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CAMPUS

50%
Scholarship

Diploma in

Information Technology

8 Months Duration

Direct pathway to Australia

Leading to a Bachelor's degree

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COMPLETE IN AUSTRALIA

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மூன்றாம் நிலைக்கல்வி, தொழிற்கல்வி ஆணைக்குழு
TERTIARY AND VOCATIONAL EDUCATION COMMISSION
Ministry of Education, Higher Education and Vocational Education

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கல்வி அமைச்சு
MINISTRY OF EDUCATION

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Diploma in Information Technology – Full Curriculum

Duration: 1 Year (2 Semesters)

Total Subjects: 8 Outcome: Pathway to Top Australian Universities

The Diploma in Information Technology is designed for ambitious students seeking a strong foundation in programming, cybersecurity, artificial intelligence, and data science, while securing a direct pathway to top Australian universities. This globally recognised program offers hands-on learning and prac>cal experience, equipping students with essential IT skills within just 8 months.

Semester 1

Programming Fundamentals

Objectives: Introduce students to the logic and structure of programming using a beginner friendly language (e.g., Python).

Key Topics:

- Variables & Data Types.
- Input & Output.
- Control Structures (Sequence, Selection, Iteration).
- Problem Solving.
- Program Analysis & Design.
- Methods.
- Debugging.
- Algorithms.
- Arrays & Data Structures.
- Exceptions.
- File Handling.
- Testing.
- Classes & Objects.
- GUI Components.
- Event-Driven Programming.

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Computer Systems & Architecture

Objectives: Understand how computers function from a hardware and software perspective.

Key Topics:

• Basics of computer hardware and software.
• Binary systems and data representation.
• Central Processing Unit (CPU), RAM, storage.
• Input/Output systems.
• Operating systems and system utilities.
• Digital technology and Future systems.
• Ethics and Health & Safety within a cyber security world.
• Computer number systems.
• Emerging technologies - Robotics, Ai, Quantum Computing, Organic Computing, and Google API.
• System block design of a Computer in order to answer What's inside a computer (and how not be duped by good sales people).
• Prediction of future technologies.
• Cloud based solutions (Virtualization, OS systems, Public, Private, Hybrid Cloud, SaaS, PaaS, and HaaS /IaaS).
• Team based presentation of real life systems, (e.g. "Current Sales pitch to convert Staffordshire libraries into a new cloud business").
• Introduction to Networking/CISCO Lab Topologies, and simple IPv4 subnet.

Mathematics for IT

Objectives: Provide foundational mathematical skills needed for computing and data science.

Key Topics:

• Application of mathematics.

• Numbers: Whole numbers, converting between fractions, decimals and percentages, approximation, multiples and factors, laws of indices, standard form, Surds – higher, and financial mathematics.

• Algebra: Algebraic expressions, algebraic formulae, solving linear equations, solving simultaneous equations, solving quadratic equations, inequalities, sequences, straight line graphs and other graphs, transformation of curves, algebraic fractions, using and interpreting graphs.

• Ratio, proportion and rates of change: Ratio in context, percentages, direct and inverse proportion.

• Geometry and Measure: Angles, lines and polygons, loci and constructions, 2/3-dimensional shapes, circles, sectors and arcs, circle theorems, transformations, Pythagoras' theorem, units of measure, trigonometry, and vectors.

• Probability and Statistics: Probability, collecting data, representing data, and analyzing data

• Problem Solving: Solving 'number', 'graphical','geometric', 'algebraic', and 'statistical' problems

• Game Computation: Matrices, operations, and transformations.

• Introduction to Calculus: Differentiation and applications of first and second order derivatives, Integration, and application.

Professional Communication & Ethics in IT

Objectives: Develop soft skills for professional environments and awareness of ethical IT practices.

Key Topics:

- Verbal and Written Communication.
- Presentation and Teamwork Skills.
- Cross-Cultural Communication.
- Digital Collaboration Tools.
- Conflict Resolution & Negotiation Skills.
- Professionalism in the Workplace.
- IT Laws, Data Privacy & Cybersecurity.
- Cyber Ethics & Digital Ci-zenship.
- Ethical Dilemmas in IT.
- CV & Cover Letter Writing.
- Interview Preparation (Tech Industry Focus).
- Time Management & Prioritization.
- Social Media & Online Presence.
- Legal & Ethical Case Studies.
- Sustainability in IT.

Semester 2

Data Structures & Algorithms

Objectives: Build on programming skills with deeper logic and efficiency.

Key Topics:

- Design and the use of data structures.
- Data types.
- Formatting.
- Operators.
- Iteration and selection control structures.
- Functions.
- Strings.
- Variable scope.
- Arrays, linked lists, stacks, and queues.
- Searching and sorting algorithms.
- Trees and graphs.
- Recursion and dynamic programming.
- Algorithm analysis (Big-O notation).
- Modular development (e.g. functions, and header files).
- Algorithmic design.

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Database Management & Implementation

Objectives: Teach how to design, implement, and manage databases.

Key Topics:

- Importance of Databases in Modern Applications.
- Database vs. File System.
- Types of Databases (Relational, NoSQL, Cloud-based).
- Features and Benefits of DBMS and RDBMS.
- Components of a Database System.
- SQL Syntax and Structure.
- Data Types in SQL.
- DDL,DML,DCL,TCL.
- Database Relationships & Normalization.
- Creating Relationships Using FOREIGN KEYS.
- Referential Integrity Constraints.
- Cascading Updates and Deletions.
- Advanced SQL Queries & Subqueries.
- Report Generation
- Creating and Using SQL Views.
- Introduction to Stored Procedures.
- SQL Operators.
- Database Authentication & Authorization.
- Granting and Revoking Privileges.
- Role-based Access Control.

Web Development & Human-Computer Interaction (HCI)

Objectives: Introduce web technologies and principles of user interface design.

Key Topics:

• Web Standards / W3C.

• Design / Media.

• Web Graphics, Design Tools / Rapid Prototypes, Web Design Concepts / Current trends, Accessibility, and Responsive Web Design.

• What HTML is all about / the history, and HTML Tags.

• What CSS is all about, Current status of CSS modules and associated technologies, CSS Positioning, CSS Selectors, CSS Animation, and Responsive CSS such as media queries.

• Ways to test web sites, Testing tables, Standards Compliance / Browser Testing, and Accessibility.

• Best Practices in web development, Security issues, and Web Servers and Hosting.

• History and where we are now, Current coding practices in JavaScript / ECMA Script, Language basics, Events, Objects, Form handling and regular expressions, use of the console, Introduction to HTML APIs, Introduction to progressive web apps, storing data in files, JavaScript Object Notation (JSON), Testing programs, and Web Audits.

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Networking & Cybersecurity Fundamentals

Objectives: Develop awareness of networking & cybersecurity principles and practices.

Key Topics:

- Introduction to Networking.
- Network Devices & Topology.
- IP Addressing and Subnetting
- Networking Protocols.
- Routing and Switching Basics.
- Network Simulation with Cisco Packet Tracer.
- Network Security Fundamentals.
- Network Maintenance & Troubleshooting
- Network Simulation.
- Introduction to cyber threats and attacks.
- Malware, phishing, ransomware.
- Network security basics.
- Passwords, encryption, and firewalls.
- Ethical hacking basics.
- Cybersecurity tools and best practices.

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Thank You!