FACULTY OF COMPUTER SCIENCE & ENGINEERING


COMPUTER SCIENCE
كلية علوم و هندسة الحاسبات
كلية علوم وهندسة الحاسب
Faculty of Computer Science & Engineering
New Mansoura University
جامعة المنصورة الجديدة
0110
110
10

Vision

A leading academic model locally, regionally, and internationally, known for Excellence and innovation in teaching, learning, scientific research, entrepreneurship, and community service in computer science and engineering and artificial intelligence domains.

Mission

- Producing of qualified and trained graduates to be compatible with the needs of labour market at the local, regional, and international levels in computer science and engineering and artificial intelligence fields, through providing excellent academic and professional programs.
- Encouraging innovation, creativity, and carrying out applied scientific research.
- Meeting the needs of society and sustainable development plans.
- Correlating academic achieves with industry in a flexible framework that allows for continuous improvement while adhering to professional ethics and keeping abreast of scientific and technological development.

Strategic Objectives

Preparation of knowledgeable, skillful, and professional outstanding cadres on regional and international level through the following:

- Providing sophisticated educational programs and courses that attract Egyptian and international students.
- Encouraging the students' scientific and technical skills, and participating in international competitions. Preparing students for future labor market on regional and international level.
- Making partnerships with international universities for offering joint scientific programs.
- Attracting industrial companies to share in integrating practical courses and supervise graduation projects.
- Granting the Faculty, the local and international accreditation.

Development of community services through the following:

- Developing the appropriate environment for scientific research.
- Developing the competitiveness of researchers.

- Building and activating strategic partnerships with Artificial Intelligence companies and institutions.
- Upgrading the research quality and level through continuous interaction with community issues.
- Developing of resources to enhance the Faculty research environment.
- Strengthening the Faculty role in providing specialized scientific services and consulting to private and governmental agencies
- Strengthening ways of cooperation with companies and institutions that depend on artificial intelligence.
- Strengthening the infrastructure and interest for continuous development.
- Establishing a center for consulting and community service center.

Governing Values

In addition to the values adopted by the University, the Faculty adopts the following professional values:

- Applied Research.
- Diversity
- Excellence
- Integrity
- Freedom of thought & Expression
- Respect for the Individual
- Social Responsibility
- Consistency

Study Plan

Computer Engineering Study Plan

Level 1

Level	Semester	Code	Course Name	Prerequisite	Credit Hours	Computer sciences program			Artificial intelligence sciences program	Biomedical informatics program
						Big data analytics	Computer vision	Software engineering		
1	1	CSE 014	Structured Programming	-	3	√	√	√	√	√
		PHY 211	Physics II	-	3	√	√	√	√	
		PHY 261	Biophysics	-	3					√
		MAT	Analytical Geometry & Calculus	-	4	√	√	√	√	√

		114								
		UC1	University Requirement (1)	-	2	√	√	√	√	√
		UE1	Elective University (1)	-	2	√	√	√	√	√
		UE2	Elective University (2)	-	2				√	
		UC2	University Requirement (2)	-	2	√	√	√		√

Level	Semester	Code	Course Name	Prerequisite	Credit Hours	Computer sciences program			Artificial intelligence sciences program	Biomedical informatics program
						Big data analytics	Computer vision	Software engineering		
1	2	CSE 015	Object Oriented Programming	CSE 014	3	√	√	√	√	√
		CSE 113	Electric& Electronic Circuits	-	3	√	√	√	√	
		MAT 131	Statistics	-	2	√	√	√	√	√
		MAT	Mathematics II	-	3	√	√	√	√	√

		112							
		BIO 241	Biology II	-	3				√
		UC2	University Requirements 2	-	2				√	
		UE2	University Elective 2	-	2	√	√	√		√
		UC3	University Requirement 3	-	2	√	√	√	√	√

