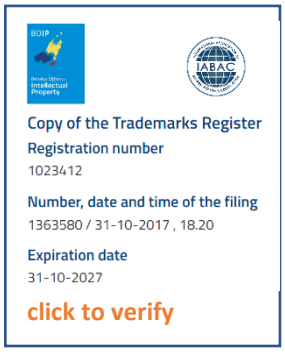
Artificial Intelligence Certified Executive (AICE)

CODE: AI3090

Syllabus and Examination



The International Association for Data Science Certification (IABAC®) is a globally recognized professional association dedicated to growing and enhancing the field of applied Data Science and Business Analytics.
IABAC™ founding principles are based on Edison Data Science Framework (EDSF), a European commission initiative, with the goal of aligning data science skills to industry requirements. IABAC was founded in the year 2017 as an association and, in the year 2018, registered as The Netherlands B.V (equivalent of English Private Limited).
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1 CONTENTS

1 INTRODUCTION

This document is intended to provide information on Artificial Intelligence Certified Executive (AICE-DS3020) certification for IABAC registered training providers to structure the course curriculum as per IABAC syllabus guidelines and for individuals, who are preparing for AICE certification exam.

It includes:

1. Artificial Intelligence Certified Executive (AICE) Examination Overview – general information and overview of the exam format
2. Artificial Intelligence Certified Executive (AICE) Syllabus for Candidates – detailing:
   - The format of the exam and the learning outcomes from the delegates' course of study that will be assessed in each section
   - The specific criteria by which each learning outcome is assessed

2 COURSE SYLLABUS

2.1 ARTIFICIAL INTELLIGENCE (AI) EVOLUTION

- Brief history of Artificial Intelligence
- Key researchers in the field of AI

2.2 WHY ARTIFICIAL INTELLIGENCE (AI) NOW?

- Big Data disruption
- Is this the right time for AI in your Business?

2.3 ARTIFICIAL INTELLIGENCE (AI) DOMAINS

- AI Domains Introduction
- Machine Learning
- Deep Learning
- Computer Vision
- Natural Language Processing
- Decision Making
- Robotics

2.4 ARTIFICIAL INTELLIGENCE (AI) IN BUSINESS - A TECHNOLOGY VIEW

- Overview of technology aspects of AI: Tools and Platforms

2.5 ANALYTICS VS ARTIFICIAL INTELLIGENCE (AI)

- Analytics in Business: Descriptive, Predictive and Prescriptive

- How is AI different from Analytics?

2.6 Economics of Artificial Intelligence (AI)

- Introduction to Economics of AI
- Incremental to Transformational
- Harnessing the power of low-cost prediction

2.7 Artificial Intelligence (AI) Data Strategy

- Traditional Data Strategy
- AI Data Strategy: Data Lakes vs Data Warehouses

2.8 Pitfalls in Artificial Intelligence (AI) Initiatives

- Top pitfalls of AI initiatives from the industry

2.9 Limitations and Challenges of Artificial Intelligence (AI)

- Availability of Data.
- AI outcomes are difficult to explain
- Risk of Bias in Data and Algorithm
- Societal concerns and regulations

2.10 Industry Use Cases in Practice

- Curated industry use cases in practice

2.11 Insights and future.

- Insights from think tanks and research organizations
- How to align future businesses with AI disruption.

3 Examination

3.1 Pre-requisite qualifications

1. No mandatory prerequisite
2. High level Business Management experience is recommended
3. Training: Though formal training is not mandatory; it is recommended to attend IABAC® registered course for Artificial Intelligence Certified Executive through Registered Education Partners

3.2 MATERIALS PERMITTED

1. The examination is 'closed book'
2. No material permitted and No Internet Access

3.3 EXAM DURATION

1. The computer-based exam is timed for 60 mins
2. No breaks allowed

3.4 EXAM MODE

1. IABAC® certification exam is computer based and conducted through IABAC® Exam portal only
2. Candidates require a computer with internet and webcam (video and audio) to take the exam
3. Computer screen recording permission should be granted

3.5 EXAM FORMAT

1. The exam consists of 25 **Multiple-Choice** Questions with three difficulty levels: easy, medium and difficult questions
2. Each question carries **5 Marks / 10 Marks**
3. No Negative marking

3.6 PASS CRITERIA

1. The candidate needs to score **60% or higher** in order to pass the examination
2. The results will be declared after validation of the exam recording video session and identity proof verification.

