■ Curriculum vs Job Market Alignment Report

■ Executive Summary

This curriculum demonstrates strengths in data-focused areas like Information Management 1 (96%), Data Science (98%), and Business Intelligence (87%), alongside strong performance in mobile development (89%). However, significant weaknesses exist in fundamental areas like Probability and Statistics (12%), Discrete Structures (20%), and several programming-related courses scoring below 45%, including fundamental programming concepts and specific language implementations (e.g., Object-Oriented Programming, Programming Languages). Crucially, the curriculum lacks consistent coverage of software engineering principles like design patterns, version control (though touched upon in Web Development), and testing methodologies beyond basic unit testing. Project management and communication skills also appear underdeveloped. We recommend bolstering foundational math and programming courses, integrating robust software engineering practices throughout the curriculum, and incorporating dedicated modules on project management and professional communication. This will ensure graduates possess both specialized data skills and the well-rounded foundation needed for long-term career success.

Course Code	Course Title	Skills Taught	Skills in Market	Score	Coverage	Avg. Similarity
CompF	Computing Fundamentals	analyzing computer systems applying computing principles evaluating hardware innovations exhibiting ict innovations implementing computer security measures mitigating computer viruses researching computing industry trends diagnosing computer security threats implementing ict software solutions analyzing computer security identifying computer viruses understanding computer architecture describing virus behavior evaluating software applications explaining computer security identifying hardware components presenting ict innovations	analyzing computer systems applying software development principles implementing security measures analyzing security threats implementing software developing software applications	34	0.37	0.93
Prog1	Programming Essentials	analyzing requirements debugging programs designing programs developing prototypes implementing programs programming in c testing programs	analyzing requirements debugging developing prototypes programming in c testing programs using cisco using fundamental models	70	0.73	0.97

Course Code	Course Title	Skills Taught	Skills in Market	Score	Coverage	Avg. Similarity
LITEP	Living in IT Era (for Computing Profession)	analyzing problems communicating ideas visually developing structured solutions using flowcharts writing pseudocode	problem analysis communicating technical concepts developing data solutions using flowcharts writing code	76	0.83	0.92
2D	2D Animation	animating 2d game objects applying animation principles creating game assets designing 2d animations integrating 2d assets into game engines rigging 2d characters using animation software animating sprites optimizing game art animating 2d characters creating game environments designing game assets implementing game object behaviors creating movement arcs designing game environments designing game objects implementing animation physics preparing 2d assets for game integration	integrating 2d3d assets using 3d modeling software animating optimizing game performance designing ui assets implementing game mechanics designing games	41	0.45	0.91

Course Code	Course Title	Skills Taught	Skills in Market	Score	Coverage	Avg. Similarity
Prog2	Advanced Programming	analyzing requirements using data structures implementing algorithms testing software using professional development tools using standard libraries writing code in a generalpurpose language applying objectoriented principles writing code in c++javapython applying programming paradigms debugging programs writing clean code	analyzing requirements using data structures implementing machine learning algorithms testing software using jetpack libraries writing code applying objectoriented principles applying functional programming debugging	75	0.79	0.95
Python	Introduction to Python	using python controlling program flow defining functions defining variables developing web applications with python handling errors in python manipulating data with python using data types	using python writing functions developing web applications handling errors using data structures	56	0.60	0.94

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SAD	Systems Analysis and Design	analyzing information systems applying system development life cycle designing information systems developing information systems prototyping software using case tools using oom tools prototyping systems	analyzing computer systems software development life cycle designing software systems developing information systems prototyping using ocr tools	81	0.88	0.93
Infom1	Information Management 1	creating er diagrams designing databases designing schemas implementing relational databases modeling data writing sql	creating process flow diagrams designing databases designing schemas using relational databases modeling data writing sql	96	1.00	0.97
CompOrg	Computer Organization with Microcontroller Programming	interfacing microcontrollers interfacing with electronic components managing memory programming in assembly language programming peripheral devices using inputoutput systems programming microcontrollers working with peripheral devices	memory management programming in assembly using build systems working with linux	44	0.50	0.90