Level 2

Level	Semester	Code	Course Name	Prerequisite	Credit Hours	Computer sciences program			Artificial intelligence sciences program	Biomedical informatics program
						Big data analytics	Computer vision	Software engineering		
2	3	CSE111	Data Structure	CSE 015	3	√	√	√	√	√
		CSE131	Logic Design	-	3	√	√	√	√	√
		AIE111	Artificial Intelligence	-	3				√	
		MAT313	Differential Equations & Numerical Analysis	-	4	√	√	√	√	√
		MAT231	Probability and statistics	-	3	√	√	√	√	

		MAT212	Linear Algebra	-	3	√	√	√	√	√
		CSE191	Field Training 1 in Computer Sciences	-	2	√	√	√		
		BMD191	Field Training 1 in Biomedical Informatics	-	2					√
		BIO412	Genomics and Proteomics	-	4					√

Level	Semester	Code	Course Name	Prerequisite	Credit Hours	Computer Engineering program				Artificial Intelligence engineering program
						Embedded system	Cloud computing	High-performance computing	Cyber security	
2	4	ELE432	Digital Signal Processing	-	3	√	√	√	√	

		CSE112	Design & Analysis of Algorithms	CSE111	3	√	√	√	√	√
		CSE132	Computer Architecture & Organization	CSE131	3	√	√	√	√	√
		CSE315	Discrete Mathematics	-	3	√	√	√	√	√
		AIE121	Machine Learning	AIE111	3	√	√	√	√	√
		UC4	University Requirement (4)	-	2	√	√	√	√	√

Level 3

Level	Semester	Code	Course Name	Prerequisite	Credit Hours	Computer Engineering program				Artificial Intelligence engineering program
						Embedded system	Cloud computing	High-performance computing	Cyber security	
3	5	CSE211	Web Programming	CSE015	3	√	√	√	√	
		CSE233	Operating system	CSE111 CSE132	3	√	√	√	√	√
		CSE261	Computer network	-	3	√	√	√	√	√
		CSE281	Image processing	MAT212	3	√				√
		CSE271	Introduction to Parallel Computing	CSE112	3		√	√		

		CSE241	Security of Information Systems	-	3				√	
		AIE111	Artificial Intelligence	CSE111	3					
		AIE231	Neural Network	AIE121	3					√
		AIE241	Natural Language Processing	AIE111	3					√
		UE2	Elective University 2	-	2	√	√	√	√	√

Level	Semester	Code	Course Name	Prerequisite	Credit Hours	Computer Engineering program				Artificial Intelligence engineering program
						Embedded system	Cloud computing	High-performance computing	Cyber security	

3	6	CSE221	Database Systems	-	3	√	√	√	√	√
		CSE242	Cryptography	CSE112 MAT112	3	√	√		√	
		CSE251	Software Engineering	CSE015	3	√	√	√	√	
		CSE272	Embedded Systems	CSE132	3	√	√	√	√	√
		CSE273	Parallel & Distributed Systems	CSE132	3	√	√	√		
		CSE212	Theory of Computation and Compiler	CSE014	3			√		
		CSE243	Secure Programming	CSE241	3				√	
		CSE383	Computer Vision	CSE281	3					√
		CSE291	Field Training 1 in Computer Engineering	-	2	√	√	√	√	

		AIE212	Knowledge-Based Systems	AIE111	3					√
		AIE213	Optimization Techniques	MAT112 AIE121	3					√
		AIE291	Field Training in AI Engineering	-	2					√

Level 4

Level	Semester	Code	Course Name	Prerequisite	Credit Hours	Computer Engineering program				Artificial Intelligence engineering program
						Embedded system	Cloud computing	High-performance computing	Cyber security	

4	7	CSE344	Introduction to Cyber Security	CSE233 CSE261	3	√	√		√	
		CSE362	Industrial Networks	CSE261	3		√			
		CSE374	Parallel Programming	-	3			√		
		CSE376	Real Time& Embedded Systems Design	CSE272	3	√				
		CSE251	Software Engineering	CSE015	3					√
		AIE322	Advanced Machine Learning	AIE121	3					√
		E1	Elective Course 1	-	3	√	√	√	√	√
		E2	Elective Course 2	-	3					
		E3	Elective Course 3	-	3	√	√	√	√	√
		E4	Elective Course 4	-	3			√	√	

