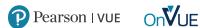
# MACHINE LEARNING COURSE MACHINE LEARNING SPECIALIST CERTIFICATION









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CERTIFIED

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Arcitura

TRAINING

Machine

### Next-Gen Data Science Academy

The Next-Gen Data Science Academy from Arcitura provides a formal education and accreditation program dedicated to the fields of Machine Learning, Big Data and general Data Science, including analytics and analysis, decisioning, architecture, engineering and governance.

For more information and to download the academy catalog, visit the Next-Gen Data Science Academy home page:

arcitura.com/ds



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### 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.



#### 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.

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For Groups & Individuals

#### **Training Programs for Multiple Groups**

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







## 



### HOW TO GET STARTED

The Machine Learning course develops skills in contemporary Machine Learning practices, models and algorithms, as well as Machine Learning systems that can perform a range of data analysis processing tasks. It explains how Machine Learning works, what it can and cannot do, and explores how a range of different business problems can be solved by utilizing and combining proven Machine Learning techniques.

The course is comprised of a set of modules. Each module has a set of lessons and is further supplemented with exercises to help reinforce your understanding of key topics.

Upon completing the course you can obtain a digital certificate of completion, as well as a digital training badge from Acclaim/Credly, with an account that supports the online verification of your course completion status.

Additional resources are available to assist you with completing this course, including downloadable digital course files, printed course materials, coaching hours and instructor-led training services.

The Machine Learning course can be used to prepare for Machine Learning Specialist Certification exam, as explained on the following page.

For more course details, including individual course module topic outlines, visit the <u>Course &</u> <u>Certification webpage</u> via <u>arcitura.com/courses</u>.

### Arcitura



A Certified Machine Learning Specialist understands how and where Machine Learning techniques are best utilized to produce business value, and has knowledge of associated algorithms and system designs, as well as advanced model learning approaches and analysis practices.

### 



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### HOW TO GET CERTIFIED

The Machine Learning course prepares you for the official Machine Learning Specialist Certification exam.

Upon attaining a passing grade on the certification exam you will receive an official digital accreditation certificate and a digital certification badge from Acclaim/Credly, with an account that supports the online verification of your certification status.

Additional resources are available to assist you with preparing for the certification exam, including practice exam questions, downloadable digital course files, printed course materials, coaching hours and instructor-led training services.

> To learn more about the Machine Learning Specialist certification bundle that includes the course, exam and practice questions at a discount, visit the <u>Course & Certification</u> <u>webpage</u> via <u>arcitura.com/store</u>.



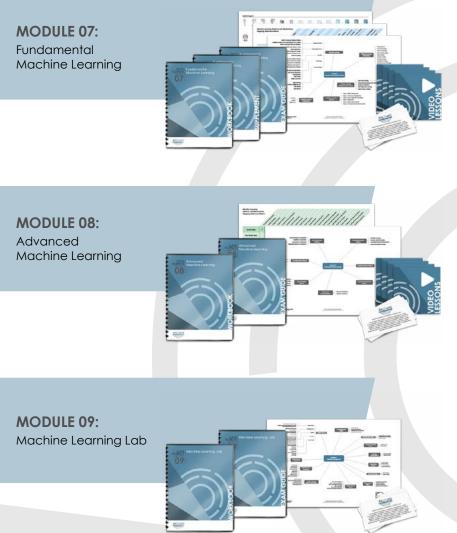


Arcitura

### MACHINE LEARNING COURSE

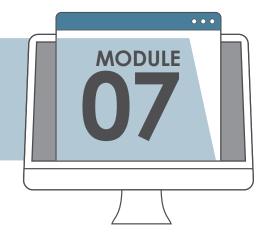
The Machine Learning course develops skills in contemporary Machine Learning practices, models and algorithms, as well as Machine Learning systems that can perform a range of data analysis processing tasks. It explains how Machine Learning works, what it can and cannot do, and explores how a range of different business problems can be solved by utilizing and combining proven Machine Learning techniques.

The Machine Learning course is comprised of 3 course modules. Each has an estimated completion time of 10 hours. Shown here are the contents of each course module, followed by the individual course module outlines.