Course Code	Course Title	Skills Taught	Skills in Market	Score	Coverage	Avg. Similarity
CloudApp	Cloud-based Application Development	deploying cloud applications designing scalable systems developing apis implementing cloud security using cloud services practicing devops principles using cloud platforms building scalable applications using cloud apis applying devops principles building apis designing cloud applications managing cloud scalability	deploying applications designing scalable software developing apis implementing azure security using cloud services using cloud platforms building scalable applications using cloud message apis building apis designing cloud applications	77	0.80	0.97
InfoAs	Information Assurance and Security	analyzing system vulnerabilities applying cryptography implementing access control managing risks securing web systems handling information assets ethically	managing risks	32	0.33	0.98
ProElec4	Artificial Intelligence	applying ai algorithms building decisionmaking models designing ai systems using ai in decision support implementing search algorithms representing knowledge using analytics tools using ai in analytics	applying machine learning algorithms designing ai systems developing information systems using predictive analytics	45	0.50	0.92

Course Code	Course Title	Skills Taught	Skills in Market	Score	Coverage	Avg. Similarity
3D	3D Animation	creating 3d assets developing virtual environments rigging characters scripting animation sequences using 3d animation software using game engines animating characters developing virtual worlds lighting virtual environments texturing models animating sequences building virtual worlds developing gameready animations scripting animations implementing game mechanics	integrating 3d assets working with virtual environments scripting using 3d modeling software using game engines animating implementing game mechanics	62	0.67	0.94
OOPro	Object-Oriented Programming	composition using inheritance defining classes encapsulating data polymorphism using abstraction using java objectoriented programming applying polymorphism developing systems using composition implementing data encapsulation	applying oop encrypting data implementing using java objectoriented programming	41	0.45	0.93

Course Code	Course Title	Skills Taught	Skills in Market	Score	Coverage	Avg. Similarity
Infom2	Information Management 2	database security managing database concurrency normalizing databases performance tuning using nosql databases designing database systems concurrency control database management systems domainspecific database development	implementing data security normalizing data performance tuning using nosql databases designing databases database management	66	0.69	0.96
HCI	Usability, HCI and User Interaction Design	applying hci principles applying usercentered design practices conducting usability testing creating guis evaluating user experience	applying ux principles conducting usability testing creating ui components	56	0.60	0.94
MobApp	Mobile-based Application Development	designing user experiences designing user interfaces developing mobile applications integrating data testing mobile applications using android apis using ios apis designing uiux performing mobile testing using device apis using platformspecific apis developing android apps testing mobile apps	personalizing user experiences designing user interfaces developing mobile applications integrating data testing ios applications using apis ios apis uiux design performing software testing developing android apps	89	0.93	0.96

Course Code	Course Title	Skills Taught	Skills in Market	Score	Coverage	Avg. Similarity
ProLan	Programming Languages	analyzing programming language semantics developing applications implementing functional programming paradigms managing memory models using control structures evaluating memory models managing scoping in programming languages understanding memory models	developing applications applying functional programming principles applying objectoriented programming principles using data structures evaluating models	39	0.43	0.92
DatSci	Data Science	big data data analysis data mining data visualization machine learning python	big data data analysis data mining data visualization machine learning python performing data discovery	98	1.00	0.99
SofEng	Software Engineering	designing software gathering requirements modeling with uml performing quality assurance programming applications testing software writing documentation	designing software gathering requirements performing quality assurance testing software writing documentation	71	0.71	1.00

Course Code	Course Title	Skills Taught	Skills in Market	Score	Coverage	Avg. Similarity
ProElec1	Business Intelligence and Visualization	business intelligence dashboard development data analysis data collection data mining data visualization power bi report generation tableau creating dashboards creating reports	business intelligence dashboard development data analysis data mining data visualization power bi report generation tableau developing dashboards writing reports	87	0.89	0.99
Math4pS	Probability and Statistics	applying probability theory calculating descriptive statistics conducting hypothesis tests performing regression analysis working with probability distributions implementing regression analysis performing hypothesis testing	performing regression testing	12	0.14	0.91
NETW1	CCNA: Introduction to Networks	applying subnetting configuring routers configuring switches implementing network security implementing tcpip managing vlans troubleshooting networks managing network security using cisco devices applying network security concepts using cisco ios	applying tdd using cisco network security implementation managing vmware troubleshooting networks applying web security concepts	70	0.75	0.94

