

National Vocational Certificate Level 4 in Information Technology (E-Commerce)



Competency Standards



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Competency Standards: E-Commerce

1. Module: Business Analysis

Overview: This competency standards will enable students to analyse different business situations.

Competency Unit	Performance Criteria	Knowledge and Understanding
<p>A-1: Explain concept & terminologies</p>	<p>P-1 Evolution of Electronic Commerce</p> <p>P-2 Categorization of E-Commerce Sites</p> <p>P-4 Demonstrate an E-commerce web application(e,g eBay, Pay Pal, Amazon, Digital River etc)</p> <p>P-5 Identify between different ecommerce web application</p>	<p>K-1 Explain development and gradual growth of E-Commerce e.g. 1995: eBay is founded by computer programmer.</p> <p>K-2 Elaborate inception of E-tailing or "virtual storefronts" on websites with online catalogues, Electronic Data Interchange (EDI), the business-to-business exchange of data</p> <p>K-3 Define online Transaction Processing using Electronic Funds Transfer (EFT)</p> <p>K-4 Knowledge about categories including but not limited to (B-B, B-C, C-C, and G-C)</p> <p>K-5 Information about the issues including Currency Conversion, Copy Rights, Product Delivery, Product EULA (End User License Agreement), Taxation, Linguistics)</p>

Competency Unit	Performance Criteria	Knowledge and Understanding
A2: Market Intelligence	<p>P-1 Classify the market into different segments</p> <p>P-2 Assess the need of segmented market</p> <p>P-3 Identify the market demands for Products, Services, and Tasks (e.g. Applied Research)</p> <p>P-4 Gather and analyse the data</p> <p>P-5 Decision making in determining market opportunity</p>	<p>K-1 Knowledge about products sales information e.g. purchase records for iPhone, newly launched services e.g. distance learning.</p> <p>K-2 Information about competitive Intelligence (Promotions and advertisement offered by competitors for relevant products, services offered.)</p> <p>K-3 Information about decision (Cost-Benefit Analysis) Market and Product/Service segmentation.</p>

Competency Unit	Performance Criteria	Knowledge and Understanding
A 3: Requirement Analysis	<p>P-1 Categorize different processes</p> <p>P-2 Apply different processes to document the requirements</p> <p>P-3 Apply jargons in technical writing</p> <p>P-4 Create Software Requirement Specification (SRS) document</p>	<p>K-1 Knowledge about SRS document</p> <p>K-2 Information of requirement traceability (Requirements Traceability Matrix)</p> <p>K-3 Information of requirement elicitation process</p>

Competency Unit	Performance Criteria	Knowledge and Understanding
A 4: Requirement Designing	<p>P-1 Development of UML design from SRS.</p> <p>P-2 Procedure to use UML tools (Sparx Enterprise Architect, EDraw, Argu UML, etc) in order to develop design.</p> <p>P-3 Relate software design pattern</p> <p>P-4 Procedure to Create software design(s)</p> <p>P-5 Develop links with requirements traceability matrix.</p>	<p>K-1 Information of software design like UML (Use Case, Class, Activity, Sequence, Component, State, Deployment Diagrams)</p> <p>K-2 Knowledge of different architecture that is N-tier</p> <p>K-3 Knowledge of Singleton, Factory, proxy, Adaptor, etc.</p>
A 5: Design Test Case	<p>P-1 Procedure to develop Test Case</p> <p>P-2 Methods to Design test case for each Use Case of design</p> <p>P-3 Process to Identify different scenarios</p> <p>P-4 Techniques to Apply logical conditions</p> <p>P-5 Integrate traceability options</p>	<p>K-1 Knowledge to develop Test Case Techniques from different use cases</p> <p>K-2 Information of condition designing from operators (==, !=, , &&, <=, >=, <, >)</p>

1.1. Module 2: Web Design / Development

Overview: The aim of this module is to develop the skills, knowledge and understanding to design and develop a web based software application (E-Commerce enabled) in any web design/development software.

Competency Unit	Performance Criteria	Knowledge and Understanding
<p>B1: Introduce Some Web Designing languages</p>	<p>P-1 Figure out different web application development languages</p> <p>P-2 Develop front end design using HTML, JQuery, JavaScript, etc</p> <p>P-3 Identify different coding standards in any of the computer language (Sun J2EE, MS ASP.Net, PHP) to meet the market requirements.</p> <p>P-4 Implement concept of Object Oriented Programming (OOP) to solve the real life problem by doing Server/Client side scripting.</p> <p>P-5 Unit testing and debugging to check the correctness of the software program</p>	<p>K-1 Knowledge of different web application user Interface design</p> <p>K-2 Information of E-Commerce system</p> <p>K-3 Knowledge to develop site map of web application</p>

