

## مادة (29) مستويات ومتطلبات المقررات

### مقررات المستوى الأول

مقررات المستوى الأول للطلاب المبتدئين (Freshman) في أي من التخصصات الأربعة: علوم الحاسب ونظم المعلومات وتكنولوجيا المعلومات والوسائط المتعددة يكون كالآتي

جدول 14 . مقررات المستوى الأول للطلاب المبتدئين

1 <sup>st</sup> Level Courses								
Code	Course	Credits	Prerequisites	Type		Teaching Hours		
				R	E	L	T	P
CS141	Programming Fundamentals	3	IT101	✓		3		3 H <sup>T</sup>
IT101	IT Fundamentals	3	–	✓		3		3 H <sup>T</sup>
MATH101	Mathematics I	3	–	✓		3	2	
MATH102	Mathematics II	3	MATH101	✓		3	2	
PHYS101	Physics I	3	–	✓		2		2 H <sup>S</sup>
PHYS102	Physics II	3	–	✓		2		2 H <sup>S</sup>
EE101	Electronics	3	–	✓		2		2 H <sup>S</sup>
EE102	Digital Circuits	2	EE101	✓		2		2 H <sup>S</sup>
HUM111	English Language I	2	–	✓		2		
HUM112	English Language II	2	HUM111		✓	2		
HUM121	Social Context of Computing	1	–	✓		1		
HUM122	Intellectual Property	1	–		✓	1		
HUM131	Organizational Behavior	2	–		✓	2		
HUM132	Interpersonal Communication	2	–	✓		2		
HUM133	Computing Economics	2	–		✓	2		
HUM141	Computer Law	2	–		✓	2		
HUM142	Privacy and Civil Liberties	1	–		✓	1		
HUM151	Hand Drawing	2	–		✓	1		3 H <sup>S</sup>
HUM152	History of Computing	2	–		✓	2		
HUM153	Islamic Culture	1	–		✓	1		
HUM154	Scientific Thinking	1	–		✓	1		
Subtotal				28	8			
Total				36				

2 <sup>nd</sup> Level Courses								
Code	Course	Credits	Prerequisites	Type		Teaching Hours		
				R	E	L	T	P
CS201	Discrete Structures	3	MATH102	✓		3	2	
CS211	Data Structures and Algorithms	3	CS241	✓		3		2 H <sup>T</sup>
CS241	Object-Oriented Programming	3	CS141	✓		3		2 H <sup>T</sup>
IS201	Foundations of Information Systems	3	IT101		✓	3		2 H <sup>T</sup>
IS211	File Organization	3	CS241		✓	3		2 H <sup>T</sup>
IS212	Databases	3	IS201	✓		3		2 H <sup>T</sup>
IS221	Project Management	2	IT101	✓		2		2 H <sup>O</sup>
IS231	Systems Analysis and Design	3	IT101		✓	3	2	
IT251	Data Communications	3	IT101	✓		3	2	
CE221	Computer Architecture	3	CS141, CS201	✓		3		2 H <sup>T</sup>
MATH201	Mathematics III	3	MATH102		✓	3	2	
MATH202	Probability and Statistics	2	MATH102	✓		2		2 H <sup>T</sup>
EE201	Digital Signal Processing	3	MATH201		✓	3		2 H <sup>T</sup>
HUM231	Business Administration	2	-	✓		2		
HUM232	Technical Writing	2	HUM111	✓		2		2 H <sup>O</sup>
HUM241	Computers and Ethics	1	-	✓		1		
Subtotal				27	0-12			
Total				27-39				

3 <sup>rd</sup> Level Courses								
Code	Course	Credits	Prerequisites	Type		Teaching Hours		
				R	E	L	T	P
CS301	Operation Research	3	CS201		✓	3		2 H <sup>T</sup>
CS302	Simulation and Modeling	3	MATH202		✓	3		2 H <sup>T</sup>
CS311	Algorithm Design and Analysis	3	CS211	✓		3	2	
CS321	Operating Systems	3	CE221	✓		3		2 H <sup>T</sup>
CS342	Automata and Language Theory	3	CS141, CS201	✓		3	2	
CS341	Visual Programming	3	CS211		✓	3		2 H <sup>T</sup>
CS351	Computer Graphics	3	IT101, CS201	✓		3		2 H <sup>T</sup>
CS352	Image Processing	3	CS211	✓		3		2 H <sup>T</sup>
CS353	Advanced Computer Graphics	3	CS351		✓	3		2 H <sup>o</sup>
CS361	Artificial Intelligence	3	IT101, CS201	✓		3		2 H <sup>T</sup>
CS381	Software Development and Professional Practice	3	CS211, CS391	✓		3		3 H <sup>o</sup>
CS382	Field Training	3	IS221	✓				
CS391	Software Engineering	3	CS211	✓		3	2	
IT351	Computer Networks	3	IT251, CE221	✓		3		2 H <sup>T</sup>
IT371	Web Programming	3	CS141, IT251		✓	3		2 H <sup>T</sup>
MM301	Introduction to Multimedia Technology	3	CS241		✓	3		2 H <sup>T</sup>
MATH301	Numerical Analysis	3	MATH102		✓	3	2	
Subtotal				30	0-15			
Total				30-45				