- Workbook Lessons (100+ pages)
- Video Lessons (for all topics)
- Interactive Exercises
- Mind Map Poster
- Symbol Legend Poster
- Machine Learning Algorithms and Practices Reference Supplement
- Practice Exam Questions
- PDFs of Workbook and Posters (printable)
- Workbook Lessons (100+ pages)
- Video Lessons (for all topics)
- Interactive Exercises
- Mind Map Poster
- Patterns and Mechanisms Mapping Poster
- Practice Exam Questions
- PDFs of Workbook and Posters (printable)
- Lab Exercise Booklet
- Mind Map Poster
- Practice Exam Questions
- PDFs of Exercise Booklet and Poster (printable)

# **Fundamental Machine Learning**



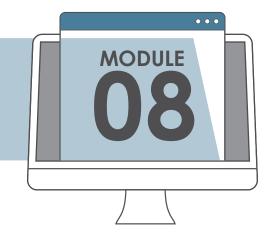


This course module provides an easy-to-understand overview of machine learning for anyone interested in how it works, what it can and cannot do and how it is commonly utilized in support of business goals. The module covers common algorithm types and further explains how machine learning systems work behind the scenes. The base module materials are accompanied with an informational supplement covering a range of common algorithms and practices.

The primary topics covered by this module are:

- Machine Learning Business and Technology Drivers
- Machine Learning Benefits and Challenges
- Machine Learning Usage Scenarios
- Datasets, Structured, Unstructured and Semi-Structured Data
- Models, Algorithms, Model Training and Learning
- How Machine Learning Works
- Collecting and Pre-Processing Training Data
- Algorithm and Model Selection
- Training Models and Deploy Trained Models
- Machine Learning Algorithms and Practices
- Supervised Learning, Classification, Decision Tree
- Regression, Ensemble Methods, Dimension Reduction
- Unsupervised Learning and Clustering
- Semi-Supervised and Reinforcement Learning
- Machine Learning Best Practices
- How Machine Learning Systems Work
- Common Machine Learning Mechanisms
- How Mechanisms Are Used in Model Training
- Machine Learning and Deep Learning, Artificial Intelligence (AI)

# **Advanced Machine Learning**

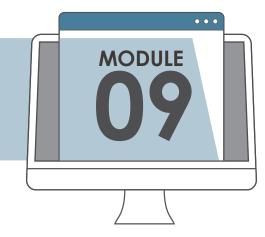


This course module delves into the many algorithms, methods and models of contemporary machine learning practices to explore how a range of different business problems can be solved by utilizing and combining proven machine learning techniques.

The following primary topics are covered:

- Data Exploration Patterns
- Central Tendency Computation, Variability Computation
- Associativity Computation, Graphical Summary Computation
- Data Reduction Patterns
- Feature Selection, Feature Extraction
- Data Wrangling Patterns
- Feature Imputation, Feature Encoding
- Feature Discretization, Feature Standardization
- Supervised Learning Patterns
- Numerical Prediction, Category Prediction
- Unsupervised Learning Patterns
- Category Discovery, Pattern Discovery
- Model Evaluation Patterns, Baseline Modeling
- Training Performance Evaluation, Prediction Performance Evaluation
- Model Optimization Patterns
- Ensemble Learning, Frequent Model Retraining
- Lightweight Model Implementation, Incremental Model Learning

# **Advanced Machine Learning**



This course module presents participants with a series of exercises and problems that are designed to test their ability to apply their knowledge of topics covered in previous modules. Completing this lab will help highlight areas that require further attention and will help prove proficiency in machine learning systems and techniques, as they are applied and combined to solve real-world problems.

The following exercises are provided:

- Reading Exercise 9.1: Mini Case Study: RHE R&D Company
- Lab Exercise 9.2: Retrieving the Training Data
- Lab Exercise 9.3: Selecting the Correct Algorithm
- Lab Exercise 9.4: Modeling Features and Representation
- Lab Exercise 9.5: Measuring and Optimizing the Trained Model
- Lab Exercise 9.6: Correcting Inconsistent Features
- Reading Exercise 9.7: Mini Case Study: GTO Financial Institution
- Lab Exercise 9.8: Identifying Customer Transaction Data
- Lab Exercise 9.9: Assessing Customer Risk
- Lab Exercise 9.10: Identifying Alarming Spending Patterns





## 

### **CERTIFICATION EXAM**

To attain the Machine Learning Specialist Certification requires a passing grade on the Machine Learning Specialist Certification Exam, as explained below.

The Machine Learning Specialist certification exam covers topics from Modules 7, 8 and 9 in the Machine Learning Specialist certification track. Purchase this exam if you've taken the Machine Learning course and would like to pursue certification as a Machine Learning Specialist, or if you would like to retake this exam to improve your grade.

For more information, visit: arcitura.com/exams









# ABOUT THE ARCITURA CURRICULUM



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.