		UC5	University Requirement 5	-	2	√	√	√	√	√
		UC6	University Requirement 6	-	2	√	√	√	√	√

Level	Semester	Code	Course Name	Prerequisite	Credit Hours	Computer Engineering program				Artificial Intelligence engineering program
						Embedded system	Cloud computing	High-performance computing	Cyber security	
4	8	CSE322	Big Data Analytics	AIE121	3	√	√	√	√	
		CSE363	Cloud Computing	CSE261	3	√	√	√	√	
		CSE374	Parallel Programming	CSE271	3				√	

		CSE392	Field Training 2 in Computer Engineering	-	2	√	√	√	√	
		AIE323	Data Mining	AIE121	3					√
		AIE332	Deep Learning	AIE231	3					√
		AIE351	Robotics Design	AIE111	3					√
		AIE392	Field Training 2 in AI Engineering	-	2					√
		E1	Elective Course 1	-	3					
		E2	Elective Course 2	-	3	√	√	√	√	√
		E4	Elective Course 4	-	3	√	√			
		E5	Elective Course 5	-	3	√	√	√	√	
		E6	Elective Course 6	-	3			√		

Level 5

Level	Semester	Code	Course Name	Prerequisite	Credit Hours	Computer Engineering program				Artificial Intelligence engineering program
						Embedded system	Cloud computing	High-performance computing	Cyber security	
5	9	CSE464	Internet of Things	CSE261 CSE272	3	√	√	√	√	
		CSE477	Selected Topics in Embedded System	CSE272	3	√				
		CSE427	Selected Topics in Big Data	CSE322	3		√	√		
		CSE445	Selected Topics in Information Security	CSE241	3				√	

		CSE478	High Performance Computing	CSE271	3			√		
		CSE493	Graduation Project 1	Senior standing	2	√	√	√	√	
		AIE425	Intelligent Recommender Systems	AIE323	3					√
		AIE493	Graduation Project 1	Senior standing	2					√
		E2	Elective Course 2	-	3					
		E5	Elective Course 5	-	3					√
		E6	Elective Course 6	-	3	√	√		√	√
		UC7	University Requirement 7	-	2	√	√	√	√	√

Level	Semester	Code	Course Name	Prerequisite	Credit Hours	Computer Engineering program				Artificial Intelligence engineering program
						Embedded system	Cloud computing	High-performance computing	Cyber security	
5	10	CSE446	Information & Computer Network Security	CSE261	3	√	√	√	√	
		CSE466	Selected Topics in IOT	CSE464	3	√				
		CSE465	Selected Topics in Cloud Computing	CSE363	3		√			
		CSE479	Selected Topics in High-Performance Computing	CSE478	3			√		

		CSE447	Selected Topics in Computer Security	CSE241	3				√	
		CSE494	Graduation Project 2	CSE493	2	√	√	√	√	
		CSE344	Introduction to Cybersecurity	CSE242 CSE233 CSE261	3					√
		AIE494	Graduation Project 2	AIE493	2					√
		E7	Elective Course 7	-	3	√	√	√	√	√
		E8	Elective Course 8	-	3					√
		UC7	University Course 7	-	2	√				
		UE3	University Elective 3	-	2		√	√		√

Computer Science Study Plan

Level 1

Level	Semester	Code	Course Name	Prerequisite	Credit Hours	Computer sciences program			Artificial intelligence sciences program	Biomedical informatics program
						Big data analytics	Computer vision	Software engineering		
1	1	CSE 014	Structured Programming	-	3	√	√	√	√	√
		PHY 211	Physics II	-	3	√	√	√	√	
		PHY 261	Biophysics	-	3					√

		MAT 114	Analytical Geometry & Calculus	-	4	√	√	√	√	√
		UC1	University Requirement (1)	-	2	√	√	√	√	√
		UE1	Elective University (1)	-	2	√	√	√	√	√
		UE2	Elective University (2)	-	2				√	
		UC2	University Requirement (2)	-	2	√	√	√		√