4 <sup>th</sup> Level Courses								
Code	Course	Credits	Prerequisites	Type		Teaching Hours		
				R	E	L	T	P
CS421	Advanced Operating Systems	3	CS321		✓	2		3 H <sup>s</sup>
CS431	Parallel Computation	3	CS311, CS321	✓		3		2 H <sup>T</sup>
CS441	Compiler Construction	3	CS211, CS341, CE221	✓		2		3 H <sup>s</sup>
CS442	Programming Language Design	3	CS211, CE221		✓	3		2 H <sup>T</sup>
CS451	Computer Animation	3	CS352		✓	3		2 H <sup>T</sup>
CS452	Computer Vision	3	CS241, PHYS102		✓	3		2 H <sup>T</sup>
CS461	Intelligent Systems	3	CS361		✓	3		2 H <sup>o</sup>
CS462	Machine Learning	3	CS361		✓	3		2 H <sup>o</sup>
CS463	Pattern Recognition	3	CS361		✓	3		2 H <sup>o</sup>
CS471	Introduction to Computer Security	3	CS211, IT351	✓		3		2 H <sup>o</sup>
CS472	Cryptography	3	CS211, IT351		✓	3		2 H <sup>o</sup>
CS481	Capstone Project I	3	CS381, IS221	✓		1		4 H <sup>s</sup>
CS482	Capstone Project II	3	CS381, IS221	✓		1		4 H <sup>s</sup>
CS491	Software Quality Assurance and Testing	3	CS391		✓	3		2 H <sup>o</sup>
IS411	Advanced Database	3			✓	3		2 H <sup>o</sup>
IS412	Distributed and Object Databases	3	IS212		✓	3		2 H <sup>o</sup>
IS414	Data Mining and Business Intelligence	3			✓	3		2 H <sup>o</sup>
IT431	Wireless and Mobile Computing	3	IT251		✓	3		2 H <sup>o</sup>
IT432	Network Programming	3	IT351		✓	3		2 H <sup>o</sup>
IT371	Web Programming	3	CS141, IT251		✓	3		2 H <sup>o</sup>
MM411	Virtual Reality	3			✓	3		2 H <sup>o</sup>
CE421	Advanced Computer Architecture	3	CE221		✓	3		2 H <sup>o</sup>
CE422	Embedded Systems	3	CE221		✓	3		2 H <sup>T</sup>
Subtotal				15	21-24			
Total					36-39			

جدول 18. مقررات المستوى الثاني لتخصص نظم المعلومات

2 <sup>nd</sup> Level Courses								
Code	Course	Credits	Prerequisites	Type		Teaching Hours		
				R	E	L	T	P
CS201	Discrete Structures	3	MATH102	✓		3	2	
CS211	Data Structures and Algorithms	3	CS241	✓		3		2 H <sup>T</sup>
CS241	Object-Oriented Programming	3	CS141	✓		3		2 H <sup>T</sup>
IS201	Foundations of Information Systems	3	IT101	✓		3		2 H <sup>T</sup>
IS211	File Organization	3	CS241		✓	2		2 H <sup>T</sup>
IS212	Databases	3	IS201	✓		3		2 H <sup>T</sup>
IS221	Project Management	2	IT101	✓		2		2 H <sup>O</sup>
IS231	Systems Analysis and Design	3	IT101	✓		3	2	
IT251	Data Communications	3	IT101	✓		3	2	
MATH201	Mathematics III	3	MATH102		✓	3	2	
MATH202	Probability and Statistics	2	MATH102	✓		2		2 H <sup>T</sup>
EE201	Digital Signal Processing	3	MATH201		✓	3		2 H <sup>T</sup>
HUM231	Business Administration	2	-	✓		2		
HUM232	Technical Writing	2	HUM111	✓		2		2 H <sup>O</sup>
HUM241	Computers and Ethics	1	-	✓		1		
Subtotal				30	0-9			
Total				30-39				

3 <sup>rd</sup> Level Courses								
Code	Course	Credits	Prerequisites	Type		Teaching Hours		
				R	E	L	T	P
CS301	Operation Research	3	CS201		✓	3		2 H <sup>T</sup>
CS302	Simulation and Modeling	3	MATH202		✓	3		2 H <sup>T</sup>
CS322	Computer Architecture and Operating Systems	3	IT101, CS201	✓		3		2 H <sup>T</sup>
CS341	Visual Programming	3	CS211		✓	3		2 H <sup>T</sup>
CS351	Computer Graphics	3	IT101, CS201		✓	3		2 H <sup>T</sup>
CS381	Software Development and Professional Practice	3	CS211, CS391	✓		3		3 H <sup>O</sup>
CS382	Field Training	3	IS221	✓				
CS391	Software Engineering	3	CS211	✓		3	2	
IS311	Geographical Information Systems	3	IS201, IS212	✓		3		2 H <sup>T</sup>
IS321	Advanced Project Management	3	IS221		✓	3		2 H <sup>O</sup>
IS341	Decision Support Systems	3	IS201	✓		3		2 H <sup>T</sup>
IS342	IS Strategy, Management and Acquisition	3	IS201	✓		3		2 H <sup>T</sup>
IT351	Computer Networks	3	IT251, CE221	✓		3		2 H <sup>T</sup>
IT371	Web Programming	3	CS141, IT251	✓		3		2 H <sup>T</sup>
MM301	Introduction to Multimedia Technology	3	CS241		✓	3		2 H <sup>T</sup>
MATH301	Numerical Analysis	3	MATH102		✓	3	2	
Subtotal				27	0-15			
Total					27-42			

