CIBIA Comprehensive Syllabus: Six-Level Program in Business Intelligence & Analytics

The Chartered Institute of Business Intelligence and Analytics (CIBIA) provides a **rigorous, six-level program** designed to equip professionals with the knowledge, skills, and leadership capabilities required for excellence in Business Intelligence and Analytics (BIA). Each module within each level includes **description, objective, course contents, learning outcomes, and recommended texts**.

Level 1: Foundation in Business Intelligence & Analytics

Module 1: Introduction to Business Intelligence and Analytics

Description: Overview of BIA concepts, tools, and organizational applications. **Objective:** To equip candidates with foundational understanding of BIA, types of analytics, and analytics lifecycle. **Course Contents:** - Definition and scope of BIA - Role of BIA in organizational decision-making - Types of analytics: descriptive, predictive, prescriptive - Analytics lifecycle: data collection, processing, analysis, reporting - Real-world examples and case studies **Learning Outcomes:** - Explain purpose and scope of BIA - Differentiate between descriptive, predictive, and prescriptive analytics - Describe analytics lifecycle and applications - Recognize value of BIA in decision-making **Recommended Texts:** - Business Intelligence Guidebook – Rick Sherman - Competing on Analytics – Davenport & Harris - Online tutorials: Tableau, Power BI

Module 2: Data Collection, Storage, and Management

Description: Fundamentals of data types, sources, storage, and basic governance. **Objective:** Introduce candidates to structured, semi-structured, and unstructured data management. **Course Contents:** - Data types and structures - Sources of data: internal, external, IoT, social media - Database fundamentals: relational, non-relational - Data warehousing and data lakes - Data quality, cleaning, and governance basics **Learning Outcomes:** - Identify types and sources of data - Explain database and data storage concepts - Apply basic data governance and quality techniques - Understand importance of clean, organized data **Recommended Texts:** - Data Management for Researchers – Kristin Briney - Data Governance: How to Design, Deploy, and Sustain an Effective Data Governance Program – John Ladley

Module 3: Basic Analytics Tools and Techniques

Description: Introduction to analytics software and fundamental analytical methods. **Objective:** Develop basic skills in data analysis, summarization, and visualization. **Course Contents:** - Introduction to analytics software: Excel, Tableau, Power BI - Data summarization techniques - Basic statistics: mean, median, mode, standard deviation - Charts, dashboards, and reporting fundamentals **Learning Outcomes:** - Apply basic analytics tools for data visualization -

Summarize and interpret simple datasets - Create basic dashboards and reports **Recommended Texts:** - Business Analytics: Data Analysis & Decision Making – S. Christian Albright - Tableau Your Data! – Daniel G. Murray

Module 4: Introduction to Statistics and Data Interpretation

Description: Basic statistical concepts and their application to business decision-making. **Objective:** Enable candidates to interpret and analyze data quantitatively. **Course Contents:** - Measures of central tendency and dispersion - Probability basics and distributions - Introduction to hypothesis testing - Data interpretation techniques for business **Learning Outcomes:** - Interpret basic statistical data - Apply probability and distribution concepts - Conduct simple hypothesis testing - Make data-driven recommendations **Recommended Texts:** - Statistics for Business and Economics – Paul Newbold - Business Statistics – Ken Black

Module 5: Ethics and Professional Conduct in Analytics

Description: Introduces professional ethics and responsible data practices. **Objective:** Develop awareness of ethical, legal, and professional responsibilities in BIA. **Course Contents:** - Professional standards and ethics in analytics - Data privacy, security, and compliance basics - Responsible AI and ethical data usage - Case studies of ethical challenges **Learning Outcomes:** - Apply ethical principles in analytics - Identify risks in data usage - Demonstrate professional conduct in analytics projects **Recommended Texts:** - Ethics of Big Data – Kord Davis - Data Ethics: The New Competitive Advantage – Gry Hasselbalch

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Level 2: Applied Analytics & Data Management

Module 1: Data Preparation and Cleaning (ETL Processes)

Description: Techniques to clean, prepare, and manage data for analysis. **Objective:** Equip candidates to handle real-world data for analytics. **Course Contents:** - ETL processes - Handling missing, inconsistent, and duplicate data - Data profiling and validation - Automation workflows for data preparation **Learning Outcomes:** - Conduct ETL processes effectively - Apply data cleaning and validation methods - Prepare datasets for analysis **Recommended Texts:** - Data Wrangling with Python – Jacqueline Kazil - Data Management for Researchers – Kristin Briney

