Westwood Dynamic Limited

Course Syllabus/Content

WD-UK Level 3 (UK Qualifications Framework - Information Technology)

(Credits 120)

Revised Modules	**Contact hours** (Full-Time)	**Contact hours** (Part-Time)	**Assessment**	**Teaching Methods**	**Passing Mark**
Introduction to Computer Systems	50	50	Assignment Based	Classroom Lectures & Online	50%
Programming Fundamentals	50	50	Assignment Based	Classroom Lectures & Online	50%
Web Development Basics	50	50	Assignment Based	Classroom Lectures & Online	50%
IT Support and Troubleshooting	50	50	Assignment Based	Classroom Lectures & Online	50%
Networking Essentials	50	50	Assignment Based	Classroom Lectures & Online	50%

Database Fundamentals	50	50	Assignment Based	Classroom Lectures & Online	50%
Cybersecurity Basics	50	50	Assignment Based	Classroom Lectures & Online	50%
Software Development Principles	50	50	Assignment Based	Classroom Lectures & Online	50%
IT Project Management Fundamentals	50	50	Assignment Based	Classroom Lectures & Online	50%
Business Analysis in IT	50	50	Assignment Based	Classroom Lectures & Online	50%

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Subject	**Introduction to Computer Systems**
Aims and Objectives	The aim of this course is to provide students with a comprehensive understanding of computer systems, their components, functionalities, and applications. By the end of the course, students will be equipped with foundational knowledge and skills necessary for further studies and careers in computer science and related fields. 1. Introduce students to the fundamental concepts of computer systems, including hardware, software, and their interaction. 2. Explore the architecture and organization of modern computer systems. 3. Familiarize students with various input and output devices and their roles in computer systems. 4. Examine the functions and operations of the central processing unit (CPU) and memory. 5. Introduce students to operating systems and their role in managing computer resources and providing user interfaces
Learning Outcomes	1. Demonstrate a solid understanding of the basic concepts and components of computer systems. 2. Describe the architecture and organization of modern computer systems. 3. Identify and explain the functions of various input and output devices. 4. Analyze the operations of the CPU and memory within a computer system. 5. Explain the role of operating systems in managing computer resources and providing user interfaces. 6. Describe the basics of computer networks and their significance in contemporary computing. This course will provide students with a solid foundation in computer systems, preparing them for further studies or careers in fields such as computer science, information technology, and computer engineering.
Credit Points:	12 credit points
Assessment	▪ Assignment based
Teaching Mode (Full-Time)	Lectures: 60 hours Tutorials/workshop: 30 hours Private Study: 30 hours Total: 120 hours

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Subject	**Programming Fundamentals**
Aims and Objectives	**Aim:** This course aims to provide students with a solid foundation in programming fundamentals at the systems level, focusing on low-level programming concepts and techniques. **Objectives:** 1. To introduce students to the basics of computer architecture and organization. 2. To familiarize students with low-level programming languages such as C and Assembly. 3. To develop students' understanding of memory management and data structures. 4. To enable students to implement efficient algorithms and optimize code for performance. 5. To prepare students for advanced courses in operating systems, compilers, and embedded systems programming.
Learning Outcomes	1. Understand the fundamentals of computer architecture and organization, including the CPU, memory hierarchy, and input/output systems. 2. Write programs in low-level languages such as C and Assembly, demonstrating proficiency in syntax and semantics. 3. Implement and manipulate various data structures such as arrays, linked lists, stacks, queues, and trees. 4. Apply algorithms for sorting, searching, and graph traversal, analyzing their efficiency and performance. 5. Utilize debugging tools and techniques to identify and resolve programming errors at the system level. 6. Demonstrate knowledge of memory management techniques, including dynamic memory allocation and deallocation This course outline is subject to modification based on the instructor's discretion and evolving industry standards in systems-level programming
Credit Points:	12 credit points
Assessment	▪ Assignment based
Teaching Mode (Full-Time)	Lectures: 60 hours Tutorials/workshop: 30 hours Private Study: 30 hours Total: 120 hours

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Subject	**Web Development Basics**
Aims and Objectives	The aim of this course is to deepen students' understanding of web development concepts and techniques, building upon the foundational knowledge gained in previous levels. By the end of the course, students should be proficient in developing dynamic and interactive web applications using advanced technologies and best practices. 1. To familiarize students with advanced HTML5 and CSS3 features. 2. To introduce students to JavaScript frameworks and libraries for building interactive web applications. 3. To teach students server-side programming using languages such as Node.js. 4. To explore database integration and management in web development. 5. To provide hands-on experience in deploying web applications to servers. 6. To cultivate problem-solving skills through practical exercises and projects. 7. To encourage collaboration and teamwork in web development projects.
Learning Outcomes	By the end of this course, students will be able to: 1. Implement advanced HTML5 and CSS3 techniques to create visually appealing and responsive web pages. 2. Utilize JavaScript frameworks such as React or Angular to develop interactive user interfaces. 3. Write server-side code using Node.js to handle requests, manage sessions, and interact with databases. 4. Integrate databases into web applications using technologies like MongoDB or MySQL. 5. Deploy web applications to servers using platforms like Heroku or AWS.
Credit Points:	12 credit points
Assessment	▪ Assignment based
Teaching Mode (Full-Time)	Lectures: 60 hours Tutorials/workshop: 30 hours Private Study: 30 hours Total: 120 hours

