

IBAS - Innovative Business Analytics for SMEs

Draft of the curriculum training structure

Introduction

The **Innovative Business Analytics for SMEs (IBAS)** curriculum has been developed to respond to a clear and growing need in European vocational education and training: the need to equip learners, trainers and SME employees with practical business analytics competences that can be used in real organisational settings. Across Europe, small and medium-sized enterprises are increasingly expected to make decisions based on data, monitor performance more systematically, understand customers better, improve operational efficiency and adapt to changing market conditions. At the same time, many SMEs do not have access to advanced analytical departments or highly specialised data science teams. They need people who can work with available data, use accessible tools, interpret results responsibly and translate analysis into practical business decisions.

The IBAS curriculum addresses this gap by offering a modular, applied and competence-based learning pathway in business analytics for SMEs. It combines foundations of data literacy and analytical thinking with practical training in data preparation, governance, visualisation, business intelligence, forecasting, predictive analytics and functional applications in marketing, finance, sales, logistics and operations. The curriculum is not designed as a purely technical programme. Its purpose is to develop learners who understand both data and business reality: people able to ask relevant questions, select appropriate methods, communicate insights clearly and propose feasible improvements in SME contexts.

The curriculum has been designed in line with the objectives of the IBAS project, which aims to modernise VET provision, strengthen cooperation between education and business, and support the digital transformation of SMEs. It reflects the logic of work-based and problem-based learning, where analytical competences are developed through realistic cases, practical exercises, business datasets, dashboards, short analytical briefings and integrated capstone work. This makes the programme suitable not only for VET learners, but also for trainers, SME employees, managers and professionals involved in upskilling and reskilling.

A key feature of the curriculum is its alignment with European transparency and quality principles. The programme is positioned primarily as an EQF level 5-oriented learning pathway, while allowing adaptation for introductory EQF level 4 learners and progression towards EQF level 6 in more advanced or higher-VET settings. Its modular structure supports ECVET-inspired recognition of learning outcomes, including the use of module-level micro-

credentials and a full IBAS certificate. This approach allows learners to document their achievements progressively and enables VET providers and SMEs to use the curriculum flexibly according to their needs.

Ultimately, IBAS seeks to support a new type of applied analytics competence in the SME sector. Learners completing the programme should not only know how to use tools, but also understand why analytics matters, how data should be handled responsibly, how results should be interpreted, and how evidence can support better business decisions. In this sense, the curriculum contributes both to the employability of learners and to the capacity of SMEs to become more resilient, competitive and data-informed.

The curriculum was developed through an iterative process combining the IBAS proposal requirements, analysis of expected qualification gaps in SME business analytics, partner expertise in VET and higher education, and the need to align training content with practical SME decision-making contexts. The next stage will involve structured validation with SMEs and VET providers, using a common review form focused on relevance, feasibility, tool accessibility, learning outcomes and assessment evidence.

1. Target groups and graduate profile

Primary target groups

- VET learners preparing for roles in administration, sales, marketing, finance, logistics, operations, entrepreneurship or SME management.
- SME employees and managers who need practical skills in data-driven decision-making but do not have a specialist data science background.
- VET teachers, trainers and mentors who will use the curriculum, digital learning hub and work-based learning materials.
- SMEs, business support organisations and associated partners interested in improving everyday decisions through accessible analytics tools.

Graduate / learner profile

A learner completing the full IBAS pathway should be able to recognise business problems that can be supported by data, collect and prepare relevant datasets, use accessible analytical tools, build dashboards and basic models, interpret results, communicate recommendations and plan feasible implementation in an SME context.

The graduate profile is practical rather than purely technical. Learners should be able to behave responsibly with data, explain assumptions and limitations, communicate with non-technical stakeholders and create value for SMEs through realistic analytical improvements. The full pathway should also prepare learners to document evidence of competence for module micro-credentials and the full IBAS certificate.

