



Course Specifications for the Bachelor of Computer Science Program

2024





Click on the course code to access the Course Specification.

Level	Course Code	Course Title	Required or Elective	Pre-Requisite Courses	Credit Hours	Type of requirements (Institution, Year)
Level 1	ENG0011	English I	Required	--	8	Preparatory Year
	CSC105	Computer Skills	Required	--	2	Preparatory Year
	PHYS110	Physics 1	Required	--	2	Preparatory Year
	STAT100	Statistics	Required	--	2	Preparatory Year
	PSYCH101	Thinking Skills and learning styles	Required	--	4	Preparatory Year
Level 2	ENG0012	English II	Required	ENG 0011	5	Preparatory Year
	ESP102	English for Engineering and Computer Science	Required	ENG 0011	2	Preparatory Year
	MATH105	Differential Calculus	Required	--	3	Preparatory Year
	CSC111	Computer programming	Required	CSC 105	3	Preparatory Year
	PHYS115	Physics 2	Required	PHYS110	3	Preparatory Year
Level 3	ARAB 101	Linguistic skills	Required	--	2	Institution
	PHYS116	General Physics 3	Required	PHYS115	4	College

Level	Course Code	Course Title	Required or Elective	Pre-Requisite Courses	Credit Hours	Type of requirements (Institution,
	MATH115	Integral Calculus	Required	MATH 105	3	College
	IT131	IT131- Database	Required	CSC 111	3	College
	CS181	Computer Programming 2	Required	CSC 111	3	College
Level 4	ARAB103	Arabic Writing	Required	--	2	Institution
	IC101	Introduction to Islamic culture	Required	--	2	Institution
	MATH116	Linear algebra and Multi-Variable Calculus	Required	MATH115	3	College
	STAT126	Probability & Statistics	Required	STAT100	3	College
	COE121	Logical design	Required	CSC111 COE122	3	College
	COE122	Logical design (Lab)	Required	COE121	1	College
	CS182	Computer Programming 3	Required	CS181	3	College
Level 5	MATH212	Discrete Mathematics	Required	MATH116	3	College
	CS211	Concepts of Algorithms	Required	CS181	3	Department
	CS213	Programming Languages Concepts	Required	CS182	3	Department
	COE223	Computer Organization	Required	COE121	3	Department
	IC102	Islam and Community Building	Required	IC101	2	Institution
	CoC Elective I	CoC Elective I	Elective	--	3	College

Level	Course Code	Course Title	Required or Elective	Pre-Requisite Courses	Credit Hours	Type of requirements (Institution, Department, College)
Level 6	IC103	IC103- Economic System in Islam	Required	IC 101	2	Institution
	CS221	CS221-Assembly Language	Required	COE223	3	Department
	CS224	CS224- Compiler Design	Required	CS213	3	Department
	CS222	CS222- Operating System	Required	CS182	3	College
	CS214	CS214- Data Structures	Required	MATH212	3	College
	Free Hours I	Free Hours I	Elective		3	
Level 7	CS342	Visual Programming	Required	CS182	3	Department
	MATH317	Numerical Methods	Required	MATH116	3	Department
	CS341	Computer Graphics	Required	CS182	3	Department
	CS383	Software Engineering	Required	CS222	3	Department
	CS315	Algorithms Analysis & Design	Required	CS211	3	Department
	MATH329	Operations Research	Required	MATH116	3	Department
	Free Hours II	Free Hours II	Elective		3	
Level 8	MATH314	Advanced Discrete Mathematics	Required	MATH 212	3	Department
	COE351	Computer Networks	Required	CS222+ COE352	3	Department
	COE352	Computer Networks Lab	Required	COE351	1	Department
	IT362	IT362- Communication Skills and Ethics issues	Required	--	2	College
	CS348	Optimization Techniques	Required	MATH329	3	Department

Level	Course Code	Course Title	Required or Elective	Pre-Requisite Courses	Credit Hours	Type of requirements (Institution,
	CS497	Summer Training	Required	120 hours	1	Department
	CS Elective I	CS Elective I	Elective		3	Department
Level 9	CS423	Systems Programming	Required	CS224	3	Department
	CS451	Introduction to Computer Security	Required	CS315	3	Department
	CS498	Graduation Project I	Required	120 hours	2	Department
	CoC Elective II	CoC Elective II	Elective		3	Department
Level 10	CS471	Web Technologies	Required	CS342	3	Department
	CS432	Artificial Intelligence	Required	MATH 329	3	Department
	IC104	Political System in Islam	Required	IC 101	2	Institution
	CS499	Graduation Project II	Required	CS498	3	Department
	CS Elective II	CS Elective II	Elective		3	Department

CS Elective Courses

Course Code	Course Title	Required Elective	or Pre-Requisite Courses	Credit Hours
<u>CS361</u>	Distributed systems and parallel processors	Elective	CS222	3
<u>CS431</u>	Modeling and simulation	Elective	MATH329	3
<u>CS433</u>	Data, information and knowledge	Elective	MATH329	3
<u>CS434</u>	Reasoning in uncertainty	Elective	MATH329	3
<u>CS435</u>	Machine learning	Elective	MATH329	3
<u>CS452</u>	Encryption	Elective	CS315	3
<u>CS453</u>	Architecture and System Security	Elective	CS315	3
<u>CS484</u>	Advanced programming techniques	Elective	CS342	3
<u>CS485</u>	Logic programming	Elective	CS342	3
<u>CS492</u>	Special topics in computer science (1)	Elective	CS315	3
<u>CS493</u>	Special topics in computer science (2)	Elective	CS315	3

COC Elective Courses

Course Code	Course Title	Required Elective	or Pre-Requisite Courses	Credit Hours
STAT327	Statistical inference (2)	Elective	STAT126	3
CHEM101	General chemistry (1)	Elective	-	4
CHEM111	General chemistry	Elective	-	4
COE361	Signal and systems analysis	Elective	COE362(co) MATH218(pre)	3
COE362(co)	Signal and systems analysis (lab)	Elective	COE361	1
IT351	Data science for the Internet of Things	Elective	-	3
MATH204	Vector calculation	Elective	-	3
MATH218	Differential equations	Elective	-	3
MATH244	Linear algebra (2)	Elective	MATH116	3
MATH319	Coding and coding theory	Elective	-	3
MATH326	Mathematical methods	Elective	-	4
MATH345	Algebra applications	Elective	-	3
MATH351	Numerical analysis	Elective	-	4
MATH382	Real analysis (1)	Elective	-	4
PHYS243	Thermodynamics	Elective	-	3
PHYS321	Electromagnetism (2)	Elective	-	3
PHYS422	electronics	Elective	-	4

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