Module Outline
Certified Banker (Stage II)
Essential Fintech in Next-gen Banking

Benchmarked HKQF Level:	5
No. of Credits:	30
Total Notional Learning Hours:	300
a) Class contact hours:	*15 hours (3-hour per session x 5)*
b) Self-study hours:	*282 hours*
c) Assessment hours:	*3 hours*
Pre-requisite:	NA

Module Objective

This module aims to provide the learners comprehensive knowledge on the latest development of IT system and financial technology. They are expected to relate the application and implications of the IT systems and financial technology including the relevant regulations and security control to the bank and finance area.

Module Intended Outcomes (MIOs) and Units of Competencies (UoCs)

Upon completion of the Module, candidates should be able to:

MIOs	Intended Outcomes / Competence	*Unit of Competencies (UoCs)
MIO-1	Assess and analyze the latest development and market trends of IT systems and financial technology and associate their implications to identify the technology needs of the banks or financial institutions.	107438L5 107422L5 109360L5 109372L5 109375L4 109378L5 109386L5
MIO-2	Evaluate different kinds of financial technology, IT and security infrastructure to enhance and optimize the effectiveness and efficiency of IT platforms and services.	
MIO-3	Develop, design and implement data analytics based on risks level, technology regulatory requirements and the effectiveness of the security measures.	
MIO-4	Manage and monitor the system development projects in according to system development standards and requirements.	

MIO-5	Monitor the IT operations and services and identify the potential risks for taking actions to ensure smooth operations and risk mitigation	

**Note: For the details of the UoCs, please refer to the Specification of Competency Standards (SCS) of Retail Banking and Corporate & Commercial Banking which were developed by HKCAAVQ.*

Assessment

Examination duration:	3 hours
Examination format:	Multiple Choice Questions (MCQ) with 50-60 questions and 2 out of 3 essay questions
Pass mark:	60%

Syllabus

Chapter 1: Overview of Information Systems and Technology Management	
1.1	**Transformation of the Banking Industry**
1.1.1	- The next generation of the banking industry
1.1.2	- Partnership and incubation
1.2	**Hyperconnecting the Banking Industry**
1.2.1	- Banking as a Service (BaaS)
1.2.2	- Private and open API banking
1.2.3	- Changes in the banking business architecture and industry framework
1.2.4	- Cloud architecture and cloud deployment models
1.2.5	- Decentralized Finance
1.3	**Case Sharing on Facing the Challenges and Seizing the Opportunities Arising from the Banking Transformation**
1.3.1	- Blockchain Technology
1.3.2	- Innovation Lab
1.3.3	- Payment Services
1.3.4	- Credit Technologies
1.3.5	- Investment - Fundraising
1.3.6	- Remittance Services
Chapter 2: Cyber Security Management	
2.1	**Regulations for Technology Management in Banking Industry**
2.1.1	IC-1 Risk management framework
2.1.2	TM-G-1 General Principles for Technology Risk Management
2.1.3	TM-G-2 Business continuity planning
2.1.4	TM-E-1 Risk Management of E-banking
2.1.5	TM-E-2 Regulation of advertising materials for deposits issued over the Internet

2.1.6	SA-2 Outsourcing
2.1.7	Stored value facility and Retail payment systems
2.1.8	The HKAB NFC Mobile Payments in Hong Kong
2.1.9	HKMA Fintech Supervisory Sandbox (FSS)
2.2	**Cyber Security Threats**
2.3	**Cyber Security Concepts**
2.3.1	- Information System Security Management
2.3.2	- ISO/IEC 27001 Information security management system
2.4	**Cyber Security Regimes**
2.4.1	- Enhanced Competence Framework (ECF)
2.4.2	- Cybersecurity Fortification Initiative (CFI)
2.5	**Cyber Security Technologies, Defence and Mitigations**
2.5.1	- Security Operation Centre (SOC)
2.5.2	- Threat Intelligence Platforms (TIP), Security Information and Event Management (SIEM)
2.5.3	- Endpoints and mobile device management (MDM)
2.5.4	- Next-generation firewalls and virtual machine (VM) security
2.5.5	- Biometrics and multi-factor authentication
2.5.6	- Cryptography and data encryption standards and applications
2.6	**Data Privacy Considerations**
2.6.1	- Data privacy regulations in Hong Kong
Chapter 3: Data Management, Analytics and Artificial Intelligence	
3.1	**Big Data Analytics for Financial Services**
3.1.1	- Structured Data Analytic
3.1.2	- Unstructured Data Analytics
3.1.3	- Data Analytics in Retail Banking
3.1.4	- Data Analytics in Commercial Banking
3.1.5	- Data Analytics in Investment Banking and Treasury and Markets
3.2	**Big Data and Deep Learning Technologies**
3.2.1	- Data Pattern Recognition
3.2.2	- Predictive Analytics
3.2.3	- Machine Learning and AI