2. Module and course specifications

The following module specifications present the core structure of the IBAS curriculum. Each module includes its rationale, intended learning outcomes and course units. These specifications provide the common curriculum framework for the partnership, but they should not be treated as closed teaching scripts. During implementation, partners should complement them with trainer guides, datasets, practical exercises, assessment rubrics and examples from local SME contexts.

This approach allows the curriculum to remain both coherent and adaptable. Coherence is ensured through common learning outcomes, EQF positioning, assessment logic and recognition principles. Adaptability is ensured by allowing partners to select relevant SME cases, use national examples, adjust datasets and adapt the level of complexity to learner needs.

Module 1: Business Analytics Foundations and Data-Driven SME Strategy

This module introduces business analytics as a practical capability for SMEs rather than as a purely technical discipline. Learners develop a shared understanding of how data can support strategy, competitiveness, efficiency, resilience and digital transformation. The module starts from realistic SME conditions: limited resources, fragmented data, time pressure and the need for affordable solutions. It helps learners recognise business problems that can be supported by data and translate them into clear analytical questions. By connecting analytics with marketing, finance, logistics, sales, operations and management, the module creates the conceptual foundation for the whole IBAS pathway. It prepares learners to approach data not as an isolated technical resource, but as evidence for better business decisions.

Learning objectives:

Knowledge

By the end of this module, learners will be able to:

- Explain the role of business analytics in supporting SME strategy, competitiveness, efficiency and resilience.
- Distinguish between descriptive, diagnostic, predictive and prescriptive analytics in practical SME contexts.
- Identify typical data needs connected with marketing, finance, logistics, sales, operations and SME management.
- Recognise common SME constraints affecting analytics adoption, including limited resources, fragmented data, lack of specialist staff and implementation risk.

Skills

By the end of this module, learners will be able to:

- Translate a general SME business problem into a clear and feasible analytical question.
- Identify basic data sources needed to answer a selected business question.
- Match simple analytics use cases with realistic SME decision-making needs.
- Prepare a short explanation of how analytics can support a specific SME improvement opportunity.

Attitudes / Behaviours

By the end of this module, learners will be able to:

- Demonstrate evidence-based reasoning when discussing SME business problems.
- Avoid overselling analytics as a universal or automatic solution to business challenges.
- Show awareness of the practical realities of SME owners, managers and employees.
- Communicate the value of analytics in accessible, non-technical language.

Course 1.1: Introduction to Business Analytics for SMEs

This course provides a structured introduction to business analytics and its practical role in small and medium-sized enterprises. It explains how data can support decision-making in marketing, finance, logistics, sales, and operational processes. Learners explore the difference between descriptive, diagnostic, predictive, and prescriptive analytics. The course emphasises realistic SME contexts, where analytical solutions must be useful, affordable, and easy to implement. Practical examples show how business analytics can improve competitiveness, efficiency, and resilience. Learners also examine how analytics supports digital transformation and better alignment between business needs and vocational training. The course develops a shared foundation for further work with analytical tools and business cases.

Course 1.2: Data Literacy and Analytical Thinking

This course develops the basic data literacy required to interpret business information and transform it into actionable insight. It introduces key concepts such as variables, observations, data types, measurement, indicators, and uncertainty. Learners practise asking analytical questions and matching them with appropriate data sources and methods. The course focuses on avoiding common interpretation errors and recognising limitations of data. Real-world examples illustrate how poor data understanding may lead to incorrect business decisions. Emphasis is placed on clear reasoning, evidence-based judgement, and responsible use of numerical information. The course strengthens learners' ability to participate in data-driven decision-making processes in SMEs.

Course 1.3: SME Digital Transformation and Analytics Use Cases

This course examines how business analytics contributes to digital transformation in SME environments. It introduces practical use cases where data supports process automation, customer analysis, sales planning, cost control, and resource allocation. Learners analyse the organisational conditions that influence successful analytics adoption, including staff competencies, data availability, and management support. The course highlights barriers faced by SMEs, such as limited resources, fragmented data, and lack of specialised staff. Practical examples demonstrate how small analytical improvements can produce measurable business value. Emphasis is placed on selecting realistic solutions that match the maturity and needs of each enterprise. The course prepares learners to identify opportunities for analytics-driven transformation.

