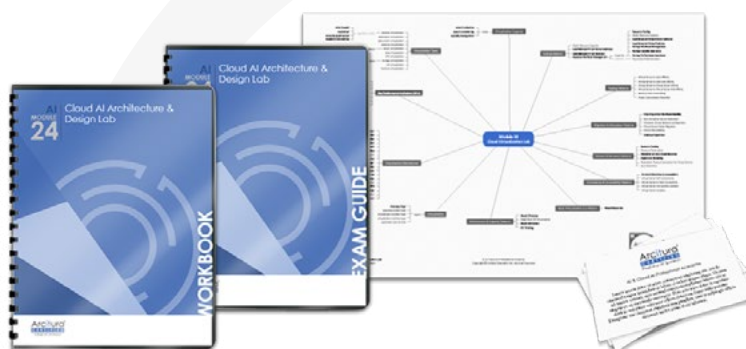
Cloud AI Architecture & Design Lab



This course module provides a series of case-study driven, lab-style exercises and problems that are designed to test your ability to apply your knowledge of topics covered in previous modules. Completing this lab helps reinforce understanding of preceding topics and further demonstrates how different practices and technologies can be applied together as part of greater solutions.

The following exercises are provided:

- Reading Exercise 24.1: Case Study Background: SR Retail
- Lab Exercise 24.2: Performance and Reliability Challenges
- Lab Exercise 24.3: Unpredictable Data Spikes and Operational Overhead
- Lab Exercise 24.4: Model Quality and Security Failures
- Reading Exercise 24.5: Case Study Background: MC-MED
- Lab Exercise 24.6: Constrained Generative Model Training
- Lab Exercise 24.7: LLM Degradation
- Lab Exercise 24.8: LLM Access Scalability Limitations



TRAINING & EXAM PREPARATION RESOURCES

You can supplement courses with a number of available resources to assist with both learning and exam preparation. Contact info@arcitura.com with any questions.



eLearning

To give you the most flexibility to achieve your learning goals, each course is made available via three Arcitura eLearning formats: an interactive environment with graded exercises and a graded self-test, a study kit account that supports online/offline access and custom annotations, as well as printable PDFs of all workbooks and posters, for you to keep.



Instructor-Led Training

Private onsite and virtual workshops can be delivered by Certified Trainers from Arcitura and authorized training partners for both small and large groups. Each workshop agenda, format and schedule can be tailored to client requirements.



Course Self-Tests

Each Arcitura course contains an interactive, automatically graded self-test that you can complete to help assess your readiness to take a certification exam. A self-test is included with the purchase of any course.



Certification Exam Prep Kit

Exam Prep Kits provide a set of interactive and automatically graded practice questions to assist with exam preparation. Exam Prep Kits are included in certification bundles and can be purchased separately as an add-on when buying individual exams in the Arcitura Online Store.



One-on-One Coaching

Certified Trainers are available to provide online coaching on an hourly basis and in all time zones. During virtual coaching sessions you can ask questions or have the trainer teach you segments of a course.

THE ARCITURA DIFFERENCE

Regardless of whether you are an individual looking to boost your career or an organization looking to up-skill a team, Arcitura courses and certifications provide a sound investment.

- Both courses and accreditations are vendor-neutral, which means they empower you with skills and credentials that you can take to wherever you need to go.
- Arcitura is dedicated to excellence in content quality, which is why courses and exams undergo a common development process and are authored by a dedicated team in collaboration with subject matter experts.

arcitura.com/about

What You Learn from Arcitura Courses



Learn from an Extensive Curriculum

Arcitura provides one of the largest and most comprehensive vendor-neutral IT education programs in the world.



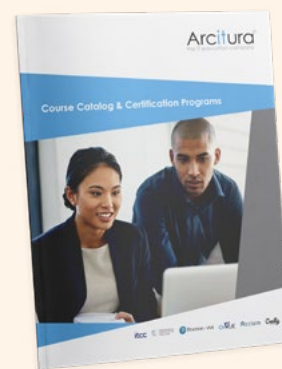
Learn about the Latest in IT

Arcitura courses and certifications cover contemporary topics from an IT industry perspective.



