

# NLP ENGINEER

## Training & Certification Guide



# AI & Cloud AI Professional Academy

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

The AI & Cloud AI Professional Academy curriculum is comprised of 23 course modules and 9 certification tracks. 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.

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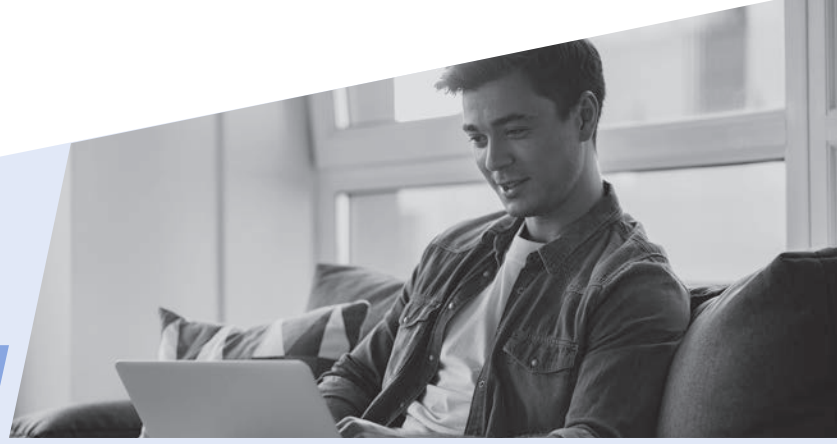
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## HOW TO TAKE THIS COURSE



### ARCITURA ELEARNING OPTIONS

To give you the most flexibility to achieve your learning goals and accommodate your preferences, this course is made available via two Arcitura eLearning solutions: An interactive environment with graded exercises and a graded self-test, as well as a study kit account that supports online/offline access and custom annotations.

To learn more, visit: [www.arcitura.com/elearning](http://www.arcitura.com/elearning)

To enroll, visit: [digital.arcitura.com/courses](http://digital.arcitura.com/courses)



### ONSITE WORKSHOPS

Private onsite workshops can be delivered by Certified Trainers from Arcitura and authorized training partners for both small and large groups. Each workshop participant can receive access to the full Arcitura Digital eLearning course materials. Each workshop agenda, format and schedule can be tailored to client requirements.

To learn more, visit: [www.arcitura.com/workshops](http://www.arcitura.com/workshops)

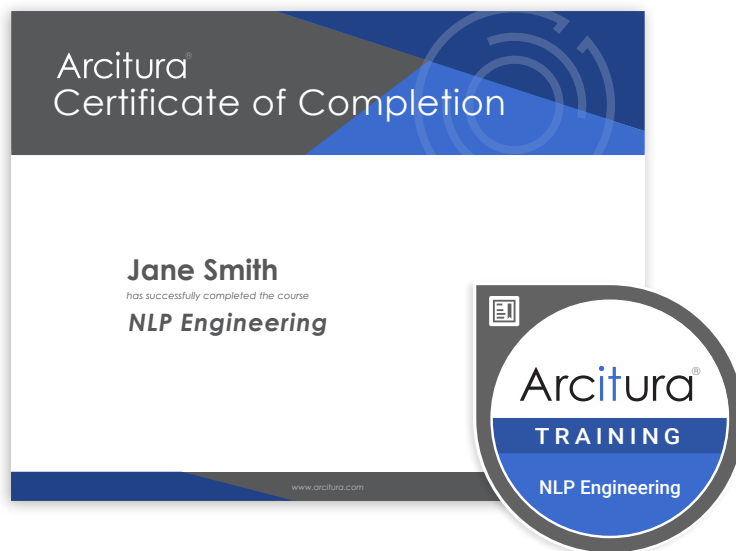


### VIRTUAL WORKSHOPS

Private virtual workshops can be delivered by Certified Trainers for small and large groups, as well as individual participants. Workshop participants receive access to the course materials via the Arcitura Digital eLearning platform. Virtual workshop agendas can be tailored with greater flexibility to accommodate more distributed and fragmented training schedules.