Module 2: Data Collection, Management and Quality for Business Analytics

This module develops the data foundations required for reliable business analytics. It focuses on how SMEs generate, collect, structure, clean, validate and document data before using it for analysis. Learners explore typical SME data sources, including sales systems, accounting records, customer databases, website analytics, inventory systems and external market data. The module highlights that poor-quality, incomplete or undocumented data can distort dashboards, forecasts and business conclusions. It also introduces basic principles of data governance, ethics, confidentiality, transparency and responsible use. The logic of the module is to make learners understand that trustworthy analytics begins before the analysis

itself: with relevant data, clear procedures, documented transformations and responsible handling of business information.

Learning objectives:

Knowledge

By the end of this module, learners will be able to:

- Identify main internal and external data sources used by SMEs, including sales, accounting, customer, inventory, website and market data.
- Explain key data quality dimensions, including relevance, reliability, timeliness, completeness, consistency and traceability.
- Describe common data problems such as missing values, duplicates, inconsistent formats, outliers and incorrect classifications.
- Explain basic data governance principles, including ownership, access control, confidentiality, documentation and accountability.

Skills

By the end of this module, learners will be able to:

- Plan proportionate data collection procedures aligned with a specific SME decision need.
- Structure business datasets in a way that supports later analysis.
- Clean, transform and validate simple business datasets using transparent procedures.
- Prepare basic data documentation, including assumptions, transformations and quality checks.

Attitudes / Behaviours

By the end of this module, learners will be able to:

- Treat customer, employee and business data with care, confidentiality and responsibility.
- Recognise risks related to bias, unfairness and inappropriate use of data-supported decisions.
- Promote transparent and reproducible data handling as part of everyday SME practice.
- Demonstrate caution when interpreting results based on incomplete, unreliable or poorly documented data.

Course 2.1: Business Data Sources and Data Collection in SMEs

This course introduces the main sources of data available to SMEs, including sales systems, accounting records, customer databases, website analytics, inventory systems, and external market data. Learners explore how operational processes generate data and how these data can be collected for analysis. The course focuses on practical procedures for structuring data collection without creating excessive administrative burden. Learners examine the relevance, reliability, timeliness, and completeness of business data. Case-based examples show how data from different areas of a company can be combined to answer business questions. Emphasis is placed on aligning data collection with actual decision needs. The course develops competencies for building usable analytical datasets in SME contexts.

Course 2.2: Data Cleaning, Preparation and Quality Assurance

This course focuses on preparing business data for reliable analysis. It covers common quality problems such as missing values, duplicates, inconsistent formats, outliers, and incorrect classifications. Learners practise cleaning, transforming, and validating datasets using spreadsheet-based and analytical workflows. The course explains why data preparation is often the most important stage of the analytics process. Practical exercises show how errors in raw data may distort dashboards, forecasts, and business conclusions. Emphasis is placed on documentation, reproducibility, and transparent data handling. The course supports the development of accurate and trustworthy analytical outputs for SMEs.

Course 2.3: Data Governance, Ethics and Responsible Use

This course introduces the principles of responsible data management in business analytics. It covers data ownership, access control, confidentiality, documentation, and ethical use of customer and employee information. Learners examine how basic governance practices support reliable analysis and reduce organisational risk. The course highlights the importance of transparency, accountability, and compliance when working with business data. Practical examples demonstrate how SMEs can implement simple but effective rules for data storage, sharing, and analysis. Learners also consider bias, fairness, and the consequences of automated decision-making. The course develops competencies for using data in a responsible and business-appropriate way.