Level	Semester	Code	Course Name	Prerequisite	Credit Hours	Computer sciences program			Artificial intelligence sciences program	Biomedical informatics program
						Big data analytics	Computer vision	Software engineering		
1	2	CSE 015	Object Oriented Programming	CSE 014	3	√	√	√	√	√
		CSE 113	Electric& Electronic Circuits	-	3	√	√	√	√	
		MAT 131	Statistics	-	2	√	√	√	√	√
		MAT	Mathematics II	-	3	√	√	√	√	√

		112							
		BIO 241	Biology II	-	3				√
		UC2	University Requirements 2	-	2				√	
		UE2	University Elective 2	-	2	√	√	√		√
		UC3	University Requirement 3	-	2	√	√	√	√	√

Level 2

Level	Semester	Code	Course Name	Prerequisite	Credit Hours	Computer sciences program			Artificial intelligence sciences program	Biomedical informatics program
						Big data analytics	Computer vision	Software engineering		
2	3	CSE111	Data Structure	CSE 015	3	√	√	√	√	√
		CSE131	Logic Design	-	3	√	√	√	√	√
		AIE111	Artificial Intelligence	-	3				√	
		MAT313	Differential Equations & Numerical Analysis	-	4	√	√	√	√	√
		MAT231	Probability and statistics	-	3	√	√	√	√	

		MAT212	Linear Algebra	-	3	√	√	√	√	√
		CSE191	Field Training 1 in Computer Sciences	-	2	√	√	√		
		BMD191	Field Training 1 in Biomedical Informatics	-	2					√
		BIO412	Genomics and Proteomics	-	4					√

Level	Semester	Code	Course Name	Prerequisite	Credit Hours	Computer sciences program			Artificial intelligence sciences program	Biomedical informatics program
						Big data analytics	Computer vision	Software engineering		
2	4	CSE112	Design & Analysis of Algorithms	CSE	3	√	√	√	√	√

			111							
		CSE132	Computer Architecture & Organization	CSE 131	3	√	√	√	√	
		CSE315	Discrete Mathematics	-	3	√	√	√	√	√
		AIE121	Machine Learning	AIE 111	3				√	
		CSE221	Database System	-	3	√	√	√	√	√
		CSE251	Software Engineering	CSE 015	3	√	√	√	√	√
		BMD241	Human Physiology	BIO 241	3					√
		UC4	University Requirement (4)	-	2	√	√	√		√

Level 3

Level	Semester	Code	Course Name	Prerequisite	Credit Hours	Computer sciences program			Artificial intelligence sciences program	Biomedical informatics program
						Big data analytics	Computer vision	Software engineering		
3	5	CSE211	Web Programming	CSE015	3	√	√	√		
		CSE233	Operating system	CSE111 CSE132	3	√	√	√	√	
		CSE261	Computer network	-	3	√	√	√	√	√
		CSE281	Image processing	MAT212	3		√		√	√
		CSE271	Introduction to Parallel Computing	CSE112	3	√				

		CSE241	Security of Information Systems	-	3			√		
		AIE111	Artificial Intelligence	CSE111	3	√	√	√		√
		AIE241	Natural Language Processing	AIE111	3				√	
		AIE323	Data Mining	AIE121	3				√	
		AIE191	Field Training 1 in AI Science	-	2				√	
		BMD311	Introduction to Bioinformatics	BMD241	3					√
		BMD351	Biomedical Data Acquisition	CSE111 BMD241	3					√
		UE2	Elective University 2	-	2					
		UE 3	Elective University 3	-	2				√	
		UC5	University Requirement 5	-	2	√	√	√		√

