

# COMPUTER ENGINEERING CURRICULUM 2024

Each student majoring in Computer Engineering must satisfactorily complete a minimum of 132 credits, which are divided into four components:

1. GENERAL EDUCATION REQUIREMENT			(15 credits)
2. MATHEMATICS AND BASIC SCIENCE REQUIREMENT			(27 credits)
3. COLLEGE OF ENGINEERING REQUIREMENT			(18 credits)
4. COMPUTER ENGINEERING REQUIREMENT			(72 credits)
a) Core Requirement			(56 credits)
b) Electrical Engineering Requirements			(7 credits)
c) Technical Electives			(9 credits)
<b>GENERAL EDUCATION COURSES</b>			<b>(15 Credits)</b>
<b>a) Compulsory</b>			<b>(12 Credits)</b>
3crd, 5hrs	9988-123	Technical English I	9988-098
3crd, 5hrs	9988-221	Technical English II	9988-123, 50 credits
3 (3-0-3)	0330-100	Modern and Contemporary History of Kuwait	None
3 (3-0-3)	0600-310	Engineering Ethics	9988-221
<b>b) Elective</b>			<b>(3 Credits)</b>
Free Elective: Select any 3 credits from the following list of courses			
The student selects free electives from the list approved by the college of Engineering and Petroleum			
<b>MATHEMATICS AND BASIC SCIENCE REQUIREMENT</b>			<b>(27 Credits)</b>
3 (3-0-3)	0410-101	Calculus I	0410-091
3 (3-0-3)	0410-102	Calculus II	0410-101
3 (3-0-3)	0410-111	Linear Algebra	
3 (3-0-3)	0410-211	Calculus III	0410-102, 0410-111
3 (3-0-3)	0410-240	Ordinary Differential Equations	0410-111, Co-req: 0410-211
3 (3-0-3)	0420-101	General Chemistry I	0420-092
1 (0-3-1)	0420-105	General Chemistry I Laboratory	0420-092, Co-req: 0420-101
3 (3-0-3)	0430-101	Physics I	9988-090, Co-req: 0410-101
1 (0-3-1)	0430-105	Physics Laboratory I	Co-req: 0430-101
3 (3-0-3)	0430-102	Physics II	0430-101
1 (0-3-1)	0430-107	Physics Laboratory II	0430-105, Co-req: 0430-102
<b>COLLEGE OF ENGINEERING REQUIREMENT</b>			<b>(18 Credits)</b>
2 (1-3-2)	0600-104	Engineering Graphics	None
3 (3-2-3)	0600-200	Computer Programming for Engineers	0410-111
3 (3-0-3)	0600-205	Electrical Engineering Fundamentals	0430-102, Co-req: 0410-240, 0600-207
1 (0-3-1)	0600-207	Electrical Eng. Fundamentals Laboratory	0430-107, Co-req: 0600-205
3 (3-0-3)	0600-209	Engineering Economy	0410-211
3 (3-0-3)	0600-304	Probability and Statistics for Engineering	0410-211
3 (3-0-3)	0600-308	Numerical Methods in Engineering	0410-240, 0600-200
<b>CORE REQUIREMENT</b>			<b>(72 Credits)</b>
<b>a) Compulsory Courses</b>			<b>(56 Credits)</b>
3 (3-2-3)	0612-201	Advanced Computer Programming	0600-200
3 (3-0-3)	0612-203	Discrete Structures	0410-101, 0410-111
3 (3-2-3)	0612-207	Data Structures	0612-201, 0612-203
3 (3-0-3)	0612-262	Fundamentals of Digital Logic	(0600-200 or 0600-221), 0430-102, 0430-107 Co-req: 0612-264
1 (0-3-1)	0612-264	Fundamentals of Digital Logic Laboratory	Co-req: 0612-262
3 (3-0-3)	0612-300	Design & Analysis of Algorithms	0612-207