Module 3: Analytical Tools for SMEs: Python, R and Spreadsheet Workflows

This module gives learners practical experience with accessible analytical tools that can be used in SME contexts. It covers spreadsheets, Python and R as complementary tools for importing, cleaning, analysing, visualising and documenting business data. The focus is not on



advanced programming, but on creating repeatable, understandable and useful workflows for everyday analytical tasks. Learners compare different tools and decide when a spreadsheet is sufficient and when Python or R may add value. The module strengthens confidence in working with business datasets and introduces simple automation to reduce repetitive work and improve consistency. Its main logic is tool capability: learners should be able to choose and use tools proportionately to the problem, data and SME capacity.

Learning outcomes

Knowledge

By the end of this module, learners will be able to:

- Explain the role of spreadsheets, Python and R as accessible analytical tools for SME tasks.
- Distinguish between ad hoc analysis and repeatable analytical workflows.
- Recognise when a spreadsheet-based solution is sufficient and when Python or R may be more appropriate.
- Explain how simple automation can reduce manual work and improve analytical consistency.

Skills

By the end of this module, learners will be able to:

- Use spreadsheets to build structured tables, formulas, pivot tables and basic analytical models.
- Use basic Python or R workflows to import, summarise, analyse and visualise business data.
- Create simple repeatable workflows for cleaning, summarising and presenting SME datasets.
- Document formulas, code, assumptions and workflow steps so that another user can understand them.

Attitudes / Behaviours

By the end of this module, learners will be able to:

- Prioritise clarity, reproducibility and business usefulness over unnecessary technical complexity.
- Select analytical tools responsibly, considering the available skills and capacity of the SME.

- Show persistence and problem-solving orientation when working with unfamiliar tools or errors.
- Respect the need for transparency in code, formulas and analytical workflow design.

Course 3.1: Practical Python for Business Analytics

This course introduces Python as a practical tool for business analytics in SMEs. Learners work with basic programming concepts, data structures, and libraries used for importing, cleaning, analysing, and visualising business data. The course uses simple examples from sales, customer behaviour, finance, and operations. Learners practise creating repeatable workflows that reduce manual work and improve analytical consistency. Emphasis is placed on practical usefulness rather than advanced programming theory. The course also explains how Python can support automation and integration with digital business processes. Learners develop confidence in applying Python to realistic SME data tasks.

Course 3.2: Practical R for Business Analytics

This course introduces R as a flexible environment for statistical analysis and business reporting. Learners use R to import, transform, summarise, and visualise data relevant to SME decision-making. The course focuses on practical analytical tasks, including descriptive statistics, grouped summaries, simple modelling, and reproducible reports. Real-world examples demonstrate how R can support evidence-based decisions in marketing, finance, and operations. Learners compare analytical workflows and select tools based on problem type and organisational needs. Emphasis is placed on clarity, reproducibility, and interpretation of results. The course develops competencies for using R in structured business analytics projects.

Course 3.3: Spreadsheet-Based Analytics and Workflow Automation

This course focuses on the role of spreadsheets as accessible analytical tools for SMEs. Learners apply formulas, pivot tables, lookup functions, data validation, and structured tables to support business analysis. The course also introduces simple automation principles that reduce repetitive manual tasks and improve consistency. Practical exercises use business datasets related to sales, inventory, costs, and customer segmentation. Learners examine when spreadsheets are sufficient and when more advanced tools such as Python, R, or business intelligence platforms should be used. Emphasis is placed on transparent workbook design and error prevention. The course supports the development of practical analytical workflows for everyday SME operations.

Module 4: Business Intelligence and Data Visualisation

This module focuses on transforming business data into dashboards, KPIs, visual reports and clear data stories that support SME decision-making. Learners work with business intelligence concepts and tools such as Power BI, Tableau or equivalent platforms. They learn how to select appropriate visuals, define meaningful indicators and design dashboards that are understandable, relevant and usable for managers and employees. The module also develops communication skills, because analytical outputs only create value when they are interpreted and explained clearly. Its logic is to move from data analysis to business understanding: learners learn to avoid information overload, misleading visuals and purely decorative dashboards, and instead produce visual outputs that help SMEs monitor performance and act on evidence.

