



MASTER LESSON PLAN PORTFOLIO

COMPUTER SCIENCE & ARTIFICIAL INTELLIGENCE

Grade 10 (Secondary 1) — Official Language Schools

[FULL ACADEMIC YEAR: FIRST SEMESTER + SECOND SEMESTER]

Official Ministry Syllabus • Standards-Based Inquiry Architecture

Egyptian-Japanese Partnership (SPRIX & QUREO & TOFAS)



 **Author / Curriculum Lead: Eng. Elsayed Afandy**  **Phone / WhatsApp: 01030745596**  **Online Academy: sayedafandy.com**

ACADEMIC YEAR: 2026 / 2027

TEACHER & CURRICULUM PROFILE CARD

Academic Year: 2026 / 2027 (Official Language Schools)



Approved Textbook 2026 / 2027

Teacher Name / Subject Expert	Eng. Elsayed Afandy Phone: 01030745596 Platform: sayedafandy.com
Academic Subject	Computer Science & Artificial Intelligence (CS & AI)
Grade / Academic Level	Grade 10 (Secondary 1 - Official Language Schools & Experimental)
Assigned Classes	1/1 , 1/2 , 1/3 , 1/4 , 1/5 , ...
Weekly Periods Quota	(.....) Periods Weekly (1 Theoretical Lecture + 3 Practical Lab Coding Sessions)
Subject Supervisor	Mr. / Mrs.
Senior District Inspector	Mr. / Mrs.
Accredited Platforms	Egyptian Education Portal + SPRIX LEARNING (Qureo) + TOFAS International Platform



WEEKLY MASTER TIMETABLE & LAB SCHEDULE

ACADEMIC YEAR: 2026 / 2027 — GRADE 10 LANGUAGE SECTION

Governorate:

Administration:

School:

Day / Period	Period 1	Period 2	Period 3	Period 4	Period 5	Period 6	Period 7	Period 8
Sunday								
Monday								
Tuesday								
Wednesday								
Thursday								
Saturday (Opt.)								



Subject Teacher: Eng. Elsayed Afandy (01030745596)

Technical Supervisor:

School Principal:

GENERAL CURRICULUM OBJECTIVES & EDUCATIONAL PHILOSOPHY (2026 / 2027)

1. Egyptian-Japanese Partnership & Curriculum Modernization:

The Grade 10 Computer Science & AI curriculum represents a strategic milestone in Egyptian digital education, developed in collaboration with Japanese ed-tech partner SPRIX. The curriculum decisively transitions secondary education from passive memorization to inquiry-driven computational thinking, problem decomposition, algorithmic rigor, and real-world coding proficiency.

2. Inquiry-Based Learning & Practical Lab Priority (75% Hands-on):

Students explore fundamental principles through guided inquiry, debugging live code, and engineering interactive software. The curriculum strictly enforces a 1 theoretical + 3 practical lab structure, dedicating 75% of instructional time to computer laboratory execution on Qureo (JavaScript) and standard Python environments.

3. Integrated Cognitive Foundations & Cyber Hygiene:

Students master the DIKW hierarchy (Data, Information, Knowledge, Wisdom), digital citizenship, copyright, fair use, and data privacy. They gain hardware literacy (CPU architecture, machine cycles, logic gates) and deep networking knowledge (IPv4/IPv6, TCP/IP, DNS, HTTP/S, SMTP/IMAP), relational databases (SQL), and the history of Artificial Intelligence.

4. Advanced Technical Stack & Artificial Intelligence Mastery:

Students attain software craftsmanship in JavaScript (via the SPRIX Qureo platform) in Term 1, mastering variables, conditionals, functions, and arrays. In Term 2, students transition to Python, implementing algorithms, simulation models, and training machine learning classifiers with computer vision and natural language processing.

5. Continuous Tri-Model Assessment & TOFAS Global Certification:

Academic progress is tracked through tri-model weekly assessments (Groups A, B, C), lab performance rubrics, and notebook audits. The curriculum systematically prepares students for the Japanese TOFAS International Programming Examination (Level 2 in Term 1, Level 3 in Term 2), awarding globally accredited certificates.

OFFICIAL ANNUAL CURRICULUM MATRIX (13 CHAPTERS OVERVIEW — ACADEMIC YEAR 2026 / 2027)