To learn more, visit: [www.arcitura.com/workshops](http://www.arcitura.com/workshops)

*Several additional learning and exam preparation products and services are available, including coaching, exam prep kits and digital downloads. See the Training and Exam Preparation Resources page for details.*



## HOW TO GET STARTED

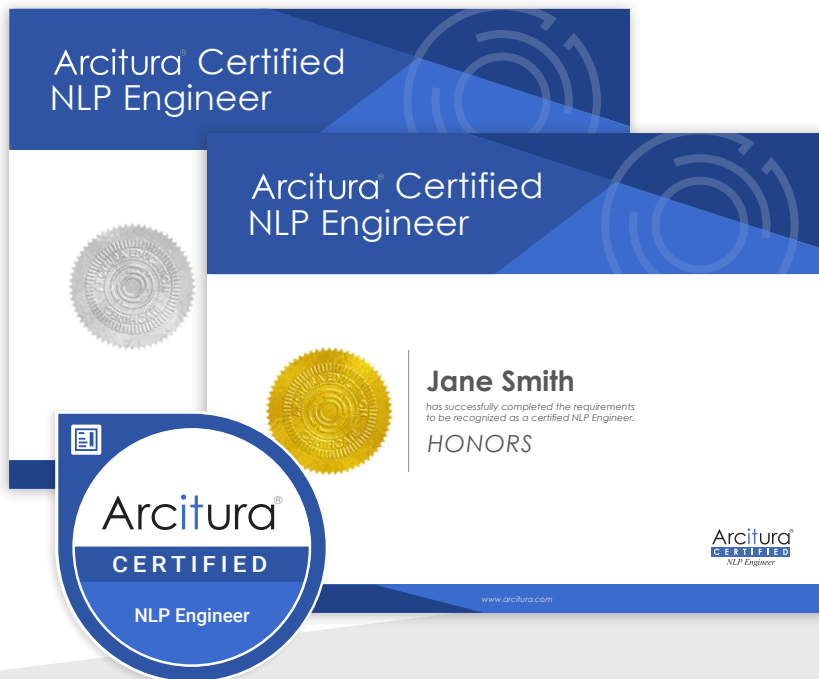
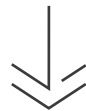
Welcome to the NLP Engineering course! This course is comprised of a set of modules. Each module has a set of lessons and is further supplemented with exercises to help reinforce your understanding of key topics. Upon completing the course, you can optionally proceed to prepare yourself for the certification exam (as explained on the *How to get Certified* page).

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 (as explained on the *Training and Exam Preparation Resources* page.)

### MORE INFO

To enroll in this course, visit:  
[digital.arcitura.com/courses](https://digital.arcitura.com/courses)

A Certified NLP Engineer has proven knowledge of natural language processing models and techniques, as well as a range of supporting applications, practices and models associated with establishing language and sentiment in conversational workflows.



## HOW TO GET CERTIFIED

You can become a Certified NLP Engineer! This course can prepare you for the official NLP Engineer Certification exam, which can be taken worldwide.

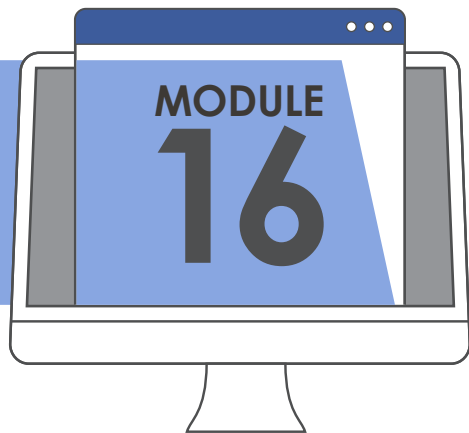
Upon attaining a passing grade on the certification exam, you will achieve the NLP Engineer Certification, after which you will automatically receive an official digital Accreditation Certificate and a digital Certification Badge from Acclaim/Credly with an account that supports the online verification of your certification status. Digital accreditation certificates and badges are free of charge.

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 (as explained on the *Training and Exam Preparation Resources* page.)