Learning outcomes

Knowledge

By the end of this module, learners will be able to:

- Explain how dashboards, KPIs and visual reports support SME performance monitoring and decision-making.
- Describe key dashboard components, including data connections, measures, filters, visuals and interactivity.
- Explain how KPI design links strategic objectives with operational data.
- Recognise visualisation choices that may support, distort or overload business interpretation.

Skills

By the end of this module, learners will be able to:

- Design clear and usable dashboards for SME managers and employees.
- Select appropriate charts and visual formats for different business questions.
- Define and calculate relevant KPIs for selected SME functions.
- Prepare concise analytical briefings or dashboard explanations for non-technical audiences.

Attitudes / Behaviours

By the end of this module, learners will be able to:

- Avoid misleading visual design, excessive complexity and information overload.

- Adapt communication to the needs of managers, employees, trainers and other SME stakeholders.
- Support decisions through balanced interpretation rather than attractive graphics alone.
- Demonstrate care for clarity, accessibility and usefulness in business data communication.

Course 4.1: Dashboard Design with Power BI and Tableau

This course introduces business intelligence dashboards as tools for monitoring and communicating business performance. Learners work with Power BI and Tableau concepts, including data connections, visual elements, filters, measures, and interactive reports. The course focuses on designing dashboards that are clear, relevant, and useful for SME managers and employees. Practical examples cover sales performance, customer behaviour, cost monitoring, and operational efficiency. Learners examine how dashboard design influences interpretation and decision-making. Emphasis is placed on selecting appropriate charts, avoiding information overload, and aligning visualisation with business questions. The course develops competencies for creating practical dashboards for SME contexts.

Course 4.2: KPI Development and Performance Monitoring

This course focuses on defining, measuring, and monitoring key performance indicators in SMEs. Learners explore how KPIs connect strategic objectives with operational data. The course covers indicator selection, calculation, benchmarking, target setting, and interpretation. Practical examples demonstrate how KPIs can support sales management, financial control, customer service, logistics, and process improvement. Learners analyse the risks of poorly designed indicators and misleading performance measures. Emphasis is placed on building balanced and actionable performance monitoring systems. The course develops competencies for transforming data into structured business performance information.

Course 4.3: Storytelling and Communication with Business Data

This course develops the ability to communicate analytical results to business audiences. Learners practise translating data analysis into clear messages, recommendations, and visual narratives. The course introduces principles of data storytelling, audience adaptation, and evidence-based argumentation. Practical tasks require learners to prepare short analytical briefings, dashboard explanations, and management presentations. The

course highlights the difference between technical accuracy and business usefulness. Learners examine how visual design, wording, and structure influence understanding and action. The course supports effective communication between analysts, managers, trainers, and SME stakeholders.

Module 5: Applied Analytics for SME Functions

This module applies analytics to concrete SME functions: marketing, customer management, finance, logistics, sales and operations. Learners move from general analytical concepts to functional business decisions, using data to understand customers, monitor profitability, identify bottlenecks, improve processes and support planning. The module is designed to be adaptable to different sectors and national SME contexts. It uses simplified but realistic datasets and cases to help learners generate practical recommendations. The central logic is functional application: analytics is not treated as a generic skill only, but as a way of improving everyday decisions in different areas of SME activity. Learners are expected to connect analytical findings with operational constraints, stakeholder needs and feasible improvement actions.

Learning outcomes

Knowledge

By the end of this module, learners will be able to:

- Explain how dashboards, KPIs and visual reports support SME performance monitoring and decision-making.
- Describe key dashboard components, including data connections, measures, filters, visuals and interactivity.
- Explain how KPI design links strategic objectives with operational data.
- Recognise visualisation choices that may support, distort or overload business interpretation.