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Subject	**IT Support and Troubleshooting**
Aims and Objectives	The aim of this course is to provide students with advanced knowledge and skills in IT support and troubleshooting to effectively diagnose and resolve complex technical issues in various IT environments. Upon completion of the course, students should be able to: 1. Apply advanced troubleshooting techniques to diagnose and resolve hardware and software issues. 2. Utilize advanced networking concepts to troubleshoot network connectivity problems. 3. Analyze and troubleshoot operating system problems across different platforms. 4. Demonstrate proficiency in identifying and resolving security-related issues. 5. Employ effective communication and customer service skills in IT support scenarios. 6. Develop strategies for proactive maintenance and system optimization to prevent future issues.
Learning Outcomes	1. Troubleshooting Techniques: - Apply systematic troubleshooting methodologies to identify and resolve complex hardware and software issues. - Utilize diagnostic tools and resources effectively to troubleshoot various IT problems. 2. Networking Troubleshooting: - Analyze network configurations and protocols to diagnose and troubleshoot connectivity issues. - Implement strategies for resolving common networking problems, including DNS, DHCP, and TCP/IP issues. - Utilize network diagnostic tools to identify and resolve network performance issues. 3. Operating System Troubleshooting: - Identify and resolve operating system errors and failures on different platforms, including Windows, macOS, and Linux. - Apply advanced techniques to troubleshoot boot problems, driver conflicts, and system crashes. - Perform system recovery and restoration procedures to recover from critical failures.
Credit Points:	12 credit points
Assessment	▪ Assignment based
Teaching Mode (Full-Time)	Lectures: 60 hours Tutorials/workshop: 30 hours Private Study: 30 hours Total: 120 hours

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Subject	**Networking Essentials**
Aims and Objectives	The aim of this course is to provide students with a comprehensive understanding of networking essentials, including fundamental concepts, protocols, technologies, and best practices. By the end of the course, students should be able to: 1. Understand the basic principles and components of computer networks. 2. Demonstrate proficiency in configuring and troubleshooting network devices. 3. Analyze and evaluate different network architectures and topologies. 4. Implement network security measures to protect against various threats and vulnerabilities. 5. Apply networking concepts to real-world scenarios and solve practical networking problems. 6. Communicate effectively about networking concepts, both orally and in writing.
Learning Outcomes	Upon successful completion of this course, students will be able to: 1. Describe the functions and characteristics of different network devices, such as routers, switches, and firewalls. 2. Explain the TCP/IP protocol suite and its role in network communication. 3. Configure and troubleshoot IP addressing and subnetting. 4. Design and implement local area networks (LANs) and wide area networks (WANs). 5. Identify common network security threats and implement appropriate countermeasures. 6. Utilize network diagnostic tools to analyze and troubleshoot network issues. 7. Collaborate with peers to design and implement network solutions for simulated scenarios.
Credit Points:	12 credit points
Assessment	▪ Assignment based
Teaching Mode (Full-Time)	Lectures: 60 hours Tutorials/workshop: 30 hours Private Study: 30 hours Total: 120 hours

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Subject	**Database Fundamentals**
Aims and Objectives	The aim of this course is to provide students with a comprehensive understanding of fundamental concepts and principles of databases. By the end of the course, students should be able to design, implement, and manage basic databases effectively. The objectives include: 1. Understanding the foundational concepts of databases. 2. Learning various database models and their applications. 3. Developing skills in designing relational databases. 4. Gaining proficiency in querying databases using SQL. 5. Understanding database normalization and its importance
Learning Outcomes	Upon successful completion of this course, students should be able to: 1. Define key database terminologies and concepts. 2. Compare and contrast different types of database models such as relational, hierarchical, network, and object-oriented. 3. Design and create relational databases using appropriate tools and techniques. 4. Write and execute SQL queries to retrieve, update, and manipulate data. 5. Demonstrate an understanding of normalization techniques to ensure data integrity and reduce redundancy. 6. Implement basic database security measures to protect sensitive information.
Credit Points:	12 credit points
Assessment	▪ Assignment based
Teaching Mode (Full-Time)	Lectures: 60 hours Tutorials/workshop: 30 hours Private Study: 30 hours Total: 120 hours