Module 2: Intermediate Analytics Techniques

Description: Introduces predictive modeling and analytical problem-solving. **Objective:** Develop applied analytics skills for intermediate-level tasks. **Course Contents:** - Regression, correlation, and classification - Time series analysis and forecasting - Scenario planning and sensitivity analysis **Learning Outcomes:** - Build predictive models - Conduct intermediate statistical analysis - Solve business problems using analytics **Recommended Texts:** - Practical Business Analytics – Shmueli et al. - Forecasting: Principles and Practice – Hyndman & Athanasopoulos

Module 3: Business Data Management and Governance

Description: Covers data governance, policies, and enterprise management. **Objective:** Teach candidates best practices in data stewardship. **Course Contents:** - Master data management and metadata - Data stewardship and governance frameworks - Data security and compliance - Enterprise-level data management best practices **Learning Outcomes:** - Implement data governance principles - Manage metadata and master data - Ensure compliance with policies and regulations **Recommended Texts:** - Data Governance: How to Design, Deploy, and Sustain an Effective Data Governance Program – John Ladley - The DAMA Guide to Data Management Body of Knowledge (DAMA-DMBOK)

Module 4: Data Visualization and Reporting

Description: Advanced visualization techniques for effective communication. **Objective:** Enable candidates to communicate insights clearly to stakeholders. **Course Contents:** - Advanced charts, dashboards, and reporting - Data storytelling principles - KPI dashboards and performance visualization - Visual analytics best practices **Learning Outcomes:** - Design effective dashboards - Visualize key performance metrics - Communicate insights to non-technical stakeholders **Recommended Texts:** - Storytelling with Data – Cole Nussbaumer Knaflic - Data Visualization: A Practical Introduction – Kieran Healy

Module 5: Applied Ethics and Compliance in Analytics

Description: Ethics and regulatory compliance for applied analytics. **Objective:** Prepare candidates to apply ethical standards and compliance in analytics projects. **Course Contents:** - GDPR, CCPA, HIPAA compliance basics - Data privacy and security in practice - Ethical decision-making frameworks - Bias, fairness, and transparency in analytics **Learning Outcomes:** - Apply ethical standards in analytics projects - Ensure compliance with legal requirements - Mitigate bias and promote fairness in models **Recommended Texts:** - Ethics of Big Data – Kord Davis - Data Ethics: The New Competitive Advantage – Gry Hasselbalch

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Level 3: Advanced Analytics & Decision Support

Module 1: Advanced Predictive and Prescriptive Analytics

Description: Advanced modeling and analytics for business decision-making. **Objective:** Enable candidates to apply predictive and prescriptive analytics in complex scenarios. **Course Contents:** - Predictive modeling techniques - Classification and clustering algorithms - Prescriptive analytics and optimization - Decision modeling and scenario analysis **Learning Outcomes:** - Build advanced predictive and prescriptive models - Analyze complex business scenarios - Apply decision modeling to strategic decisions **Recommended Texts:** - Predictive Analytics: The Power to Predict Who Will Click, Buy, Lie, or Die – Eric Siegel - Data Science for Business – Provost & Fawcett

Module 2: Decision Support Systems and Strategic Planning

Description: Integration of analytics into decision-making frameworks. **Objective:** Prepare candidates to design and implement decision support systems. **Course Contents:** - Decision support frameworks - Strategic analytics integration - Scenario and sensitivity analysis **Learning Outcomes:** - Design DSS for organizational use - Integrate analytics into strategy - Evaluate outcomes for strategic decisions **Recommended Texts:** - Decision Support and Business Intelligence Systems – Efraim Turban

Module 3: Risk Management and Data Governance

Description: Enterprise-level risk and governance in analytics. **Objective:** Develop knowledge of governance frameworks and risk mitigation strategies. **Course Contents:** - Risk assessment methodologies - Governance and compliance frameworks - Data audit and monitoring **Learning Outcomes:** - Assess enterprise risk in analytics - Implement governance policies - Conduct data audits **Recommended Texts:** - Enterprise Risk Management – James Lam - Data Governance: How to Design, Deploy, and Sustain an Effective Data Governance Program – John Ladley

Module 4: Optimization Techniques and Analytics Modeling

Description: Application of optimization and simulation models. **Objective:** Build competence in optimization and performance modeling. **Course Contents:** - Linear and nonlinear programming - Simulation and predictive modeling - Resource allocation techniques **Learning Outcomes:** - Apply optimization models - Conduct simulation analyses - Model business performance scenarios **Recommended Texts:** - Operations Research: Applications and Algorithms – Wayne Winston - Optimization Methods in Business Analytics – Bertsimas & Tsitsiklis