# AI & CLOUD AI PROFESSIONAL ACADEMY

# Arcitura

	COURSES	Essential Al	Predictive Al	Generative Al	Agentic Al	Predictive Al Engineering	Generative Al Engineering				Cloud Al E Technology & Automation	
С	ERTIFICATIONS	Al Professional	Predictive Al Specialist	Generative Al Specialist	Agentic Al Specialist	Predictive Al Engineer	Generative Al Engineer	Al Architect	Al A Consultant	l Governand & Ethics Specialist	ce Cloud Al Professional*	Cloud Al Architect*
MODULE 01	Fundamental Predictive AI	•	•			•		•	•	•	•	•
MODULE 02	Advanced Predictive Al		•			•						
MODULE 03	Predictive AI Lab		٠									
MODULE 04	Fundamental Generative Al	•		•			•	•	•	•	•	•
MODULE 05	Advanced Generative AI			•			•					
MODULE 06	Generative AI Lab			•								
MODULE 07	Fundamental Predictive Al Engineering					•			•			
MODULE 08	Advanced Predictive Al Engineering					•						
MODULE 09	Predictive AI Engineering Lab					•						
MODULE 10	Fundamental Generative Al Engineering						•		•			
MODULE 11	Advanced Generative Al Engineering						•					
MODULE 12	Generative AI Engineering Lab						•					
MODULE 13	Fundamental AI Architecture & Design							•	•			
MODULE 14	Advanced Al Architecture & Design							•				
MODULE 15	Al Architecture & Design Lab							٠				
MODULE 16	Fundamental Agentic Al				٠							
MODULE 17	Advanced Agentic Al				٠							
MODULE 18	Agentic Al Lab				٠							
MODULE 19	Fundamental AI Governance & Ethics									•		
MODULE 20	Advanced Al Governance & Ethics									•		
MODULE 21	Al Governance & Ethics Lab									•		
MODULE 22	Cloud Al Technology & Automation										•	٠
MODULE 23	Cloud Al Architecture & Design											•
MODULE 24	Cloud Al Architecture & Design Lab											٠

\* 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.





# **DIGITAL TRANSFORMATION PROFESSIONAL ACADEMY**

# Arcitura®

	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
CE	RTIFICATIONS	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
	Fundamental Digital Transformation	•	•	•	•	•	•	•	٠	•
MODULE 02	Digital Transformation in Practice	•	٠	•	•	•	٠	٠	٠	•
	Fundamental Cloud Computing		٠	٠						
	Fundamental Blockchain		• or	or			•	•		
MODULE 05	Fundamental IoT									
MODULE 06	Cloud Architecture			•						
MODULE 07	Blockchain Architecture							٠		
MODULE 08	IoT Architecture			or						
	Fundamental Big Data Analysis & Analytics				٠	•				
MODULE 10.A	Fundamental Machine Learning									
MODULE 10.B	Fundamental Predictive Al				or	or			٠	•
MODULE 11	Fundamental Generative Al				•	•				
MODULE 12	Advanced Big Data Analysis & Analytics					•				
MODULE 13.A	Advanced Machine Learning									
MODULE 13.B	Advanced Predictive Al					or				
MODULE 14	Advanced Generative Al					•				
MODULE 15	Fundamental Cybersecurity						٠	٠		
MODULE 16	Advanced Cybersecurity							٠		
MODULE 17	Fundamental Agentic Al									•
MODULE 18	Fundamental RPA								•	•
MODULE 19	Advanced RPA & Intelligent Automation									•
MODULE 20	Fundamental Al Architecture		•	٠						
MODULE 21	Advanced Al Architecture			•						