### MORE INFO

To learn more about this certification and exam, visit:  
[www.arcitura.com/certifications](http://www.arcitura.com/certifications)

# Fundamental NLP Engineering

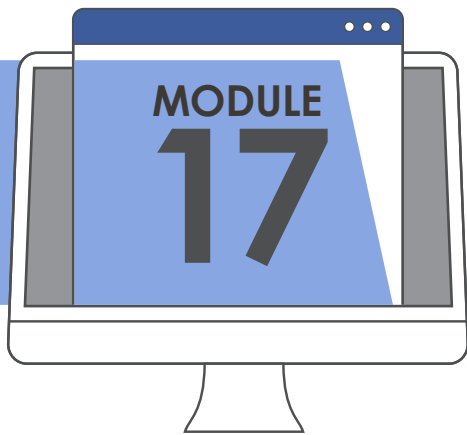


This course module begins with an exploration of how NLP solutions can be used by businesses, as well as common associated challenges and risks. The module then continues with covering essential topics, such as NLP text processing, tokenization, stemming and lemmatization, as well as linguistic data preparation, common NLP models and libraries, and addressing bias and fairness concerns.

The following primary topics are covered:

- Introduction to NLP Engineering
- Scope of Natural Language Processing
- NLP Linguistic Foundations
- Fundamentals of Syntax, Semantics and Pragmatics
- Understanding NLP Morphology and Phonetics
- Text Processing, including Normalization, Tokenization, Stemming, Lemmatization
- Regular Expressions and Text Data Cleaning
- Sentiment Analysis and Syntax Parsing
- NLP Supervised and Unsupervised Learning
- Working with NLP Libraries
- Steps to Develop a Simple NLP Model
- Understanding Context and Inference
- Bias and Fairness in NLP
- Understanding Fairness and Ethical Implications in Model Building

# Advanced NLP Engineering

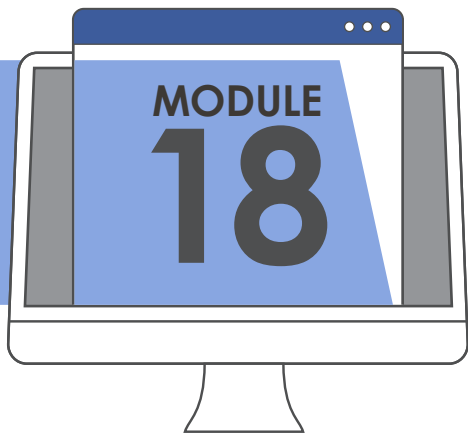


This course module covers advanced topics, such as contextual embeddings, attention mechanisms, transformer models, as well as sequence-to-sequence models for tasks like summarization and translation. Also covered are methods for handling linguistic subtleties, sarcasm and ambiguity in natural language, and strategies to address challenges such as cross-lingual NLP and domain-specific language understanding.

The following primary topics are covered:

- Introduction to NLP Neural Network Architectures
- Recurrent Neural Networks (RNNs), Long Short-Term Memory (LSTM) Networks and Gated Recurrent Units (GRUs)
- Introduction to Contextual Embeddings
- Understanding the Transformer Architecture
- Self-Attention and the Attention Mechanism
- BERT, GPT-series, RoBERTa and other variants
- Fine-Tuning Pretrained Models
- Feature Extraction from Transformer Models
- Neural Machine Translation and Sequence-to-Sequence Models
- Advanced Sentiment Analysis, Text Summarization and Question Answering
- Dealing with Ambiguity, Idiomatic Language, Sarcasm

# NLP Engineering Lab



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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.





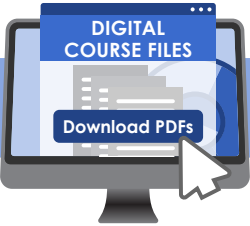
## TRAINING AND EXAM PREPARATION RESOURCES

You can supplement this course with a number of available resources to assist with both learning and exam preparation. Contact [info@arcitura.com](mailto:info@arcitura.com) with any questions.



### *Certification Exam Prep Kit*

A set of additional practice questions is available to support exam preparation.



### *Digital Course Files*

For each course you can order a set of downloadable digital course materials comprised of printable, watermarked workbook and poster PDF files.



### *Printed Course Materials*

The printed workbooks and posters for each course can be ordered in B&W and full-color, and can be shipped worldwide.



