■ Curriculum vs Job Market Alignment Report

■ Executive Summary

This curriculum demonstrates strength in applied, market-relevant areas like Mobile-based Application Development, Data Science, Cloud-based Application Development, Business Intelligence and Visualization, and Web Development Technologies, all scoring above 90%. Conversely, significant weaknesses exist in foundational theoretical areas like Automata Theory, Discrete Structures, and Analytical Geometry & Calculus, all scoring below 12%. Several core computing courses like Operating Systems, Computer Organization, and foundational math show concerningly low alignment. Missing skills include consistent training in software testing methodologies, advanced algorithm analysis and design, and in-depth cybersecurity practices. Soft skills like communication (beyond presentations) and teamwork are also underdeveloped. The curriculum needs immediate attention on bolstering foundational theory and core CS principles. Integrating robust software testing practices throughout the program is crucial. Increased emphasis on cybersecurity, algorithms, advanced mathematics, and soft skills development would better prepare graduates for diverse industry demands. A review of teaching methodologies in low-performing courses is recommended.

Course Code	Course Title	Skills Taught	Skills in Market	Score	Coverage	Avg. Similarity
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	developing information systems prototyping software development life cycle	58	0.62	0.91

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 systems analyzing security threats implementing security measures system architecture	34	0.26	0.86
Prog1	Programming Essentials	analyzing requirements debugging programs designing programs developing prototypes implementing programs programming in c testing programs	analyzing requirements debugging defining requirements designing prototypes developing prototypes programming in c requirements gathering testing	57	0.55	0.98

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	analyzing problem analysis solving problems using flowcharts	34	0.33	0.94
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	2d animation animating designing games	22	0.15	0.86

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	animating creating animations game mechanics implementing game systems integrating 3d assets using game engines working with virtual environments	52	0.47	0.88
Infom1	Information Management 1	creating er diagrams designing databases designing schemas implementing relational databases modeling data writing sql	using databases data modeling database design designing schemas sql designing relational databases managing databases writing database queries	80	0.83	0.98

Course Code	Course Title	Skills Taught	Skills in Market	Score	Coverage	Avg. Similarity
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	—	8	0.00	0.00
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	—	12	0.00	0.00

Course Code	Course Title	Skills Taught	Skills in Market	Score	Coverage	Avg. Similarity
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	regression probability theory	34	0.29	0.88
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	android development building android apps data integration designing user interfaces developing applications developing ios developing user interfaces implementing user interfaces ios apis mobile application development mobile applications personalizing user experiences prototyping user interfaces testing applications uiux design using android apis using ios sdk	94	0.71	0.95

Course Code	Course Title	Skills Taught	Skills in Market	Score	Coverage	Avg. Similarity
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 ai algorithms using google analytics	51	0.30	0.87
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	algorithms analyzing requirements applying objectoriented principles data structures data structuring debugging defining requirements testing requirements gathering writing clean code	75	0.57	0.97

Course Code	Course Title	Skills Taught	Skills in Market	Score	Coverage	Avg. Similarity
DatSci	Data Science	big data data analysis data mining data visualization machine learning python	analyzing data machine learning applying supervised learning big data python data visualization data analysis data mining developing python implementing machine learning algorithms performing data discovery programming in python statistical analysis	94	1.00	0.99
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 objectoriented principles objectoriented programming java developing in java	51	0.20	1.00

Course Code	Course Title	Skills Taught	Skills in Market	Score	Coverage	Avg. Similarity
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	34	0.25	0.93
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	—	1	0.00	0.00

Course Code	Course Title	Skills Taught	Skills in Market	Score	Coverage	Avg. Similarity
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	communicating technical concepts designing prototypes developing prototypes evaluating emerging technologies presenting technical information prototyping	67	0.62	0.92
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	using cisco network security troubleshooting networks	53	0.67	0.90
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	automating tasks python handling errors programming using python	39	0.30	0.93

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	data structures	26	0.13	0.90
SofEng	Software Engineering	designing software gathering requirements modeling with uml performing quality assurance programming applications testing software writing documentation	documentation defining requirements designing software developing software gathering requirements quality assurance testing	71	0.71	1.00
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	data management designing database schemas designing databases implementing data security nosql normalizing data optimizing database performance performance tuning	71	0.69	0.92

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	api development apis applying security best practices building scalable applications building scalable software cloud app security deploying applications deploying apps deploying to cloud designing cloud applications designing scalable software developing cloud applications devops implementing security best practices implementing security measures using cloud platforms using cloud services using cloud computing platforms using google cloud platform	94	0.87	0.93
DatMine	Data Mining and Predictive Analytics using R	using r interpreting analytics performing classification performing cluster analysis performing regression	using r developing predictive models regression	55	0.40	0.93

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	statistical methods performing data analysis statistical analysis	31	0.12	1.00
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	—	0	0.00	0.00

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	analyzing data business intelligence data visualization dashboard development data analysis data mining developing dashboards generating reports statistical analysis power bi preparing reports tableau writing reports	94	0.89	0.98
HCI	Usability, HCI and User Interaction Design	applying hci principles applying usercentered design practices conducting usability testing creating guis evaluating user experience	conducting usability testing conducting user experience testing performing usability testing	17	0.20	1.00
InfoAs	Information Assurance and Security	analyzing system vulnerabilities applying cryptography implementing access control managing risks securing web systems handling information assets ethically	managing risks mitigating security risks risk management	11	0.33	0.94

Course Code	Course Title	Skills Taught	Skills in Market	Score	Coverage	Avg. Similarity
ProElec3	Machine Learning	neural networks machine learning support vector machines clustering using ensemble models model deployment model evaluation	machine learning building machine learning models deploying models developing machine learning models diagnosing model deployment issues evaluating models neural networks	71	0.57	0.94
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 market conditions applying financial modeling business plan development market research	34	0.33	0.88
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 implementing security best practices	14	0.07	1.00

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	backend web applications html javascript node.js documentation css developing web applications frontend developing javascript developing user interfaces developing using html react editing html git google analytics using version control	94	0.67	0.97
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	application development applying functional programming objectoriented programming designing applications developing mobile applications	34	0.21	0.93

Date Generated: 2025-09-01 22:41:04

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