CHAPTER	CHAPTER TITLE & TEXTBOOK DOMAIN	TERM	CORE SCIENTIFIC CONCEPTS & LAB CURRICULUM	TARGETED LEARNING OUTCOMES (COMPETENCIES)
1	What is Information? 1-1 Info & Media • 1-2 Ethics	Term 1	Data vs. Information vs. Knowledge, Persistence, Reproducibility, Propagation, Media types, Media literacy, Geotagging risks, Online ethics.	Differentiates raw data from actionable knowledge; evaluates media credibility; avoids cyber risks and protects personal location data.
2	Regulations & Rights in Info Society 2-1 Personal Info • 2-2 IP • 2-3 Fair Use	Term 1	Four Basic Items, Identification Codes, Protection Act, Privacy & Image Rights, Egypt Patent Office (20 yrs), Copyrights (50 yrs), Creative Commons (BY/NC/ND/SA).	Applies data protection laws; respects intellectual property; constructs legally compliant quotations and Creative Commons licensing.
3	Information Security 3-1 Threats • 3-2 Auth • 3-4 Encryption • 3-5 Signatures	Term 1	CIA Triad, Malware (Virus, Trojan, Worm, Ransomware), 2FA, Symmetric vs Public Key Encryption, Hash functions, Digital Signatures, SSL/TLS.	Implements CIA security guidelines; detects social engineering scams; diagrams digital signature verification and evaluates HTTPS encryption.
4	Information Technology and Society 4-1 Development of Information Technology	Term 1	Societal stages (Hunter-gatherer to Society 5.0), Big Data (Volume, Variety, Frequency), IoT, Smart Home, VR/AR, Technostress, VDT Disorder, Digital Divide.	Traces societal evolution; analyzes Big Data parameters; applies ergonomic health practices to prevent VDT and techno-addiction disorders.
5	Communication 5-1 Telecom History • 5-2 Forms • 5-3 Internet	Term 1	Morse to ARPANET evolution, 1-to-1 vs 1-to-many, Direct vs Indirect, Synchronous vs Asynchronous, Email (To/CC/BCC), BBS, Anonymity, Flaming, Fake news.	Selects appropriate communication channels; configures secure email headers using BCC; practices ethical, empathetic online communication.
6	Information Design 6-1 to 6-10 Representation, Multimedia & UI/UX	Term 1	A/D & D/A conversion, Binary/Hex, ASCII, Unicode, Binary arithmetic, 2's complements, PCM sound, Image pixels, RGB vs CMY, Run-length compression, UI/UX, LATCH.	Performs radix conversions and complement arithmetic; calculates audio/image data sizes; designs accessible user interfaces using LATCH criteria.
7	Computers 7-1 Hardware • 7-2 Software • 7-3 Logic Circuits	Term 1	Five Major Components (CPU = Control + Arithmetic, RAM, Storage, I/O), OS & drivers, Logic gates (AND, OR, NOT), Truth tables, Half Adder, Full Adder.	Traces CPU instruction and data flows; constructs Boolean truth tables; analyzes binary addition logic in Half and Full Adder circuits.
8	Networks 8-1 LAN/WAN • 8-2 IP/DNS • 8-3 TCP/IP • 8-5 Speed	Term 2	LAN/WAN, Router/Hub, Client-Server vs P2P, Packet switching, IPv4 vs IPv6, DNS, TCP/IP 4 layers, URL syntax, SMTP/POP/IMAP, bps transfer calculations.	Traces packet routing across network layers; maps DNS resolution; deconstructs URL hierarchies; calculates network transmission times and efficiency.
9	Databases 9-1 DBMS • 9-2 RDB & SQL • 9-3 Info Systems	Term 2	DBMS functions, Hierarchical/Network/Relational/NoSQL, Tables, Records, Fields, SQL, Selection, Projection, Join, TPS, MIS, DSS, EIS, ERP integration.	Designs relational schemas; executes Selection, Projection, and Join operations; evaluates enterprise information system integration.
10	Data Analysis 10-1 Types • 10-2 Stats • 10-3 Box-Plots • 10-6 Regression	Term 2	Quantitative vs Qualitative scales, Frequency tables, Histograms, Mean, Median, Mode, Quartiles, Box-and-whisker plots, Variance, Scatter plots, Regression ($y=ax+b$).	Constructs frequency tables and box plots; computes variance and standard deviation; models bivariate relationships via least squares regression.
11	Simulations 11-1 Models • 11-2 Spreadsheets • 11-3 Monte Carlo • 11-4 Queues	Term 2	Static vs Dynamic, Deterministic vs Probabilistic, Absolute cell addressing (\$), Water/Compound interest models, Monte Carlo Pi approximation, Queues & wait times.	Builds spreadsheet financial/growth simulations; runs Monte Carlo algorithms using RAND(); analyzes service queue congestion and wait times.
12	Programming (Python) 12-1 Algorithms • 12-2 to 12-5 Python Syntax, Loops, Lists, Functions	Term 2	Flowcharts, Activity diagrams, Python print(), Variables, Assignment (=), Arithmetic (+, -, *, /, //, %, **), for loops, range(), if-elif-else, Lists 1D/2D, Functions (def/return).	Designs structured algorithms; writes modular Python code utilizing loops, branching, list collections, and reusable user-defined functions.
13	AI Programming 13-1 to 13-12 Copilot, WebDen, HTML/CSS/JS, Quiz App & Block Breaker	Term 2	Generative AI (Copilot), Prompts, Hallucination, WebDen editor, HTML structure, CSS design, JS DOM interactivity, Static/Dynamic pages, Quiz App, Block Breaker Game.	Collaborates with Generative AI to author web apps; manually debugs and modifies game mechanics without AI; presents completed projects to peers.

* Chapters 1 to 7 of approved textbook and foundational coding are covered in Term 1 (Lessons 0 to 16).

* Chapters 8 to 13 (Networks, DB, Data Analysis, Simulations, Python & AI Programming) are covered in Term 2 (Lessons 17 to 34).