Module 5: Leadership and Ethical Decision-Making in Analytics

Description: Ethics and leadership in analytics projects. **Objective:** Prepare candidates to lead teams and make ethical decisions. **Course Contents:** - Team leadership in analytics - Ethical dilemmas and corporate responsibility - Stakeholder management **Learning Outcomes:** - Lead analytics teams effectively - Apply ethical frameworks in decisions - Communicate and influence stakeholders **Recommended Texts:** - Ethical Leadership – Andrew Leigh - Leading Analytics Teams – Nigel Rayner

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Level 4: Strategic Analytics & Business Innovation (PGD)

Module 1: Strategic Business Intelligence & Decision Making

Description: Strategic alignment of analytics with business objectives. **Objective:** Equip candidates to use analytics for strategic decision-making. **Course Contents:** - Analytics strategy and planning - Balanced scorecard and KPIs - Evidence-based decision frameworks **Learning**

Outcomes: - Formulate analytics strategies - Align analytics with organizational objectives - Make evidence-based strategic decisions **Recommended Texts:** - Competing on Analytics – Davenport & Harris - Strategic Business Analytics – Jeffrey D. Camm

Module 2: Innovation in Analytics and Emerging Technologies

Description: Leveraging new technologies for business innovation. **Objective:** Develop skills to drive innovation using analytics. **Course Contents:** - AI, ML, IoT applications - Digital transformation strategy - Innovation management **Learning Outcomes:** - Apply emerging technologies in business solutions - Lead digital transformation initiatives - Drive business innovation through analytics **Recommended Texts:** - Analytics at Work – Davenport, Harris & Morison - Driving Digital Strategy – Sunil Gupta

Module 3: Analytics Leadership and Project Management

Description: Leadership and management of analytics projects. **Objective:** Equip candidates to lead teams and manage analytics projects effectively. **Course Contents:** - Project lifecycle management - Agile methodologies - Stakeholder engagement and change management **Learning Outcomes:** - Lead analytics projects - Apply Agile principles in analytics deployment - Manage stakeholders and organizational change **Recommended Texts:** - Agile Analytics – Ken Collier - Project Management for Business Analytics – Harvey M. Wagner

Module 4: Performance Metrics and Key Performance Indicators (KPIs)

Description: Measurement and evaluation of business performance. **Objective:** Enable candidates to design and interpret KPIs. **Course Contents:** - KPI selection and measurement - Balanced scorecards - Performance dashboards **Learning Outcomes:** - Develop meaningful KPIs - Analyze organizational performance - Present performance insights effectively **Recommended Texts:** - Key Performance Indicators – David Parmenter - Performance Dashboards – Wayne W. Eckerson

Module 5: Sustainable and Ethical Analytics Practices

Description: Ethics and sustainability in analytics. **Objective:** Ensure responsible, ethical, and sustainable analytics practice. **Course Contents:** - Corporate social responsibility and ESG metrics - Ethical AI and analytics - Sustainability analytics practices **Learning Outcomes:** - Apply ethical frameworks in analytics - Incorporate sustainability metrics into analysis - Promote responsible data usage **Recommended Texts:** - Data Ethics: The New Competitive Advantage – Gry Hasselbalch - Ethics of Big Data – Kord Davis

Level 5: Executive Analytics & Organizational Leadership

Module 1: Executive Analytics Strategy and Transformation

Description: Enterprise-level analytics strategy and transformation management. **Objective:** Equip candidates to design and implement enterprise-wide analytics strategies. **Course Contents:**

- Enterprise analytics strategy frameworks
- Digital transformation through analytics
- Governance, risk, and compliance integration
- Analytics-driven organizational change **Learning Outcomes:**
- Develop and implement enterprise analytics strategies
- Integrate analytics into organizational transformation
- Apply governance and risk frameworks in analytics projects **Recommended Texts:**
- Driving Digital Strategy – Sunil Gupta
- Competing on Analytics – Davenport & Harris

Module 2: Advanced Leadership in Analytics Teams

Description: Leadership principles for managing analytics teams at executive level. **Objective:** Build leadership skills to manage multi-disciplinary analytics teams. **Course Contents:**

- Leading multi-disciplinary teams
- Executive decision-making and stakeholder management
- Negotiation and influencing techniques
- Talent management and mentorship **Learning Outcomes:**
- Lead analytics teams effectively
- Make executive-level decisions
- Manage stakeholders and influence organizational outcomes **Recommended Texts:**
- Leading Analytics Teams – Nigel Rayner
- Executive Leadership in Analytics – Gerald C. Kane

Module 3: Policy, Governance, and Compliance in Analytics

Description: Comprehensive coverage of analytics policies, governance, and compliance. **Objective:** Ensure candidates can establish and manage enterprise governance frameworks. **Course Contents:**