B2: Framework	P-1 Procedure to Identify different frameworks and its application P-2 Develop a software application using frameworks P-3 Efficiently use framework libraries to develop the software application	K-1 Knowledge of different framework i-e Spring MVC, JSF, Struts, CodeGenerator, Zend, Entity Framework) K-2 Knowledge of application development techniques K-3 Awareness to use different libraries
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<p>B-3: Database</p>	<p>P-1 Identify entity classes</p> <p>P-2 Design ERD diagram from entity classes</p> <p>P-3 Apply normalization and de-normalization techniques</p> <p>P-4 Design database queries (e.g create, insert, update, delete etc)</p> <p>P-5 Design database in different tools</p>	<p>K- 1 Knowledge of Entity classes</p> <p>K-2 Skill of Entity Relationship Diagram (ERD) design</p> <p>K-3 Knowledge of database queries designing</p> <p>K-4 Information of database design tool</p>
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<p>B- 4: Security (HTTPS)</p>	<p>P-1 Apply Security techniques on server side (64/32-bit)</p> <p>P-2 Implementation of Cryptology (Encryption) standards</p> <p>P-3 Configure SSL certificate on server</p> <p>P-4 Auditing (Vulnerabilities) of Technical Infrastructure</p>	<p>K-1 Knowledge of server configuration to enable Secure Socket Layer, Payment Card Industry Data Security Standard (PCI DSS)</p> <p>K-2 Aware about Public Key Encryption (PKI) for public-private keys, AES (Advance Encryption Standard), Below Fish for Cypher development</p> <p>K-3 Information of Firewalls configuration(Packet Filtering, Proxy Server)</p> <p>K-4 Knowledge of Anti-Hacking (Intrusion Detections, Worms Attacks, Denial of Service-DoS) tools</p> <p>K-5 Illustrate to Short comings of different Internet protocol (UDP, etc.)</p>
<p>B 5: Payment Modes</p>	<p>P-1 Identify different payment systems</p> <p>P-2 Apply different payment Transaction mechanism</p>	<p>K-1 Explain renowned Payment modes (Credit/Debit cards)</p> <p>K-2 Knowledge of Web Service integration with VeriSign</p>

		<p>K-3 spell out about different financial networks e.g. Union Pay, Visa, MasterCard, ORIX Leasing, 1-Link, MNet, Phoenix,)</p> <p>K-4 Explain & Implementation of Internationality recognized Payment protocol including ACH (American Clearing House, PayPal)</p>
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1.2. Module 3: Quality Assurance

Overview: The aim of this module is to develop the understanding for the importance and the capability to test, validate and verify the quality features of the E-Commerce application/business.

Competency Unit	Performance Criteria	Knowledge and Understanding
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Competency Unit	Performance Criteria	Knowledge and Understanding
C1: Verification & Validation (V&V)	<p>P-1 Illustrate techniques to validate the requirements against applicable industry/regularity standards</p> <p>P-2 Classify Techniques to verify the system against business requirements</p> <p>P-3 Perform gape analysis followed industrial standards</p> <p>P-4 Assure Quality as per standard like. comparison to CMMI/ISO/SPICE/IEEE process standards</p> <p>P-5 Perform Quality Control e.g. Defects findings with reference to requirements (Customer/Business)</p>	<p>K-1 Define Quality as per standard like. comparison to CMMI/ISO/SPICE/IEEE process standards</p> <p>K-2 Define Quality Control techniques</p>
C 2: Execute Testing	<p>P-1 Execute the test cases using automated tool(s)</p> <p>P-2 Perform applicable testing techniques (Alpha, Beta, Integration, System,</p>	<p>K-1 Explain how to use testing tools e.g. E-Tester</p> <p>K-2 E Elaborate Testing techniques including Quality Measurement</p>

Competency Unit	Performance Criteria	Knowledge and Understanding
	Regression, Stress, User Acceptance Test, "UAT")	Indicator (Robustness, Integrity) Cyclomatic Complexity, etc.)

1.3. Module 4: E-Marketing

Overview: The aim of this module is to develop efficient E-Marketing strategies in accordance with the Vision and Mission statement of the organization driven by Electronic means.