3.3	**Applications for Artificial Intelligence in Financial Services**
3.3.1	- Financial Risk Analysis
3.3.2	- Fraud Detection
3.4	**Credit Investigation Services**
3.4.1	- Consumer Credit Data
3.4.2	- SME Credit Data
3.4.3	- Capital Markets Credit Data
3.5	**Interbank Account Data Sharing (IADS)**
Chapter 4: FinTech for Digital Banking and Service Channels	
4.1	**Introduction to Finance Technology**
4.2	**Payment**
4.2.1	- Current interbank payment infrastructure
4.2.2	- Overview of emerging non-bank payment infrastructures
4.2.3	- Introduction of Stored Value Facilities (SVF) and regulations
4.2.4	- Functional comparison of conventional and emerging payment solutions in HK
4.3	**Remittance**
4.3.1	- Current remittance architecture
4.3.2	- SWIFT – history and recent development
4.3.3	- Emerging remittance technologies
4.3.4	- Functional comparison of conventional and emerging remittance solutions in HK
4.4	**Chatbots**
4.4.1	- Technology overview of Chatbots
4.4.2	- Client services channel
4.4.3	- Revolution of banking process re-engineering
4.4.4	- Regulatory and compliance considerations of Chatbots in banking
4.5	**Robot Advisory**
4.4.1	- Overview of conventional retail investment platforms
4.5.2	- Theoretical review of robo advisory service
4.5.3	- Robo Advisor versus Human advisor in retail investment
4.5.4	- Regulations and suitability of robo advisory services in retail investment
4.5.5	- Introduction of social investing

4.5.6	- Introduction of algorithm trading in institutional investment
4.6	**Digital Branch**
4.6.1	- Online-to-offline client servicing
4.6.2	- Roles of branch staff, location and facilities in digital branches
4.6.3	- Branch banking officers and tellers
4.6.4	- Retail investment advisors
4.6.5	- Premier banking services
4.6.6	- Commercial banking services
4.6.7	- Increasing Digital Penetration – Change in Roles of Conventional Branches
4.7	**Digital Currency**
4.7.1	- Technological overview of digital currencies
4.7.2	- Development of digital currencies in Hong Kong and internationally
4.7.3	- Roles of central banks, issuing banks and payment channels
4.7.4	- Cashless transactions in retail payments
4.7.5	- Regulatory and compliance considerations
4.8	**Distributed Ledger Technology**
4.8.1	- Technological overview of Distributed Ledger Technology
4.8.2	- DLT vs Conventional Distributed Systems
4.8.3	- Cross-Institutional Banking Workflows
4.8.4	- DLT Applications and Future Directions
4.8.5	- Regulatory and Compliance Considerations
4.9	**Mobile First and Mobile Only**
4.9.1	- Client demographics and banking behaviour
4.9.2	- Mobile banking versus internet banking versus banking at a branch
4.9.3	- Business analytics in mobile banking
4.9.4	- Overview of mobile and related technologies: HTML5, push technologies, open banking API, and mobile devices
Chapter 5: Banking Compliance with Information Technology	
5.1	**Overview of regulatory technology (RegTech)**
5.2	**Transaction surveillance and AML**
5.2.1	Application of data analytics
5.2.2	Privacy and the use of analytics

5.3	**Know-your-client (KYC) and onboarding technologies**
5.3.1	Aggregation of identity
5.3.2	Biometric authentication
5.4	**International efforts**
5.4.1	Joint Financial Intelligence Unit (JFIU)
5.4.2	Financial Action Task Force on Money Laundering (FATF)
Chapter 6: Business Analytics, System Projects, and IT Operations	
6.1	**Overview of system application development and project management methodologies**
6.1.1	- System Development Life Cycle (SDLC)
6.1.2	- Agile Development
6.1.3	- Rapid application development (RAD) and prototyping
6.1.4	- Project management inventory and tools
6.1.5	- Quality assurance, testing, and change management
6.2	**Enterprise architecture**
6.2.1	- Enterprise architecture versus application design
6.2.2	- Service oriented architecture (SOA) and industry frameworks
6.2.3	- Technological stack, inventory, and tools
6.2.4	- User-centric design (UCD)
6.3	**Vendor and service outsourcing management**
6.3.1	- Principles of IT outsourcing
6.3.2	- Inception and exit strategies
6.3.3	- Service level agreement (SLA)
6.3.4	- Regulatory and compliance considerations
6.4	**Professional development**
6.4.1	- Project management: PMP, CPIT(PD), CPIT(PM)
6.4.2	- System service management: ITIL, PRINCE2, CPIT(SSO)
6.4.3	- Business analysis: IIAB, CPIT(BA)
6.4.4	- Cyber security: CISA, CISSP, CPIT(ISO)

Recommended Readings

Essential Readings:

1. HKIB Study Guide of CB (Stage I) – TMIB: Technology Management & Innovation in Banking. (2023).

Supplementary Readings

1. Marakas, G., & O'Brien, J. (2013). Introduction to information systems (16th ed.) Irwin/McGraw-Hill. (ISBN-10: 0073376884; ISBN-13: 9780073376882)
2. Skinner, C. (2014). Digital bank: Strategies to launch or become a digital bank. (ISBN 978-9814516464)
3. Turban, E., & Volonino, L. (2011). Information technology management (8th ed.). Wiley. (ISBN-10: 1118662172; ISBN-13: 978-1118662175)
4. Hong Kong Monetary Authority. Fintech Publications. Retrieved from https://www.hkma.gov.hk/eng/key-functions/banking/fintech-knowledge-hub/fintech-publications/
5. FinTech Association of Hong Kong. (2023). Hong Kong FinTech report 2023. Retrieved from https://ftahk.org/publications/hong-kong-fintech-report-2023