Skills

By the end of this module, learners will be able to:

- Design clear and usable dashboards for SME managers and employees.
- Select appropriate charts and visual formats for different business questions.
- Define and calculate relevant KPIs for selected SME functions.
- Prepare concise analytical briefings or dashboard explanations for non-technical audiences.



Attitudes / Behaviours

By the end of this module, learners will be able to:

- Avoid misleading visual design, excessive complexity and information overload.
- Adapt communication to the needs of managers, employees, trainers and other SME stakeholders.
- Support decisions through balanced interpretation rather than attractive graphics alone.
- Demonstrate care for clarity, accessibility and usefulness in business data communication.

Course 5.1: Marketing and Customer Analytics

This course applies business analytics to marketing and customer-related decisions in SMEs. Learners analyse customer segments, purchasing patterns, campaign results, retention indicators, and digital engagement data. The course introduces practical methods for measuring marketing effectiveness and identifying customer value. Real-world examples demonstrate how SMEs can use analytics to improve targeting, pricing, communication, and customer relationships. Learners work with simplified datasets and dashboards to generate actionable recommendations. Emphasis is placed on interpretation and feasibility rather than technical complexity. The course develops competencies for applying data-driven approaches to marketing and customer management.

Course 5.2: Financial Analytics and Business Performance

This course introduces financial analytics for SME decision-making. Learners examine revenue, costs, margins, cash-flow indicators, profitability, and simple financial ratios. The course focuses on using data to understand business performance and support planning. Practical examples show how analytical tools can identify cost drivers, profitability patterns, and financial risks. Learners connect financial information with operational and strategic decisions. The course also introduces basic budgeting and scenario analysis for business planning. Emphasis is placed on clear interpretation and practical recommendations for SME managers.

Course 5.3: Logistics, Sales and Operational Analytics

This course focuses on analytics for logistics, sales, and operational processes in SMEs. Learners analyse orders, delivery performance, inventory levels, supplier reliability, sales pipelines, and process efficiency indicators. The course introduces practical methods for identifying bottlenecks, demand patterns, and operational improvement opportunities. Examples demonstrate how data can support planning, resource allocation, and service quality. Learners use simplified datasets to build performance summaries and propose improvement actions. Emphasis is placed on linking analytics with everyday operational decisions. The course develops competencies for improving efficiency and competitiveness through business data.

Module 6: Predictive Analytics, Forecasting and Decision Support

This module introduces more advanced analytical reasoning through forecasting, predictive modelling, risk analysis and scenario-based decision support. Learners explore how forecasts and simple models can support SME planning, demand management, budgeting, sales prediction, customer retention or operational risk assessment. At the same time, the module strongly emphasises uncertainty, assumptions, limitations and responsible interpretation. Learners are not expected to treat models as automatic decision-makers, but as tools that help compare options and support structured business judgement. The logic of the module is decision support under uncertainty: learners develop the ability to use forecasts, scenarios and risk indicators in a transparent and practical way, while communicating limitations clearly to non-technical business audiences.

Learning outcomes

Knowledge

By the end of this module, learners will be able to:

- Explain core forecasting concepts, including trends, seasonality, forecast errors and model evaluation.
- Describe basic predictive modelling and classification tasks relevant to SMEs.
- Explain how scenario analysis, sensitivity analysis and risk indicators support decisions under uncertainty.
- Recognise the limits of forecasts and models in dynamic market and organisational conditions.

Skills

By the end of this module, learners will be able to:

- Prepare basic forecasts for SME planning, demand management, budgeting or resource allocation.
- Evaluate forecast accuracy and interpret forecast errors in business terms.
- Build and interpret simple predictive or classification models using accessible tools and simplified datasets.
- Use scenario and sensitivity analysis to compare business options and support management decisions.

Attitudes / Behaviours

By the end of this module, learners will be able to:

- Use models as decision-support tools rather than automatic decision-makers.
- Communicate uncertainty, assumptions and limitations clearly to business audiences.
- Avoid overconfidence in model outputs, especially when data quality or sample size is limited.
- Consider ethical, organisational and business consequences of predictive recommendations.