- Analytics governance frameworks
- Corporate compliance policies
- Risk assessment and audit procedures
- Ethical and legal considerations in analytics **Learning Outcomes:**
- Implement governance and compliance strategies
- Conduct risk assessments

- Ensure adherence to ethical and legal standards **Recommended Texts:**
- Data Governance – John Ladley
- Enterprise Risk Management – James Lam

Module 4: Advanced Research, Case Studies, and Evidence-Based Decision Making

Description: Executive-level research and case-based decision-making. **Objective:** Enable candidates to apply research and evidence-based insights in executive decisions. **Course Contents:**

- Research design and methodology
- Advanced case study analysis
- Evidence-based performance evaluation
- Application of analytics insights in strategy **Learning Outcomes:**
- Conduct executive-level research
- Analyze complex case studies
- Make strategic decisions based on evidence **Recommended Texts:**
- Evidence-Based Management – Briner, Denyer, & Rousseau
- Research Methods for Business Students – Saunders et al.

Module 5: Innovation Management and Disruptive Analytics Solutions

Description: Managing disruptive innovation and analytics-driven transformation. **Objective:** Prepare candidates to lead innovative analytics initiatives for competitive advantage. **Course Contents:**

- Leading disruptive analytics projects
- Emerging technologies integration
- Organizational change management
- Value creation through analytics innovation **Learning Outcomes:**
- Lead disruptive analytics initiatives
- Integrate emerging technologies strategically
- Drive organizational change and innovation **Recommended Texts:**
- Analytics at Work – Davenport, Harris & Morison
- Leading Digital – George Westerman

Level 6: Strategic Analytics & Executive Mastery

Module 1: Advanced Research Methodologies in BIA

Description: Advanced quantitative and qualitative research techniques. **Objective:** Equip candidates with skills to conduct high-level research for strategic analytics. **Course Contents:**

- Research design and methodology
- Advanced statistical and AI techniques
- Data interpretation and reporting
- Publishable research in BIA **Learning Outcomes:**
- Conduct advanced research in analytics
- Apply statistical and AI methods in research
- Produce actionable insights for strategic decision-making **Recommended Texts:**
- Data Science for Business – Provost & Fawcett
- Research Methods for Business Students – Saunders et al.

Module 2: Global Trends, Emerging Technologies, and AI in Analytics

Description: Executive understanding of cutting-edge technologies and trends. **Objective:** Develop strategic insight into global analytics trends and technology adoption. **Course Contents:**

- Emerging technologies: AI, ML, IoT
- Global analytics trends
- Strategic foresight and innovation
- Technology-driven competitive advantage **Learning Outcomes:**
- Identify emerging analytics technologies
- Apply strategic foresight to organizational analytics
- Leverage technology for competitive advantage **Recommended Texts:**
- Predictive Analytics – Eric Siegel
- Driving Digital Strategy – Sunil Gupta

Module 3: Ethics, Governance, and Societal Impact of Analytics

Description: Advanced governance, ethical frameworks, and societal considerations. **Objective:** Ensure candidates can lead responsibly and ethically in analytics at an executive level. **Course Contents:**

- Advanced ethical frameworks for AI and analytics
- Governance in multinational organizations
- Societal and environmental impact
- Responsible AI deployment and sustainability **Learning Outcomes:**
- Apply advanced ethics in executive decisions
- Implement governance in complex organizations

- Assess societal impacts of analytics initiatives **Recommended Texts:**
- Ethics of Big Data – Kord Davis
- Data Ethics: The New Competitive Advantage – Gry Hasselbalch

Module 4: Professional Mentorship, Coaching, and Capacity Building

Description: Building analytics capability and mentoring professionals. **Objective:** Prepare candidates to develop high-performing analytics teams. **Course Contents:**

- Mentorship and coaching techniques
- Talent development and capacity building
- Knowledge transfer and organizational learning
- Leadership of analytics initiatives **Learning Outcomes:**
- Mentor and coach analytics professionals
- Build team capacity and capabilities
- Lead organizational knowledge transfer **Recommended Texts:**
- Mentoring in Business Analytics – Michael Armstrong
- Developing Talent in Analytics Teams – Nigel Rayner

Module 5: Contribution to Industry Standards, Publications, and Knowledge Dissemination

Description: Thought leadership, standardization, and knowledge sharing. **Objective:** Enable candidates to contribute to the field of BIA through publications and standards. **Course Contents:**

- Participation in industry standards and committees
- Research publication and dissemination
- Knowledge sharing and professional influence
- Global best practices in BIA **Learning Outcomes:**
- Contribute to industry standards
- Publish research and insights
- Share knowledge and lead professional influence **Recommended Texts:**
- Thought Leadership in Analytics – Davenport & Patil
- Business Intelligence Guidebook – Rick Sherman