Learn about Real World IT

When you take an Arcitura course you learn about a field of practice as it exists in the real world, not specific to any vendor.



Comprehensive Coverage

Each course provides a comprehensive curriculum with 2-8 modules and 20-80 hours of training.



More Than Just Video Lessons

In addition to standard video lessons, courses include full-color workbooks and reference posters for all lessons.



Interactive & Graded Challenges

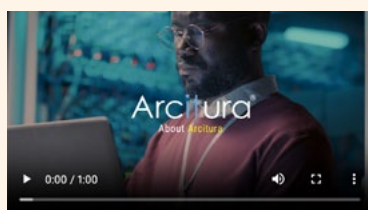
Courses also include interactive and graded exercises, interactive and graded self-tests and other supplements.

What's in an Arcitura Course

youtube.com/@arcitura

Learn About Arcitura: Take the Video Tour

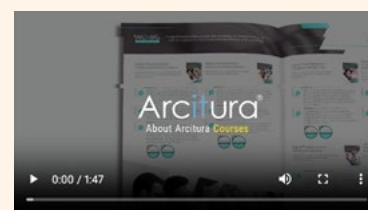
About Arcitura



About Arcitura Courses



About Arcitura Certifications





TAKING EXAMS AT PEARSON VUE TESTING CENTERS

Pearson VUE offers testing centers worldwide that allow test takers to take proctored exams in-person. For more information, visit: www.pearsonvue.com/arcitura



TAKING EXAMS VIA PEARSON VUE ONLINE PROCTORING

Pearson VUE OnVUE Online Proctoring enables test takers to take proctored exams remotely, in any time zone, and often on short notice. For more information, visit: www.pearsonvue.com/arcitura/op



TAKING EXAMS VIA DIRECT ONLINE PROCTORING

Arcitura Direct Online Proctoring enables test takers to take proctored exams remotely, in any time zone, and often on short notice. For more information, contact info@arcitura.com and provide your exam scheduling preferences.



TAKING ON-SITE EXAMS DURING AN INSTRUCTOR-LED WORKSHOP

It is possible for Arcitura exams to be taken during the delivery of onsite workshops. In this case, the Certified Trainer teaching the workshop also acts as the exam proctor. Contact info@arcitura.com for more information regarding this option.

You can take exams from anywhere in the world via Pearson VUE testing centers, Pearson VUE OnVUE online proctoring, direct online proctoring and/or onsite exam proctoring at your location. Visit www.arcitura.com/exams.html for details.



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COURSES		Essential AI*	Predictive AI	Generative AI	Agentic AI	Predictive AI Engineering	Generative AI Engineering	AI Architecture & Design	AI Professional Consulting**	AI Governance & Ethics	Cloud AI Technology & Automation***	Cloud AI Architecture & Design***
CERTIFICATIONS		AI Professional†	Predictive AI Specialist	Generative AI Specialist	Agentic AI Specialist	Predictive AI Engineer	Generative AI Engineer	AI Architect	AI Consultant**	AI Governance & Ethics Specialist	Cloud AI Professional***	Cloud AI Architect***
MODULE 01	Fundamental Predictive AI	●	●			●		●	●	●	●	●
MODULE 02	Advanced Predictive AI		●			●						
MODULE 03	Predictive AI Lab		●									
MODULE 04	Fundamental Generative AI	○		●			●	●	●	●	●	●
MODULE 05	Advanced Generative AI			●			●					
MODULE 06	Generative AI Lab			●								
MODULE 07	Fundamental Predictive AI Engineering					●			○			
MODULE 08	Advanced Predictive AI Engineering					●						
MODULE 09	Predictive AI Engineering Lab					●						
MODULE 10	Fundamental Generative AI Engineering						●		○			
MODULE 11	Advanced Generative AI Engineering						●					
MODULE 12	Generative AI Engineering Lab						●					
MODULE 13	Fundamental AI Architecture & Design							●	○			
MODULE 14	Advanced AI Architecture & Design							●				
MODULE 15	AI Architecture & Design Lab							●				
MODULE 16	Fundamental Agentic AI	○			●				●	●		
MODULE 17	Advanced Agentic AI				●							
MODULE 18	Agentic AI Lab				●							
MODULE 19	Fundamental AI Governance & Ethics									●		
MODULE 20	Advanced AI Governance & Ethics									●		
MODULE 21	AI Governance & Ethics Lab									●		
MODULE 22	Cloud AI Technology & Automation								○		●	●
MODULE 23	Cloud AI Architecture & Design											●
MODULE 24	Cloud AI Architecture & Design Lab											●