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Subject	**Cybersecurity Basics**
Aims and Objectives	Aim: -This course aims to provide students with a foundational understanding of cybersecurity principles, threats, and countermeasures. Objectives: 1. To introduce students to the fundamental concepts of cybersecurity. 2. To familiarize students with common cyber threats and attacks. 3. To equip students with knowledge of basic cybersecurity measures and best practices. 4. To develop students' ability to identify and mitigate cybersecurity risks. 5. To encourage critical thinking and problem-solving skills in the context of cybersecurity.
Learning Outcomes	Upon successful completion of this course, students will be able to: 1. Define key cybersecurity terms and concepts. 2. Recognize common cyber threats and their potential impacts. 3. Identify vulnerabilities in various digital environments. 4. Implement basic cybersecurity measures to protect against common threats. 5. Analyze cybersecurity incidents and apply appropriate response procedures. 6. Evaluate the effectiveness of cybersecurity measures and propose improvements. 7. Communicate effectively about cybersecurity topics with peers and stakeholders.
Credit Points:	12 credit points
Assessment	▪ Assignment based
Teaching Mode (Full-Time)	Lectures: 60 hours Tutorials/workshop: 30 hours Private Study: 30 hours Total: 120 hours

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Subject	**Software Development Principles**
Aims and Objectives	Aim: The aim of this course is to provide students with a comprehensive understanding of fundamental software development principles, methodologies, and best practices to build robust, scalable, and maintainable software solutions. Objectives: 1. Introduce students to the core principles of software development. 2. Explore various software development methodologies and their applications. 3. Equip students with the knowledge and skills to design and implement software solutions following industry standards. 4. Foster critical thinking and problem-solving abilities in software development contexts. 5. Prepare students to adapt to evolving technologies and methodologies in the software development field.
Learning Outcomes	Upon successful completion of this course, students should be able to: 1. Understand Fundamental Principles: Explain the fundamental principles of software development, including abstraction, modularity, encapsulation, and inheritance. 2. Apply Software Development Methodologies: Apply different software development methodologies such as Agile, Waterfall, and DevOps, and justify their suitability for various project scenarios. 3. Design Software Solutions: Design software solutions using appropriate design patterns, architectural styles, and modeling techniques to address specific requirements and constraints. 4. Implement Best Practices: Implement best practices for coding, testing, version control, and documentation to ensure the quality, reliability, and maintainability of software systems. 5. Analyze and Solve Problems: Analyze complex problems, propose viable solutions, and evaluate their implications in the context of software development projects.
Credit Points:	12 credit points
Assessment	▪ Assignment based
Teaching Mode (Full-Time)	Lectures: 60 hours Tutorials/workshop: 30 hours Private Study: 30 hours Total: 120 hours

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Subject	**IT Project Management Fundamentals**
Aims and Objectives	Aim: To provide students with a comprehensive understanding of the fundamental concepts, principles, and practices of IT project management. Objectives: 1. To introduce students to the key concepts and terminology of project management in the context of IT projects. 2. To familiarize students with various project management methodologies commonly used in IT projects. 3. To develop students' skills in planning, executing, monitoring, and controlling IT projects effectively. 4. To equip students with the knowledge to identify and manage project risks and uncertainties in IT projects. 5. To enable students to understand the importance of stakeholder management and communication in IT project success.
Learning Outcomes	By the end of this course, students should be able to: 1. Define and explain the fundamental concepts and principles of project management as they apply to IT projects. 2. Evaluate and select appropriate project management methodologies for different types of IT projects. 3. Develop comprehensive project plans, including scope, schedule, budget, and resource allocation, using industry-standard tools and techniques. 4. Implement effective project monitoring and control mechanisms to ensure project objectives are met within constraints. 5. Identify, assess, and manage project risks and uncertainties throughout the project lifecycle. 6. Demonstrate proficiency in stakeholder management and communication strategies to ensure project success and alignment with organizational goals.
Credit Points:	12 credit points
Assessment	▪ Assignment based
Teaching Mode (Full-Time)	Lectures: 60 hours Tutorials/workshop: 30 hours Private Study: 30 hours Total: 120 hours

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Subject	**Business Analysis in IT**
Aims and Objectives	Aim: The aim of this course is to provide students with a comprehensive understanding of business analysis principles and techniques within the context of information technology. Objectives: 1. To introduce students to the role and importance of business analysis in IT projects. 2. To familiarize students with various business analysis methodologies and frameworks. 3. To develop students' skills in gathering and analyzing business requirements for IT solutions. 4. To equip students with the ability to create effective business analysis deliverables, such as requirements documents and process models. 5. To enable students to effectively communicate and collaborate with stakeholders throughout the business analysis process.
Learning Outcomes	Upon successful completion of this course, students will be able to: 1. Demonstrate a solid understanding of the role and significance of business analysis in IT projects. 2. Apply various business analysis methodologies, such as Agile, Waterfall, and hybrid approaches, to different project scenarios. 3. Employ techniques for eliciting, analyzing, and documenting business requirements effectively. 4. Create clear and concise business analysis deliverables, including requirement specifications, use cases, and process models. 5. Communicate proficiently with stakeholders to ensure alignment between business needs and IT solutions. 6. Evaluate and prioritize business requirements based on their impact and feasibility. 7. Utilize critical thinking and problem-solving skills to propose innovative IT solutions to address business challenges.
Credit Points:	12 credit points
Assessment	▪ Assignment based
Teaching Mode (Full-Time)	Lectures: 60 hours Tutorials/workshop: 30 hours Private Study: 30 hours Total: 120 hours