Level	Semester	Code	Course Name	Prerequisite	Credit Hours	Computer sciences program			Artificial intelligence sciences program	Biomedical informatics program
						Big data analytics	Computer vision	Software engineering		
3	6	CSE221	Database Systems	-	3					
		CSE212	Theory of Computation and Compilers	CSE014	3	√	√	√		
		CSE313	Mobile Development	CSE015	3	√				
		CSE323	Advanced Database Systems	CSE221	3			√		
		CSE352	System Analysis & Design	CSE251	3	√	√	√		√

CSE382	Computer Graphics	-	3		√			
CSE292	Field Training 2 in Computer Sciences	-	2	√	√	√		
AIE212	Knowledge-Based Systems	AIE111	3				√	
AIE213	Optimization Techniques	MCS212	3				√	
AIE231	Neural Network	AIE121	3				√	
AIE292	Field Training 2 in AI Sciences	-	2			√	√	
AIE121	Machine Learning	AIE111	3	√	√	√		
BMD292	Field Training 2 in Biomedical Informatics	-	2					√
BMD312	Clinical Informatics	BMD311	3					√
BMD361	Biomedical Statistics	BMD311 MAT131	3					√

		E1	Elective Course	-	3				√	√
		UC4	University Requirement 4	-	2				√	
		UC5	University Requirement 5	-	2				√	
		UC6	University Requirement 6	-	2	√	√	√		√
		UE3	Elective University 3	-	2	√	√	√		√

Level 4

Level	Semester	Code	Course Name	Prerequisite	Credit Hours	Computer sciences program			Artificial intelligence sciences program	Biomedical informatics program
						Big data analytics	Computer vision	Software engineering		
4	7	CSE313	Mobile Development	CSE015	3		√	√		√
		CSE322	Big Data Analytics 1	AIE121	3	√				
		CSE383	Computer Vision	CSE281	3		√			
		CSE363	Cloud Computing	CSE261	3	√				
		CSE454	Advanced Software Engineering	CSE251	3			√		

CSE475	Distributed Information Systems	CSE251	3			√		
CSE484	Interactive Multimedia	CSE382	3		√			
CSE493	Graduation Project 1	Senior standing	2	√	√	√		
AIE322	Advanced Machine Learning	AIE121	3				√	
AIE323	Data Mining	AIE121	3	√				
AIE332	Deep Learning	AIE231	3				√	
AIE425	Intelligent Recommender Systems	AIE323	3				√	
AIE493	Graduation Project 1	Senior standing	2				√	
BMD421	Biomedical Information System	BMD311 CSE221 CSE352	3					√

				BMD312						
		BMD431	Medical Image Informatics	CSE281	3					√
		BMD493	Graduation Project 1	Senior standing	2					√
		E1	Elective Course 1	-	3	√	√	√		
		E2	Elective Course 2	-	3				√	√
		UC6	University Requirement 6	-	2				√	
		UC7	University Requirement 7	-	2	√	√	√		√

Level	Semester	Code	Course Name	Prerequisite	Credit Hours	Computer sciences program			Artificial intelligence sciences program	Biomedical informatics program
						Big data analytics	Computer vision	Software engineering		
4	8	CSE344	Introduction to Cyber Security	CSE233 CSE261	3				√	
		CSE363	Cloud Computing	CSE261	3		√	√	√	
		CSE427	Selected Topics in Big Data	CSE322	3	√				
		CSE374	Parallel Programming	-	3	√				
		CSE273	Parallel and Distributed System	CSE132	3	√				

CSE312	Advanced Web Programming	CSE211	3			√		
CSE487	Mixed Augmented Reality	CSE382	3		√			
CSE494	Graduation Project 2	CSE493	2	√	√	√		
AIE323	Data Mining	AIE121	3		√	√		
AIE494	Graduation Project 2	AIE493					√	
BMD411	Genome Regulation	-	3					√
BMD413	Structural Bioinformatics	BMD311	3					√
BMD494	Graduation Project 2	BMD493	2					√
E2	Elective Course 2	-	3	√	√	√		
E3	Elective Course 3	-	3	√	√	√	√	√
E4	Elective Course 4	-	3					√
E5	Elective Course 5	-	3					√

		UC7	University Requirement	-	2				√