

COMPUTER SCIENCE

BS COMPUTER SCIENCE
BS SOFTWARE ENGINEERING
BS ARTIFICIAL INTELLIGENCE
BS COMPUTER ENGINEERING



MISSION STATEMENT

To impart computing knowledge, problem-solving techniques, and practical skills to our graduates with a high level of professionalism and ethical values for addressing the challenges of modern society through innovative solutions.



HOD MESSAGE

Welcome to the Department of Computer Science, where we are dedicated to cultivating professionals with exceptional computing skills, innovative thinking, and strong ethical values. Our mission is to equip graduates with the knowledge and practical abilities to tackle modern societal challenges. We are committed to fostering lifelong learning, teamwork, and professional growth, ensuring our students excel in their careers and contribute positively to society. Join us in our journey towards excellence and innovation in computer technologies.

Prof. Dr. Tahir Ahmad

PhD Computer Sciences and Systems Engineering, University of Genoa, Italy

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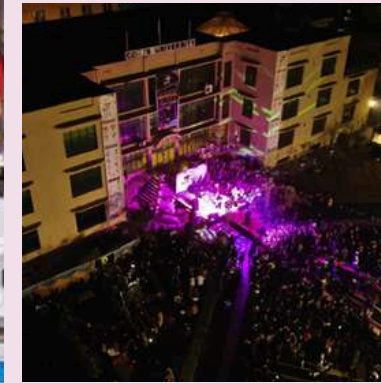
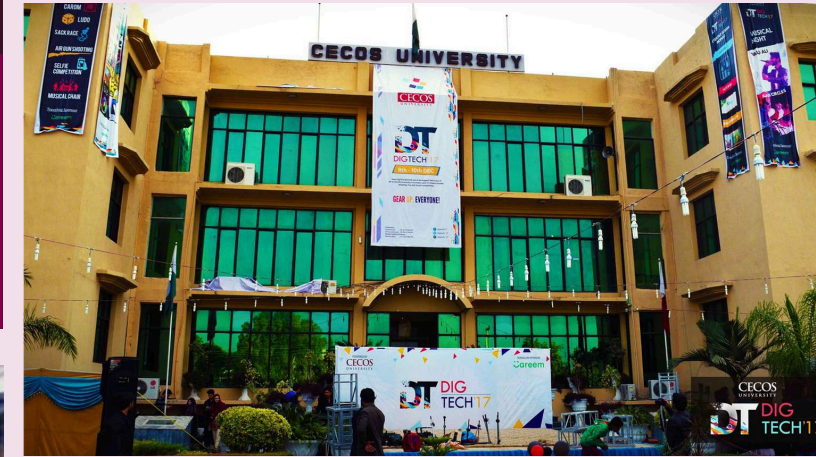
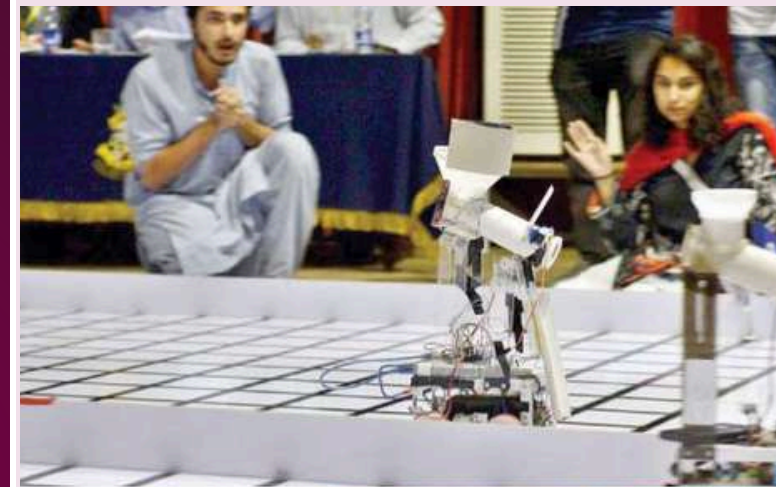
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Dig Tech