3 (3-0-3)	0612-336	Machine Learning	0600-304, 0612-207
3 (3-0-3)	0612-341	Database Management Systems	0612- 207, Co-req: 0612- 342
1 (0-3-1)	0612-342	Database Management Systems Laboratory	Co-req: 0612- 341
3 (3-0-3)	0612-356	Computer Networks	0600-104, 0600-304, 0612-207, Co-req: 0612-357
1 (0-3-1)	0612-357	Computer Networks Laboratory	Co-req: 0612-356
3 (3-0-3)	0612-363	Introduction to Embedded Systems	0612-262, 0612-264, Co-req: 0600-205, 0612-364
1 (0-3-1)	0612-364	Introduction to Embedded Systems Laboratory	Co-req: 0612-363
3 (3-0-3)	0612-368	Computer Organization	0612-363, 0612-364
3 (3-2-3)	0612-371	Software Engineering and Development	0600-209, 0600-310, Co-req: 0612-341
3 (3-0-3)	0612-433	Computer Vision	0610-213, 0612-207
3 (3-2-3)	0612-445	Operating System Principles	0612-207, 0612-363
3 (3-0-3)	0612-453	Cryptography and Network Security	0612-300, 0612-356, 0612-357
3 (3-0-3)	0612-468	Computer Architecture	0612-368, Co-req: 0612-469
1 (0-3-1)	0612-469	Computer Architecture Laboratory	Co-req: 0612-468
3 (3-0-3)	0612-494	Computer Systems Engineering	0612-363, 0612-356, 0612-371
3 (3-0-3)	0612-495	Capstone Design	Co-req: 0600-308, 0612-494
<b>b) Compulsory Non-Dept. Courses</b>			<b>(7 Credits)</b>
3 (3-0-3)	0610-213	Linear Circuit Analysis	0600-205, 0600-207
3 (3-0-3)	0610-233	Electronics I	0600-205, 0600-207, Co-req: 0610-234
1 (0-3-1)	0610-234	Electronics I Laboratory	0600-207, Co-req: 0610-233
<b>c) Electives Courses</b>			<b>(9 Credits)</b>
Students choose 9 credits from one the following list.			
3 (3-0-3)	0612-303	Web Development	0612-207
3 (3-0-3)	0612-325	Human-Computer Interaction	0612-201
3 (3-0-3)	0612-333	Intelligent Systems	0612-300
3 (3-0-3)	0612-399	Engineering Training	90 credits
3 (3-0-3)	0612-402	Cloud and Net-centric Computing	0612-356
3 (3-0-3)	0612-404	Principles of Compiler Design	0612-207, 0612-363
3 (3-0-3)	0612-410	Theory of Computation	0612-300
3 (3-0-3)	0612-413	Parallel and Distributed Computing	0612-300
3 (3-0-3)	0612-414	Quantum Computing	0612-300
3 (3-0-3)	0612-420	Data Mining: Techniques and Applications	0600-304, 0612-207
3 (3-0-3)	0612-421	Information Retrieval and Organization	0600-304, 0612-207
3 (3-0-3)	0612-432	Natural Language Processing	0612-336
3 (3-2-3)	0612-434	Robotics	0612-363
3 (3-0-3)	0612-435	Expert Systems	0600-304, 0612-300
3 (3-0-3)	0612-438	Computer Graphics	0612-207
3 (3-0-3)	0612-439	Deep Learning	0612-336
3 (3-0-3)	0612-441	Advanced Database Systems	0612-341
3 (3-0-3)	0612-443	Multimedia Systems and Applications	0600-304, 0610-385
3 (3-0-3)	0612-447	Introduction to Internet of Things	0612-356, 0612-363
3 (3-0-3)	0612-450	Digital Forensics	0612-356, 0612-445
3 (3-0-3)	0612-451	Wireless and Mobile Networking	0612-356
3 (3-0-3)	0612-452	Systems Security	0612-445
3 (3-0-3)	0612-454	Performance Evaluation and Simulation of Computer Networks	0612-356
3 (3-0-3)	0612-455	Fundamentals of Optical Networking	0612-356
3 (3-0-3)	0612-456	Advanced Computer Networks	0612-356, 0610-385
3 (3-0-3)	0612-457	Applied Cryptography	0612-453
3(3-0-3)	0612-458	Network Programming	0612-356

3 (3-0-3)	0612-459	Information Security	0612-453
3 (3-0-3)	0612-462	Computer Arithmetic	0612-368
3 (3-0-3)	0612-464	Testing of Digital Systems	0612-368
3 (3-0-3)	0612-465	Design Automation of Digital Systems	0612-207, 0612-262
3 (3-0-3)	0612-471	Fault Tolerant Computing	0600-304, 0612-368
3(3-0-3)	0612-472	Logic for Computer Engineers	0600-304, 0612-363
3 (3-0-3)	0612-474	ASIC Design	0610-233, 0612-368
3 (3-0-3)	0612-477	Hardware Description Language Based Design	0612-207, 0612-368
3 (3-0-3)	0612-481	Software Quality Assurance	0612-371
3 (3-0-3)	0612-482	Software Requirements Analysis	0612-371
3 (3-0-3)	0612-483	Software Project Management	0612-371
3 (3-0-3)	0612-493	Special Topics in Computer Engineering	0612-300