Course 6.1: Forecasting for SME Planning and Demand Management

This course introduces forecasting methods used in SME planning and demand management. Learners explore time-series data, seasonality, trends, forecast errors, and basic model evaluation. Practical exercises show how forecasts can support sales planning, inventory management, budgeting, and workforce allocation. The course compares simple methods with more advanced analytical approaches, focusing on business interpretation and practical usefulness. Learners examine uncertainty and the limits of forecasts in dynamic market conditions. Emphasis is placed on using forecasting results responsibly in planning decisions. The course develops competencies for applying forecasting to real SME problems.

Course 6.2: Predictive Modelling and Classification

This course introduces predictive modelling as a tool for identifying patterns and supporting business decisions. Learners explore basic classification and prediction tasks, such as customer retention, sales probability, credit risk, or operational failure signals. The course explains the modelling process, including feature selection, training data, validation, and interpretation. Practical examples use accessible tools and simplified datasets suitable for VET learners and SME employees. Learners examine the difference between useful prediction and overfitting. Emphasis is placed on understanding model outputs and communicating their

business implications. The course develops competencies for applying predictive analytics in a responsible and practical way.

Course 6.3: Decision Support, Risk and Scenario Analysis

This course focuses on using analytics to support structured business decisions under uncertainty. Learners apply scenario analysis, sensitivity analysis, risk indicators, and simple decision-support frameworks. The course demonstrates how analytical tools can help compare options, anticipate consequences, and prioritise actions. Practical examples cover pricing, investment, resource allocation, market expansion, and process changes. Learners examine how assumptions influence analytical conclusions and business recommendations. Emphasis is placed on transparent reasoning and practical decision support rather than automatic decision-making. The course strengthens competencies for using analytics as a basis for informed SME management.

Module 7: Work-Based Learning and Integrated Analytics Capstone

Module 7 brings together the competences developed in the previous modules and applies them in realistic SME contexts through blended and work-based learning. Learners combine data literacy, data preparation, analytical tools, visualisation, business interpretation, predictive methods, implementation planning and communication skills in practical project tasks. The module links online resources, case materials, datasets and templates with classroom-based or virtual activities, mentoring, peer collaboration and workplace-oriented assignments. It helps learners move from separate analytical techniques to integrated business problem-solving. Emphasis is placed on practical application, feasibility for SMEs, stakeholder communication and evidence of competence. By the end of the module, learners are prepared to design, justify and present data-driven solutions that can support real business improvement.

Learning outcomes

Knowledge

By the end of this module, learners will be able to:

- Integrate knowledge of data literacy, data preparation, governance, analytical tools, BI, functional analytics, forecasting and decision support.
- Explain how a real or simulated SME challenge can be translated into an end-to-end analytics project.

- Understand implementation barriers, change-management issues, stakeholder expectations and adoption risks in SMEs.
- Explain how capstone outputs and evidence portfolios support the Module 7 micro-credential and, where relevant, the full IBAS certificate.

Skills

By the end of this module, learners will be able to:

- Conduct an end-to-end analytics project for a real or simulated SME problem.
- Combine data collection, cleaning, preparation, analysis, visualisation, interpretation and recommendation in one coherent project.
- Develop a feasible implementation plan including objectives, responsibilities, resources, timelines, risks, indicators and expected benefits.
- Present and defend project results clearly to trainers, peers and, where possible, business stakeholders.

Attitudes / Behaviours

By the end of this module, learners will be able to:

- Collaborate professionally with peers, trainers, mentors and business practitioners.
- Accept feedback and improve analytical outputs through an iterative project process.
- Demonstrate transparency, responsibility and practical orientation in the use of business analytics.
- Show readiness to apply business analytics in realistic SME environments, including contexts with incomplete data, limited resources and implementation constraints.