A Signature Event organized by the Department of Computer Science. Dig Tech is Biggest Tech Event of KPK held every year at CECOS



CURRICULUM OF BS SOFTWARE ENGINEERING

Semester-I

Course Code	Course Title	Credit Hours
CS-110	Applications of Information and Communication Technologies	2+1
CS-112	Programming Fundamentals	3+1
ENG-101	Functional English	3+0
MATH-106	Calculus and Analytical Geometry	3+0
CS-111	Discrete Structures	3+0
SS-101	Islamic Studies/ Ethics	2+0
Total Credit Hours		18

Semester-II

Course Code	Course Title	Credit Hours
CS-113	Object Oriented Programming	3+1
MATH-204	Multivariable Calculus	3+0
CS-114	Database Systems	3+1
MATH-107	Linear Algebra	3+0
CS-115	Digital Logic Design	3+1
Total Credit Hours		18

Semester-III

Course Code	Course Title	Credit Hours
CS-222	Operating Systems	3+1
CS-220	Software Engineering	3+0
SS-203	Ideology and Constitution of Pakistan	2+0
CS-216	Data Structures	3+1
ENG-102	Expository Writing	3+0
	University Elective-I	2+0
Total Credit Hours		18

Semester-IV

Course Code	Course Title	Credit Hours
CS-223	Analysis of Algorithms	3+0
CS-221	Computer Organization & Assembly Language	3+1
NS-101	Applied Physics	3+0
SE-233	Software Quality Engineering	3+0
SE-234	Software Requirement Engineering	3+0
Total Credit Hours		16

Semester-V

Course Code	Course Title	Credit Hours
CS-319	Computer Networks	3+1
SE-331	Software Construction & Development	2+1
SE-330	Software Design & Architecture	3+0
CS-318	Artificial Intelligence	3+0
SE-340	SE Elective-I	3+0
Total Credit Hours		16

Semester-VI

Course Code	Course Title	Credit Hours
SE-332	Software Project Management	3+0
SE-335	Parallel & Distributed Computing	3+0
SE-341	SE Elective-II	3+0
SE-342	SE Elective-III	3+0
SE-343	SE Elective-IV	3+0
SE-344	SE Elective-V	3+0
Total Credit Hours		18

Semester-VII

Course Code	Course Title	Credit Hours
CS-417	Information Security	3+0
MATH-211	Probability & Statistics	3+0
CS-424	Final Year Project - I	3+0
	University Elective-II	3+0
	University Elective-III	3+0
Total Credit Hours		15

Semester-VIII

Course Code	Course Title	Credit Hours
CS-425	Final Year Project - II	0+3
ENG-203	Technical & Business Writing	3+0
	University Elective-IV	3+0
	University Elective-V	2+0
Total Credit Hours		11

Total Credit Hours = 130

Fact File

Duration: Four Years

Eligibility: Minimum 50% marks in intermediate or equivalent with mathematics/minimum 50% marks in intermediate (without mathematics) with two deficiency courses of mathematics to be studied and passed in 1st and 2nd semester after admission.

CURRICULUM OF BS COMPUTER SCIENCE

Semester-I

Course Code	Course Title	Credit Hours
CS-110	Applications of Information and Communication Technologies	2+1
CS-112	Programming Fundamentals	3+1
ENG-101	Functional English	3+0
MATH-106	Calculus and Analytical Geometry	3+0
CS-111	Discrete Structures	3+0
SS-101	Islamic Studies/ Ethics	2+0
Total Credit Hours		18

Semester-II

Course Code	Course Title	Credit Hours
CS-113	Object Oriented Programming	3+1
MATH-204	Multivariable Calculus	3+0
CS-114	Database Systems	3+1
MATH-107	Linear Algebra	3+0
CS-115	Digital Logic Design	3+1
Total Credit Hours		18

Semester-III

Course Code	Course Title	Credit Hours
CS-222	Operating Systems	3+1
CS-220	Software Engineering	3+0
SS-203	Ideology and Constitution of Pakistan	2+0
CS-216	Data Structures	3+1
ENG-102	Expository Writing	3+0
	University Elective-I	2+0
Total Credit Hours		18