Course Code	Course Title	Skills Taught	Skills in Market	Score	Coverage	Avg. Similarity
WebDev	Web Development Technologies	applying version control building web applications delivering presentations implementing frontend technologies integrating analytics managing backend systems using modern web frameworks writing documentation creating presentations using css using git using html using javascript using node.js using react developing backend systems developing frontend interfaces presenting projects performing rest api interactions	using version control building web applications integrating data managing backend communication using css writing documentation integrating google sheets using git using html using javascript using node.js using react developing backend systems developing frontend interfaces	68	0.71	0.97

Course Code	Course Title	Skills Taught	Skills in Market	Score	Coverage	Avg. Similarity
DStruc	Data Structures and Algorithms	analyzing algorithm efficiency applying sets and hashing choosing optimal data structures using stacks and queues performing sorting and searching algorithms using trees and graphs applying tree algorithms implementing data structures implementing searching algorithms performing set operations using hashing techniques working with graphs	applying machine learning algorithms using data structures using machine learning techniques	29	0.33	0.90
MATH3DS	Discrete Structures	applying mathematical logic calculating discrete probabilities constructing proofs designing finite state machines implementing recursion manipulating sets and functions using mathematical induction applying induction and recursion	implementing manipulating dom	20	0.22	0.90

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MATH3C	Analytical Geometry and Calculus	analyzing functions applying analytical geometry applying calculus performing integration solving equations using mathematical models calculating limits computing derivatives computing integrals modeling with mathematics modeling with equations	applying oop performing data integration calculating physics modeling data	36	0.42	0.88
CSSAC	CS Trends, Seminars and Certifications	conducting case studies developing prototypes presenting technical concepts pursuing microcertifications researching emerging technologies presenting technical information developing case studies prototyping software	developing prototypes communicating technical concepts evaluating emerging technologies presenting technical information prototyping	59	0.62	0.96

Course Code	Course Title	Skills Taught	Skills in Market	Score	Coverage	Avg. Similarity
OS	Operating System	analyzing os behavior handling memory implementing security measures managing filesystems managing processes managing threads simulating os behavior synchronizing resources analyzing file systems analyzing multiuser environments simulating multiuser environments simulating operating systems synchronizing processes	implementing security measures managing files analyzing systems managing operating systems	26	0.29	0.93
Techno	Technopreneurship	analyzing business viability conducting product validation developing business plans pitching business models analyzing market needs building financial models validating productmarket fit creating financial projections performing market research using presentation software	analyzing business requirements developing business plans analyzing project needs validating data conducting market research	45	0.50	0.90

Course Code	Course Title	Skills Taught	Skills in Market	Score	Coverage	Avg. Similarity
GameMath	Applied Math for Games	using matrices calculating probability coding mathematical equations implementing vector algebra modeling game behavior performing statistical analysis simulating game mechanics using analytical geometry applying statistical methods applying vector algebra implementing probability models simulating game scenarios using mathematical functions in game development	coding performing statistical analysis implementing game mechanics applying statistical methods implementing models	33	0.35	0.95
ADA	Analysis and Design of Algorithms	analyzing algorithm performance analyzing algorithm space complexity choosing appropriate algorithms implementing graph algorithms performing search and sort algorithms applying graph algorithms performing searches and sorts selecting appropriate algorithms	implementing machine learning algorithms	18	0.20	0.91

Course Code	Course Title	Skills Taught	Skills in Market	Score	Coverage	Avg. Similarity
Automata	Automata Theory and Formal Languages	analyzing computational theory applying computation and logic to language processing using formal grammars constructing finite automata designing compilers implementing pushdown automata manipulating contextfree grammars using regular expressions designing finite automata processing languages working with contextfree grammars	applying natural language processing implementing test automation manipulating dom	19	0.23	0.86
DatMine	Data Mining and Predictive Analytics using R	using r interpreting analytics performing classification performing cluster analysis performing regression	using r interpreting data performing data analysis performing regression testing	83	0.90	0.93
ProElec3	Machine Learning	neural networks machine learning support vector machines clustering using ensemble models model deployment model evaluation	machine learning evaluating models performing data analysis deploying models neural networks	55	0.57	0.96

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Note on the formula: *score = int(avg_similarity * coverage * 100)*