### *One-on-One Coaching*

Certified Trainers are available to provide online coaching on an hourly basis and in all time zones.



### *Instructor-Led Training*

Certified Trainers are available to provide virtual and onsite training workshops for this and other Arcitura courses.

COURSES		Predictive AI	Generative AI	AI Engineering	AI Architecture & Design	AI Professional Consulting	AI Chatbot Concepts & Design	NLP Engineering	Cloud AI Technology & Automation	Cloud AI Architecture & Design
CERTIFICATIONS		Predictive AI Specialist	Generative AI Specialist	AI Engineer	AI Architect	AI Consultant	AI Chatbot Specialist	NLP Engineer	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 AI Engineering			●		●				
MODULE 08	Advanced AI Engineering			●						
MODULE 09	AI Engineering Lab			●						
MODULE 10	Fundamental AI Architecture				●	●				
MODULE 11	Advanced AI Architecture				●					
MODULE 12	AI Architecture Lab				●					
MODULE 13	Fundamental AI Chatbot Concepts & Design						●			
MODULE 14	Advanced AI Chatbot Concepts & Design						●			
MODULE 15	AI Chatbot Concepts & Design Lab						●			
MODULE 16	Fundamental NLP Engineering							●		
MODULE 17	Advanced NLP Engineering							●		
MODULE 18	NLP Engineering Lab							●		
MODULE 19	Fundamental Cloud AI Technology & Automation								●	●
MODULE 20	Advanced Cloud AI Technology & Automation								●	●
MODULE 21	Fundamental Cloud AI Architecture & Design									●
MODULE 22	Advanced Cloud AI Architecture & Design									●
MODULE 23	Cloud AI Architecture & Design Lab									●

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

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		Big Data Analytics & Fundamental Data Science	Big Data Analysis & Advanced Data Science	Big Data Consulting	Data Science Professional Consulting	Machine Learning	Big Data Engineering	Big Data Architecture	Data Science Governance
CERTIFICATIONS		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 Artificial Intelligence				●				
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 for Big Data, Machine Learning & AI								●
MODULE 18	Advanced Data Science Governance for Big Data, Machine Learning & AI								●
MODULE 19	Data Science Governance Lab for Big Data, Machine Learning & AI								●

Gray circles indicate prerequisite modules.

COURSES		Cloud Computing	Cloud Computing Professional Consulting	Cloud Architecture	Cloud Security	Cloud Governance	Cloud Storage	Cloud Virtualization
CERTIFICATIONS		Cloud Technology Professional	Cloud Computing Consultant	Cloud Architect	Cloud Security Specialist	Cloud Governance Specialist	Cloud Storage Specialist	Cloud Virtualization Specialist
<b>MODULE 01</b>	Fundamental Cloud Computing	●	●	●	●	●	●	●
<b>MODULE 02</b>	Cloud Technology Concepts	●	●	●	●	●	●	●
<b>MODULE 03</b>	Cloud Technology Lab	●	●					
<b>MODULE 04</b>	Fundamental Cloud Architecture		●	●				
<b>MODULE 05</b>	Advanced Cloud Architecture			●				
<b>MODULE 06</b>	Cloud Architecture Lab			●				
<b>MODULE 07</b>	Fundamental Cloud Security		●		●			
<b>MODULE 08</b>	Advanced Cloud Security				●			
<b>MODULE 09</b>	Cloud Security Lab				●			
<b>MODULE 10</b>	Fundamental Cloud Governance					●		
<b>MODULE 11</b>	Advanced Cloud Governance					●		
<b>MODULE 12</b>	Cloud Governance Lab					●		
<b>MODULE 13</b>	Fundamental Cloud Storage						●	
<b>MODULE 14</b>	Advanced Cloud Storage						●	
<b>MODULE 15</b>	Cloud Storage Lab						●	
<b>MODULE 16</b>	Fundamental Cloud Virtualization							●
<b>MODULE 17</b>	Advanced Cloud Virtualization							●
<b>MODULE 18</b>	Cloud Virtualization Lab							●

Gray circles indicate prerequisite modules.

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									●

Gray circles indicate prerequisite modules.



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