Competency Unit	Performance Criteria	Knowledge and Understanding
D 1: SEO (Search Engine Optimization)	P-1 Apply SEO techniques P-2 Employ SEO key words P-3 Demonstrate SEO techniques to priorities their site or web application using automated tools	K-1 Explain different SEO Methods including but not limited to Getting Indexed, Preventing Crawling, and Increasing Prominence. K-2 Elaborate White-hat, Black-hat SEO techniques for web application K-3 Knowledge of SEO key words for web pages translation. K-4 Application of SEO tools usage

<p>D 2: SCM (Supply Chain Management)</p>	<p>P-1 Identity potential Suppliers</p> <p>P-2 Select the appropriate supplier</p> <p>P-3 Place order as per requirement/inventory</p> <p>P-4 Inspect received order</p> <p>P-5 Maintain Inventory as per Inventory Control / store keeping techniques</p> <p>P-6 Identity different available transportation mode</p> <p>P-7 Identify steps of reverse SCM i-e from consumer to organization</p>	<p>K-1 knowledge of procurement Cycle (Launch of RFP/RFQ, Tender, Bidding, Comparative Statement, Award of Contract, Maintenance)</p> <p>K-2 Explain different techniques to manage goods, avoid their depreciation e.g. JIT (Just In Time)</p> <p>K-3 Explain product delivery and their traceability</p> <p>K-4 Knowledge of Incorporation of Outsourcing in logistics.</p> <p>K-5 Information about electronic Data Interchange methodologies and format.</p>
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<p>D 3: Social Media Marketing</p>	<p>P-1 Identify different Social media marketing techniques</p> <p>P-2 Apply suitable Classified Advertisement techniques on social media</p> <p>P-3 Perform Electronic Mail Marketing</p> <p>P-4 Creation of Blogs</p>	<p>K-1 Knowledge of different social media sites that is Facebook, Twitter, LinkedIn, Google+ etc</p> <p>K-2 Explain Brand pages creation on social media sites.</p> <p>K-3 Familiarity of banner ads integration on different web sites like newspaper site in any demographic region.</p> <p>K-4 Skills to regularly update brand/product/service blogs.</p> <p>K-5 Elaborate direct marketing techniques e.g. Email, SMS (Mobile-Commerce) for the projection of company newsletters.</p>
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1.4. Module 5: Legal and Ethical Aspects

Overview: The aim of this module is to develop Code of Ethics and Professional Conduct, improve Planning Capabilities, and Awareness to Provision of applicable territorial Taxation / Business / Employment Rights for duties & rights at workplace.

Competency Unit	Performance Criteria	Knowledge and Understanding
<p>E 1: Ethics and Professional Conduct</p>	<p>P-1 To be on time</p> <p>P-2 Complete assigned task in time.</p> <p>P-3 Use official equipments exclusively for official purpose</p> <p>P-4 Help co-workers without being asked</p> <p>P-5 Implement defined SOP</p> <p>P-6 Refrain to make lame excuses</p> <p>P-7 Handle small stuff</p>	<p>K-1 Knowledge pertains to penalty/rewards for the decisions/actions s/he make or fail to make and their consequences.</p> <p>K-2 Explain high regard for resources entrusted to s/he. Including subordinates, tangible assets (equipment's), company profile.</p> <p>K-3 Skill how to make decisions and act impartially/objectively free from self interest. (Quantified Self assessment can be performed e.g. case studies/white papers.) Areas like Conflict of Interest</p> <p>K-4 Knowledge about truth and act in truthful manner in conduct/communication. E.g. daily attendance enrolment on register, "What you say is what you did"</p>

Competency Unit	Performance Criteria	Knowledge and Understanding
E 2: Planning of Business-process activities	<p>P-1 Identify Business process tasks</p> <p>P-2 Maintain Schedule to perform identified Business process tasks</p> <p>P- 3 Set Milestones from those tasks</p> <p>P-4 Apply optimal utilization of resources</p>	<p>K-1 Explain due assistance to in-line manager e.g. coordinating recurring meetings, intimate resource availability, create and keep documentations, validate applicable company defined standards.</p> <p>K-2 Describe activities, e.g. specific life cycle methodologies – (Requirement gathering, design solution, prototype, testing, documentations)</p> <p>K-3 Elaborate estimate time, i-e. hours calculations for an activity, consider calendar year official leaves, company working timings.</p> <p>K-4 Explain work breakdowns, divide module in smaller and more manageable components. E.g. testing a product may have components like interface, performance, and test cases.</p>

Competency Unit	Performance Criteria	Knowledge and Understanding
E 3: Awareness to Rights	<p>P-1 Perform whistle blowing</p> <p>P-2 To document case in Ombudsman situation</p> <p>P-3 Lodge case in relevant court</p>	<p>K-1 Know about ourselves and uphold the policies, rules/regulations that governs the work and workplace.</p> <p>K-2 Knowledge regarding illegal conduct or illegitimate action to appropriate management.</p> <p>K-3 Information about to Protect propriety or confidential information. (Intellectual Property Rights, Patent, Trademark, Copy Rights, Consumer Protection, Data Protection Act).</p>

TOOLS

- Adobe Dreamweaver
- Netbeans IDE
- Eclipse(Indigo)
- Apache Tomcat, Glassfish, JBoss (JAVA)
- IIS (.net)
- WAMP



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