3.7 RESULTS TIMELINE

1. The preliminary results are usually released within **9 days** of the exam date
2. The official results are usually released within **15 days** from the exam date

3.8 CERTIFICATE ISSUANCE

- IABAC® e-certificate will be issued through the candidates registered email
- The e-certificate is digital verifiable at https://www.iabac.org/verify-certificate
- The candidate has license to share digital certificate validation in professional networking portals such as www.linkedin.com
- The candidate has a license to print physical copy (hardcopy) of the certificate

4 IABAC® KNOWLEDGE AREAS MAPPING

Knowledge Area	Syllabus Details	Bloom's Index
KAG1-DSDA: Data Analytics group including Machine Learning, Statistical Methods, and Business Analytics	• Case Study on Statistical Analysis • Curating the Data and performing, Discrete Mathematics, Probabilistic Reasoning • Statistical Methods, including Descriptive Statistics, Exploratory Data Analysis (EDA) and Confirmatory Data Analysis (CDA) • Case Study & Creating Machine Learning Model • With detailed implementation of algorithms: Artificial Intelligence, Natural Language Processing • Knowledge Representation and Reasoning • Data Mining and knowledge discovery • Text analysis, Data Mining, Text Analytics including Statistical, Linguistic, and Structural Techniques to analyse Structured and Unstructured data • Creating Predictive Forecasting Models • Decision Analysis and Decision Support Systems • Data Mining	6
KAG2-DSENG: Data Science Engineering group including Software and Infrastructure Engineering	• Set Up Infrastructure and Big Data Applications • Computer Networks for high-performance computing and Big Data Infrastructure • Cloud Enabled Applications development • Modelling and Simulation • Modelling and Simulation Theory and Techniques (general and domain oriented) • Large Scale Modelling and Simulation Systems • Set up Big Data (Data Science) Applications Design • Programming Languages for Big Data Analytics: R, Python, others • Models and Languages for complex interlinked Data Presentation and Visualisation	5
KAG3-DSDM: Data Management group including Data Curation, Preservation and Data Infrastructure	• Creating Database Models and Data Curation • Data Modelling, Databases and Database Management Systems, Data Models and Query Languages, Database Administration • Set up Data Management and Enterprise Data Infrastructure	4

	• Data management, including Reference and Master Data, Data Warehousing and Business Intelligence, Data storage and Operations • Data Archives/Storage Compliance and Certification Metadata, Linked data, Provenance • Data Infrastructure, Data Management and Organisation Research Data Infrastructure, Open Science, Open Data, Open Access, Data Infrastructure Compliance and Certification, Ethical Principle and Data Privacy	
KAG4-DSRM: Scientific and Research Methods group	• Scientific/Research Methods • Research Methodology, Paradigms and Research Cycle, Modelling and Experiment Planning • Data Selection and Quality Evaluation • Use Case Analysis: Research Infrastructures and Projects Research Data Management plan and Ethical Issues	6
KAG5-DSBPM: Business Process Management group	• Business Process Management • Business Processes and Operations, Project Scope and Risk Management • Business Analysis - Organisation and Management • Business Analysis - Planning and Monitoring • Requirements Analysis and Design Definition • Requirements Life Cycle Management (from inception to retirement) Solution Evaluation and Improvements Recommendation • Business analysis and Enterprise Organisation • Agile Data Driven Methodologies, Processes and Enterprises • Use Case Analysis: Business and Industry	4
KAG6-DSDK: Data Science Domain Knowledge group includes domain specific knowledge	• Applied Data Science use cases in Domains, HR, Retail, Fraud Analytics, Finance Trends, Health Care, Infrastructure Management	2

5 BLOOM'S TAXONOMY REFERENCE

Bloom's Learning Index	Description
1	Remembering: Recall or retrieve previous learned information.
2	Understanding: Comprehending the meaning, translation, interpolation, and interpretation of instructions and problems. State a problem in one's own words.
3	Applying: Use a concept in a new situation or unprompted use of an abstraction. Applies what was learned in the classroom into novel situations in the workplace.
4	Analysing: Separates material or concepts into component parts so that its organizational structure may be understood. Distinguishes between facts and inferences.
5	Evaluating: Make judgments about the value of ideas or materials.
6	Creating: Builds a structure or pattern from diverse elements. Put parts together to form a whole, with emphasis on creating a new meaning or structure.