Course 7.1: Integrated SME Analytics Case Lab

Course 7.1 opens the integrative project process by placing learners in realistic SME decision-making contexts. Learners work with real or simulated case studies that require them to understand a business problem and explore how data can support better decisions. The cases may address sales, marketing, finance, logistics, operations, human resources, customer behaviour or digital transformation challenges.

The course combines online case materials, datasets and guidance notes with practical workshops, guided exercises, peer discussion and mentor-supported case analysis. Learners work with business problems requiring data collection, cleaning, preparation, analysis, visualisation, interpretation and recommendation. They practise dealing with incomplete

data, limited resources, business constraints and stakeholder expectations typical of SME environments.

The key role of this course is to help learners move from technical tasks to business-oriented analytical reasoning. They are expected to define the problem, identify data needs, select relevant analytical tools, prepare and analyse data, interpret findings and develop initial recommendations. Teacher and mentor support helps learners strengthen the quality of the case analysis and ensure that the outputs are understandable, relevant and useful for SME decision-making.

The outputs from Course 7.1 create the analytical foundation for the rest of Module 7. The case analysis, prepared data, visual outputs and preliminary recommendations become inputs for implementation planning in Course 7.2 and for the final capstone project in Course 7.3.

Course 7.2: From Analytics to Implementation: Change, Adoption and Learning Evidence

Course 7.2 builds on the analytical work developed in Course 7.1 and focuses on the transition from insight to implementation. Learners examine how their findings can be translated into feasible actions in an SME context. They develop implementation plans that define objectives, responsibilities, resources, timelines, risks, indicators and expected business benefits.

The course addresses the organisational side of business analytics. Learners consider stakeholder communication, training needs, digital adoption barriers, resistance to data-driven decision-making and the practical limitations that SMEs often face. The emphasis is placed on feasibility, sustainability and the ability to propose solutions that are not only analytically sound, but also realistic to adopt.

Through blended learning activities, learners combine online resources with collaborative planning, practical templates, feedback sessions and workplace-oriented tasks. Teacher and mentor support helps them refine implementation steps, assess risks, clarify responsibilities and check whether their recommendations can create practical value for the SME. Learners also reflect on data quality, assumptions, limitations, ethical issues and governance aspects that may influence the responsible use of their findings.

This course also strengthens the connection between learning, assessment and recognition. Learners explore how project outputs, dashboards, reports, presentations and implementation plans can demonstrate competence achievement. Since each module of the IBAS curriculum leads to a separate micro-credential, the evidence in Module 7 focuses

specifically on integrated application. The implementation plan and related reflection become part of the evidence base for the Module 7 micro-credential.

Course 7.3: Capstone Project: Data-Driven SME Solution

Course 7.3 is the final stage of Module 7 and brings the previous work into one comprehensive capstone project. Learners develop a complete data-driven solution for a real or simulated SME challenge. The project integrates data literacy, data preparation, analytical methods, dashboards, predictive tools, business interpretation, implementation planning and communication.

The capstone project follows a blended and work-based learning model. Learners carry out substantial independent online work while receiving support through classroom or virtual consultations, mentor feedback, peer review and final presentation. The role of the teacher or mentor is to guide the learner in connecting analytical outputs with business value, improving the clarity of recommendations and ensuring that the final project meets the expected assessment criteria.

The project should include a clear description of the SME challenge, data and analytical approach, key findings, visual or dashboard-based outputs, recommendations, implementation plan and reflection on usability, limitations, risks and implementation potential. The proposed solution should be technically sound, understandable for non-technical business users and feasible for SME adoption.

Learners present and justify their results in a structured format for trainers, peers and, where possible, business stakeholders. The final presentation should demonstrate not only what analysis was conducted, but also how the results can support business improvement, what conditions are needed for implementation and what limitations should be considered.

The capstone project is the main assessment evidence for the Module 7 micro-credential. It confirms that the learner can move through the full applied analytics process: from business problem and data analysis to recommendation, implementation planning and communication of value in an SME environment. In this way, Module 7 demonstrates overall competence achievement and readiness to apply business analytics in real organisational settings.