* The Essential AI / AI Professional track is comprised of Module 1 and a choice of Module 4 or Module 16

** The AI Professional Consulting / AI Consultant track is comprised of Modules 1, 4, 16 and two additional modules (chosen from Modules 7, 10, 13 and 22).

*** The prerequisite for Cloud AI certifications is the attainment of the Cloud Professional certification. See the Arcitura Cloud Computing School curriculum for more information.

Data Science, Big Data & Machine Learning courses are part of the Arcitura Next-Gen Data Science Academy curriculum. Intelligent Automation with AI and RPA courses are part of the Arcitura Digital Transformation Professional Academy curriculum.

Attaining a certification that encompasses all of the course modules also associated with another certification results in the other certification also being automatically awarded.

COURSES		Digital Transformation	Digital Transformation: Fundamental Technology	Digital Transformation: Advanced Technology & Architecture	Digital Transformation: Fundamental Data Science	Digital Transformation: Advanced Data Science	Digital Transformation: Fundamental Security	Digital Transformation: Advanced Security	Digital Transformation: Fundamental Intelligent Automation	Digital Transformation: Advanced Intelligent Automation
CERTIFICATIONS		Digital Transformation Specialist	Digital Transformation Technology Professional	Digital Transformation Technology Architect	Digital Transformation Data Science Professional	Digital Transformation Data Scientist	Digital Transformation Security Professional	Digital Transformation Security Specialist	Digital Transformation Intelligent Automation Professional	Digital Transformation Intelligent Automation Specialist
MODULE 01	Fundamental Digital Transformation	●	●	●	●	●	●	●	●	●
MODULE 02	Digital Transformation in Practice	●	●	●	●	●	●	●	●	●
MODULE 03	Fundamental Cloud Computing		●	●						
MODULE 04	Fundamental Blockchain		● or	● or			●	●		
MODULE 05	Fundamental IoT		●	●						
MODULE 06	Cloud Architecture			●						
MODULE 07	Blockchain Architecture			● or				●		
MODULE 08	IoT Architecture			●						
MODULE 09	Fundamental Big Data Analysis & Analytics				●	●				
MODULE 10.A	Fundamental Machine Learning				● or	● or				
MODULE 10.B	Fundamental Predictive AI				●	●			●	●
MODULE 11	Fundamental Generative AI				●	●				
MODULE 12	Advanced Big Data Analysis & Analytics					●				
MODULE 13.A	Advanced Machine Learning					● or				
MODULE 13.B	Advanced Predictive AI					●				
MODULE 14	Advanced Generative AI					●				
MODULE 15	Fundamental Cybersecurity						●	●		
MODULE 16	Advanced Cybersecurity							●		
MODULE 17	Fundamental Agentic AI									●
MODULE 18	Fundamental RPA								●	●
MODULE 19	Advanced RPA & Intelligent Automation									●
MODULE 20	Fundamental AI Architecture		●	●						
MODULE 21	Advanced AI Architecture			●						

Attaining a certification that encompasses all of the course modules also associated with another certification results in the other certification also being automatically awarded.