Semester-IV

Course Code	Course Title	Credit Hours
CS-223	Analysis of Algorithms	3+0
CS-221	Computer Organization & Assembly Language	3+1
CS-230	Theory of Automata	3+0
CS-218	Artificial Intelligence	3+0
NS-101	Applied Physics	3+0
Total Credit Hours		16

Semester-V

Course Code	Course Title	Credit Hours
CS-333	Computer Architecture	3+0
CS-319	Computer Networks	3+1
CS-332	Human Computer Interaction	3+0
CS-340	CS Elective-I	3+0
CS-341	CS Elective-II	3+0
Total Credit Hours		16

Semester-VI

Course Code	Course Title	Credit Hours
CS-334	Compiler Construction	3+0
CS-342	CS Elective-III	3+0
CS-343	CS Elective-IV	3+0
CS-344	CS Elective-V	3+0
CS-345	CS Elective-VI	3+0
Total Credit Hours		18

Semester-VII

Course Code	Course Title	Credit Hours
CS-417	Information Security	3+0
MATH-211	Probability & Statistics	3+0
CS-424	Final Year Project - I	0+3
CS-435	Parallel & Distributed Computing	3+0
	University Elective-III	3+0
Total Credit Hours		15

Semester-VIII

Course Code	Course Title	Credit Hours
CS-425	Final Year Project - II	0+3
ENG-203	Technical & Business Writing	3+0
	University Elective-IV	3+0
	University Elective-V	2+0
Total Credit Hours		11

Total Credit Hours = 130

Fact File

Duration: Four Years

Eligibility: Minimum 50% marks in intermediate or equivalent with mathematics/minimum 50% marks in intermediate (without mathematics) with two deficiency courses of mathematics to be studied and passed in 1st and 2nd semester after admission.

CURRICULUM OF BS ARTIFICIAL INTELLIGENCE*

Semester-I

Course Code	Course Title	Credit Hours	
		Theory	Lab
CS-110	Applications of Information and Communication Technologies	2	1
CS-112	Programming Fundamentals	3	1
ENG-101	Functional English	3	0
MATH-106	Calculus and Analytical Geometry	3	0
CS-111	Discrete Structures	3	0
SS-101	Islamic Studies/ Ethics	2	0
Total Credit Hours		16	2

Semester-II

Course Code	Course Title	Credit Hours	
		Theory	Lab
CS-113	Object Oriented Programming	3	1
MATH-204	Multivariable Calculus	3	0
CS-114	Database Systems	3	1
MATH-107	Linear Algebra	3	0
CS-115	Digital Logic Design	2	1
Total Credit Hours		14	3

Semester-III

Course Code	Course Title	Credit Hours	
		Theory	Lab
CS-222	Operating Systems	2	1
CS-220	Software Engineering	3	0
CS-216	Data Structures	3	1
MATH-211	Probability & Statistics	3	0
CS-218	Artificial Intelligence	3	0
SS-203	Ideology and Constitution of Pakistan	2	0
Total Credit Hours		16	2

Semester-IV

Course Code	Course Title	Credit Hours	
		Theory	Lab
CS-221	Computer Organization & Assembly Language	2	1
AI-230	Programming for AI	2	1
CS-219	Computer Networks	2	1
NS-101	Applied Physics	3	0
AI-231	Machine Learning	3	0
ENG-102	Expository Writing	3	0
Total Credit Hours		15	3

Semester-V

Course Code	Course Title	Credit Hours	
		Theory	Lab
CS-323	Analysis of Algorithms	3	0
CS-317	Information Security	3	0
AI-345	Digital Image & Signal Processing	3	0
AI-355	Internet of Things	2	1
AI-349	Natural Language Processing	2	1
	University Elective-I	3	0
Total Credit Hours		16	2

Semester-VI

Course Code	Course Title	Credit Hours	
		Theory	Lab
AI-332	Artificial Neural Networks & Deep Learning	2	1
AI-333	Computer Vision	2	1
AI-340	Mobile Application Development	2	1
AI-356	Cloud Computing	3	0
AI-350	Human-Computer Interaction	3	0
	University Elective-II	3	0
Total Credit Hours		15	3