# NEXT-GEN IT ACADEMY

# Arcitura®

	COURSES	DevOps	Blockchain Architecture	loT Architecture	Cybersecurity	Robotic Process Automation	Digital Business Technology	Containerization Architecture	Quantum Computing
CER	RTIFICATIONS	DevOps Specialist	Blockchain Architect	loT Architect	Cybersecurity Specialist	RPA Specialist	Digital Business Technology Professional	Containerization Architect	Quantum Computing Specialist
MODULE 01	Fundamental DevOps	•							
MODULE 02	DevOps in Practice	•							
MODULE 03	DevOps Lab	•							
MODULE 01	Fundamental Blockchain		•						
wodule 02	Blockchain Technology & Architecture		•						
MODULE 03	Blockchain Technology & Architecture Lab		•						
MODULE 01	Fundamental IoT			•					
MODULE 02	IoT Technology & Architecture			•					
MODULE 03	IoT Technology & Architecture Lab			•					
MODULE 01	Fundamental Cybersecurity				•				
MODULE 02	Advanced Cybersecurity				•				
රි MODULE 03	Cybersecurity Lab				•				
MODULE 01	Fundamental RPA					•			
MODULE 02	Advanced RPA & Intelligent Automation					•			
MODULE 03	RPA Lab					•			
Abolondi	Business Automation Technology Overview						•		
MODULE 02	Data Science Technology Overview						•		
MODULE 03	Digital & Security Technology Overview						•		
	Fundamental Containerization							•	
tainerizati WODULE 02	Containerization Technology & Architecture							•	
Ö MODULE 03	Containerization Technology & Architecture Lab							•	
MODULE 01	Fundamental Quantum Computing								•
MODULE 01 MODULE 02 MODULE 02	Advanced Quantum Computing								•
9	Quantum Computing Lab								•





# NEXT-GEN DATA SCIENCE ACADEMY

# Arcitura®

	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
C	ERTIFICATIONS	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	•	•	•	٠	•		•	•	•
MODULE 02	Big Data Analysis & Technology Concepts	•	•	•	٠	•		•	•	•
MODULE 03	Big Data Analysis & Technology Lab		•		٠	•				
MODULE 04	Big Data Analysis & Science			•	٠					
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						٠			
MODULE 10	Fundamental Predictive & Generative Al					•				
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									٠

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.

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# **CLOUD COMPUTING SCHOOL**

# Arcitura®

COURSES	Essential Cloud Computing	Cloud Computing Concepts & Technology	Cloud Computing Professional Consulting	Cloud Architecture	Cloud Security	Cloud Governance	Cloud Storage	Cloud Virtualization	Cloud Al Technology & Automation	
CERTIFICATIONS	Cloud Professional	Cloud Technology Professional	Cloud Computing Consultant	Cloud Architect	Cloud Security Specialist	Cloud Governance Specialist	Cloud Storage Specialist	Cloud Virtualization Specialist	Cloud Al Professional*	Cloud Al Architect*
MODULE 01 Fundamental Cloud Computing	•	•	•	•	•	•	•	•	•	٠
MODULE 02 Cloud Technology Concepts	•	•	•	•	•	•	•	•	•	٠
MODULE 03 Cloud Technology Lab		•	•							
MODULE 04 Fundamental Cloud Architectur	e		٠	•						ы
MODULE 05 Advanced Cloud Architecture				•					This track has	This track has
MODULE 06 Cloud Architecture Lab				•					the	the
MODULE 07 Fundamental Cloud Security			•		٠				following c	following add
MODULE 08 Advanced Cloud Security					•				additional modules from	additional mov
MODULE 09 Cloud Security Lab					٠				modules fr	modules from
MODULE 10 Fundamental Cloud Governand	ce					•			om the Al	the Al &
MODULE 11 Advanced Cloud Governance						•			& Cloud /	Cloud Al Pr
MODULE 12 Cloud Governance Lab						•			Al Profession al	Al Professional
MODULE 13 Fundamental Cloud Storage							•		Acade	Academy
MODULE 14 Advanced Cloud Storage							•		emy curriculum: 1,	y curriculum:
MODULE 15 Cloud Storage Lab							٠		culum: 1, 4,	m: 1, 4, 19,
MODULE 16 Fundamental Cloud Virtualization	n							•	. 19	. 20, 21
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.



# SERVICE TECHNOLOGY SCHOOL

# Arcitura®

	COURSES	Fundamental Microservices & Service Technology	SOA Design with Services &	SOA Analysis & Modeling with Services & Microservices	Architecture with Services &	Microservice Design & Architecture	Microservice Professional Consulfing	Service API Design & Management	Service Governance & Project Delivery	Security for Microservices & SOA
С	ERTIFICATIONS	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		٠	•	•				•	
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								٠	
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									•



## THE ARCITURA DIFFERENCE



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.



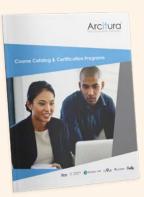
Learn about the Latest in IT

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 fullcolor workbooks and reference posters for all lessons.

### What's in an Arcitura Course

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**Interactive & Graded** Challenges

Courses also include interactive and graded exercises, interactive and graded selftests and other supplements.

#### youtube.com/@arcitura

About Arcitura

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#### **About Arcitura Courses**



#### **About Arcitura Certifications**

Learn About Arcitura: Take the Video Tour





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