COURSES		DevOps	Blockchain Architecture	IoT Architecture	Cybersecurity	Robotic Process Automation	Digital Business Technology	Containerization Architecture	Quantum Computing
CERTIFICATIONS		DevOps Specialist	Blockchain Architect	IoT Architect	Cybersecurity Specialist	RPA Specialist	Digital Business Technology Professional	Containerization Architect	Quantum Computing Specialist
DevOps	MODULE 01 Fundamental DevOps	●							
	MODULE 02 DevOps in Practice	●							
	MODULE 03 DevOps Lab	●							
Blockchain	MODULE 01 Fundamental Blockchain		●						
	MODULE 02 Blockchain Technology & Architecture		●						
	MODULE 03 Blockchain Technology & Architecture Lab		●						
Internet of Things	MODULE 01 Fundamental IoT			●					
	MODULE 02 IoT Technology & Architecture			●					
	MODULE 03 IoT Technology & Architecture Lab			●					
Cybersecurity	MODULE 01 Fundamental Cybersecurity				●				
	MODULE 02 Advanced Cybersecurity				●				
	MODULE 03 Cybersecurity Lab				●				
Robotic Process Automation	MODULE 01 Fundamental RPA					●			
	MODULE 02 Advanced RPA & Intelligent Automation					●			
	MODULE 03 RPA Lab					●			
Digital Business Technology	MODULE 01 Business Automation Technology Overview						●		
	MODULE 02 Data Science Technology Overview						●		
	MODULE 03 Digital & Security Technology Overview						●		
Containerization	MODULE 01 Fundamental Containerization							●	
	MODULE 02 Containerization Technology & Architecture							●	
	MODULE 03 Containerization Technology & Architecture Lab							●	
Quantum Computing	MODULE 01 Fundamental Quantum Computing								●
	MODULE 02 Advanced Quantum Computing								●
	MODULE 03 Quantum Computing Lab								●

COURSES		Essential Big Data & Data Science	Big Data Analytics & Fundamental Data Science	Big Data Analysis & Advanced Data Science	Big Data Professional Consulting	Data Science Professional Consulting	Machine Learning	Big Data Engineering	Big Data Architecture	Data Science Governance
CERTIFICATIONS		Big Data Professional	Big Data Science Professional	Big Data Scientist	Big Data Consultant	Data Science Consultant	Machine Learning Specialist	Big Data Engineer	Big Data Architect	Data Science Governance Specialist
MODULE 01	Fundamental Big Data Science & Analytics	●	●	●	●	●		●	●	●
MODULE 02	Big Data Analysis & Technology Concepts	●	●	●	●	●		●	●	●
MODULE 03	Big Data Analysis & Technology Lab		●		●	●				
MODULE 04	Big Data Analysis & Science			●	●					
MODULE 05	Advanced Big Data Analysis & Science			●						
MODULE 06	Big Data Analysis & Science Lab			●						
MODULE 07	Fundamental Machine Learning					●	●			
MODULE 08	Advanced Machine Learning						●			
MODULE 09	Machine Learning Lab						●			
MODULE 10	Fundamental Predictive & Generative AI					●				
MODULE 11	Fundamental Big Data Engineering				●			●		
MODULE 12	Advanced Big Data Engineering							●		
MODULE 13	Big Data Engineering Lab							●		
MODULE 14	Fundamental Big Data Architecture								●	
MODULE 15	Advanced Big Data Architecture								●	
MODULE 16	Big Data Architecture Lab								●	
MODULE 17	Fundamental Data Science Governance									●
MODULE 18	Advanced Data Science Governance									●
MODULE 19	Data Science Governance Lab									●

Artificial Intelligence (AI) courses are part of the Arcitura AI & Cloud AI Professional Academy curriculum. Intelligent Automation with AI and RPA courses are part of the Arcitura Digital Transformation Professional Academy curriculum.

Attaining a certification that encompasses all of the course modules also associated with another certification results in the other certification also being automatically awarded.