Semester-VII

Course Code	Course Title	Credit Hours	
		Theory	Lab
AI-434	Parallel & Distributed Computing	3	0
AI-454	Knowledge Representation & Reasoning	2	1
	University Elective-III	2	0
	University Elective-IV	2	0
CS-424	Final Year Project - I	0	3
Total Credit Hours		9	4

Semester-VIII

Course Code	Course Title	Credit Hours	
		Theory	Lab
Eng-203	Technical & Business Writing	3	0
AI-444	Reinforcement Learning	2	1
	University Elective-V	2	0
CS-425	Final Year Project - II	0	3
Total Credit Hours		7	4

Total Credit Hours = 131

Fact File

Duration: Four Years

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mathematics) with two deficiency courses of mathematics to be studied and passed in 1st and 2nd semester after admission.

We have applied for the accreditation of this program from NCEAC and are currently awaiting their zero visit.

CURRICULUM OF BS COMPUTER ENGINEERING*

Semester-I

Course Code	Course Title	Credit Hours
CS-110	Applications of Information and Communication Technologies	2+1
CS-112	Programming Fundamentals	3+1
ENG-101	Functional English	3+0
MATH-106	Calculus & Analytical Geometry	3+0
COMP-130	Linear Circuit Analysis	3+0
SS-101	Islamic Studies/ Ethics	2+0
Total Credit Hours		18

Semester-II

Course Code	Course Title	Credit Hours
CS-113	Object Oriented Programming	3+1
MATH-204	Multivariable Calculus	3+0
CS-114	Database Systems	3+1
MATH-107	Linear Algebra	0+1
COMP-132	Electronic Devices & Circuits	2+1
Total Credit Hours		17

Semester-III

Course Code	Course Title	Credit Hours
COMP-231	Electrical Network Analysis	2+1
CS-220	Software Engineering	3+0
CS-215	Digital Logic Design	2+1
MATH-211	Probability & Statistics	3+0
CS-219	Computer Networks	2+1
CS-223	Analysis of Algorithms	3+0
Total Credit Hours		18

Semester-IV

Course Code	Course Title	Credit Hours
CS-221	Computer Organization & Assembly Language	2+1
CS-111	Discrete Structures	3+0
CS-216	Data Structures	2+0
NS-101	Applied Physics	3+0
ENG-102	Expository Writing	2+1
COMP-234	Signals & System	
Total Credit Hours		19

Semester-V

Course Code	Course Title	Credit Hours
CS-322	Operating Systems	2+1
CS-318	Artificial Intelligence	3+0
COMP-345	Digital Signal Processing	2+1
COMP-344	Theory of Automata	3+0
COMP-340	Parallel Computer Architectures	2+1
	University Elective-2 (Introduction to Management)	2+0
Total Credit Hours		17

Semester-VI

Course Code	Course Title	Credit Hours
CS-317	Information Security	2+1
COMP-335	Parallel & Distributed Computing	2+1
COMP-346	Embedded Systems	2+1
COMP-343	Control Engineering	3+1
COMP-347	Digital Image Processing	3+1
	University Elective-II (Technical & Business Writing)	3+0
Total Credit Hours		19

Semester-VII

Course Code	Course Title	Credit Hours
COMP-449	Artificial Neural Networks & Deep Learning	2+1
COMP-441	Digital System Design	3+0
SS-403	Introduction to Marketing	3+0
GE-404	Entrepreneurship	2+0
CS-424	Final Year Project - I	0+3
Total Credit Hours		14

Semester-VIII

Course Code	Course Title	Credit Hours
GE-405	Ideology & Constitution of Pakistan	2+0
GE-406	Civics & Community Engagement	2+0
GE-407	Arts & Humanities	2+0
CS-425	Final Year Project - II	0+3
SS-408	Financial Accounting	2+0
Total Credit Hours		11

Total Credit Hours = 133

Fact File

Duration: Four Years

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mathematics) with two deficiency courses of mathematics to be studied and passed in 1st and 2nd semester after admission.

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