COURSES		Essential Cloud Computing	Cloud Computing Concepts & Technology	Cloud Computing Professional Consulting	Cloud Architecture	Cloud Security	Cloud Governance	Cloud Storage	Cloud Virtualization	Cloud AI Technology & Automation	Cloud AI Architecture & Design
CERTIFICATIONS		Cloud Professional	Cloud Technology Professional	Cloud Computing Consultant	Cloud Architect	Cloud Security Specialist	Cloud Governance Specialist	Cloud Storage Specialist	Cloud Virtualization Specialist	Cloud AI Professional*	Cloud AI Architect*
MODULE 01	Fundamental Cloud Computing	●	●	●	●	●	●	●	●	This track has the following additional modules from the AI & Cloud AI Professional Academy curriculum: 1, 4, 22, 23, 24	This track has the following additional modules from the AI & Cloud AI Professional Academy curriculum: 1, 4, 22, 23, 24
MODULE 02	Cloud Technology Concepts	●	●	●	●	●	●	●	●		
MODULE 03	Cloud Technology Lab		●	●							
MODULE 04	Fundamental Cloud Architecture			●	●						
MODULE 05	Advanced Cloud Architecture				●						
MODULE 06	Cloud Architecture Lab				●						
MODULE 07	Fundamental Cloud Security			●		●					
MODULE 08	Advanced Cloud Security					●					
MODULE 09	Cloud Security Lab					●					
MODULE 10	Fundamental Cloud Governance						●				
MODULE 11	Advanced Cloud Governance						●				
MODULE 12	Cloud Governance Lab						●				
MODULE 13	Fundamental Cloud Storage							●			
MODULE 14	Advanced Cloud Storage							●			
MODULE 15	Cloud Storage Lab							●			
MODULE 16	Fundamental Cloud Virtualization								●		
MODULE 17	Advanced Cloud Virtualization								●		
MODULE 18	Cloud Virtualization Lab								●		

* Cloud AI certifications are part of the Arcitura AI & Cloud AI Professional Academy curriculum. The prerequisite for these certifications is the attainment of the Cloud Professional certification from the Arcitura Cloud Computing School curriculum.

Attaining a certification that encompasses all of the course modules also associated with another certification results in the other certification also being automatically awarded.

COURSES		Fundamental Microservices & Service Technology	Fundamental SOA Design with Services & Microservices	SOA Analysis & Modeling with Services & Microservices	SOA Design & Architecture with Services & Microservices	Microservice Design & Architecture	Microservice Professional Consulting	Service API Design & Management	Service Governance & Project Delivery	Security for Microservices & SOA
CERTIFICATIONS		Microservice Professional	SOA Professional	SOA Analyst	SOA Architect	Microservice Architect	Microservice Consultant	Service API Specialist	Service Governance Specialist	Service Security Specialist
MODULE 01	Fundamental SOA, Services & Microservices	●	●	●	●	●	●	●	●	●
MODULE 02	Microservice Technology Concepts	●			●	●	●	●		●
MODULE 03	Design & Architecture with SOA, Services & Microservices		●	●	●				●	
MODULE 04	Fundamental SOA Analysis & Modeling with Services & Microservices			●						
MODULE 05	Advanced SOA Analysis & Modeling with Services & Microservices			●						
MODULE 06	SOA Analysis & Modeling Lab with Services & Microservices			●						
MODULE 07	Advanced SOA Design & Architecture with Services & Microservices				●					
MODULE 08	SOA Design & Architecture Lab with Services & Microservices				●					
MODULE 09	Fundamental Microservice Architecture & Containerization					●	●			
MODULE 10	Advanced Microservice Architecture & Containerization					●				
MODULE 11	Microservice Architecture & Containerization Lab					●				
MODULE 12	Fundamental Service API Design & Management						●	●		
MODULE 13	Advanced Service API Design & Management							●		
MODULE 14	Service API Design & Management Lab							●		
MODULE 15	Fundamental Service Governance & Project Delivery								●	
MODULE 16	Advanced Service Governance & Project Delivery								●	
MODULE 17	Service Governance & Project Delivery Lab								●	
MODULE 18	Fundamental Security for Services, Microservices & SOA						●			●
MODULE 19	Advanced Security for Services, Microservices & SOA									●
MODULE 20	Security Lab for Services, Microservices & SOA									●

Attaining a certification that encompasses all of the course modules also associated with another certification results in the other certification also being automatically awarded.

WORK WITH US



BECOME AN **AUTHORIZED PARTNER**

Whether you are with a private training provider, an academic institution or part of an organization interested in bringing training in-house, Arcitura Education has a flexible partnering model that can accommodate a broad range of requirements and budgets.



BECOME A **CERTIFIED TRAINER**

Arcitura Education offers a Trainer Development Program that guides individuals through a series of steps to help them work toward the requirements for teaching Arcitura courses. If you are interested in pursuing a Certified Trainer designation, contact info@arcitura.com.

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