4 <sup>th</sup> Level Courses								
Code	Course	Credits	Prerequisites	Type		Teaching Hours		
				R	E	L	T	P
IS411	Advanced Database	3	IS212		✓	3		2 H <sup>o</sup>
IS412	Distributed and Object Databases	3	IS212	✓		3		2 H <sup>o</sup>
IS413	Web Information Systems	3	IS201, IT371		✓	3		2 H <sup>T</sup>
IS414	Data Mining and Business Intelligence	3	IS201		✓	3		2 H <sup>T</sup>
IS415	Database Administration	3	IS212		✓	3		2 H <sup>o</sup>
IS416	Transaction Processing	3	IS212		✓	3		2 H <sup>o</sup>
IS417	Multimedia Databases	3	IS212, CS241		✓	3		2 H <sup>o</sup>
IS441	Quality Assurance of Information Systems	3	IS201		✓	3		2 H <sup>o</sup>
IS442	IS Application Development	3	IS212, IS413		✓	3		2 H <sup>o</sup>
IS451	Social Information Systems	3	IS413		✓	3		2 H <sup>o</sup>
IS452	Capstone Project I	3	CS381, IS221	✓		1		4 H <sup>s</sup>
IS453	Capstone Project II	3	CS381, IS221	✓		1		4 H <sup>s</sup>
IT411	Information Assurance and Security	3	IT351	✓		3		2 H <sup>o</sup>
IT441	Enterprise Architecture	3	IT351	✓		3		2 H <sup>o</sup>
IT471	E-commerce	3	IT371		✓	3		2 H <sup>o</sup>
MM412	Human Computer Interaction	3	CS341		✓	3		2 H <sup>T</sup>
Subtotal				15	21-24			
Total				36-39				



جدول 21. مقررات المستوى الثاني لتخصص تكنولوجيا المعلومات

2 <sup>nd</sup> Level Courses								
Code	Course	Credits	Prerequisites	Type		Teaching Hours		
				R	E	L	T	P
CS201	Discrete Structures	3	MATH102	✓		3	2	
CS211	Data Structures and Algorithms	3	CS241	✓		3		2 H <sup>T</sup>
CS241	Object-Oriented Programming	3	CS141	✓		3		2 H <sup>T</sup>
IS201	Foundations of Information Systems	3	IT101		✓	3		2 H <sup>T</sup>
IS211	File Organization	3	CS241		✓	3		2 H <sup>T</sup>
IS212	Databases	3	IS201	✓		3		2 H <sup>T</sup>
IS221	Project Management	2	IT101	✓		2		2 H <sup>O</sup>
IS231	Systems Analysis and Design	3	IT101		✓	3	2	
IT251	Data Communications	3	IT101	✓		3	2	
CE221	Computer Architecture	3	CS141, CS201	✓		3		2 H <sup>T</sup>
MATH201	Mathematics III	3	MATH102		✓	3	2	
MATH202	Probability and Statistics	2	MATH102	✓		2		2 H <sup>T</sup>
EE201	Digital Signal Processing	3	MATH201		✓	3		2 H <sup>T</sup>
HUM231	Business Administration	2	–	✓		2		
HUM232	Technical Writing	2	HUM111	✓		2		2 H <sup>O</sup>
HUM241	Computers and Ethics	1	–	✓		1		
Subtotal				27	0-12			
Total				27-39				



3 <sup>rd</sup> Level Courses								
Code	Course	Credits	Prerequisites	Type		Teaching Hours		
				R	E	L	T	P
CS301	Operation Research	3	CS201		✓	3		2 H <sup>T</sup>
CS302	Simulation and Modeling	3	MATH202		✓	3		2 H <sup>T</sup>
CS321	Operating Systems	3	CE221	✓		3		2 H <sup>T</sup>
CS341	Visual Programming	3	CS211		✓	3		2 H <sup>T</sup>
CS351	Computer Graphics	3	IT101, CS201	✓		3		2 H <sup>T</sup>
CS352	Image Processing	3	CS211	✓		3		2 H <sup>T</sup>
CS381	Software Development and Professional Practice	3	CS211, CS391	✓		3		2 H <sup>T</sup>
CS391	Software Engineering	3	IS231	✓		3	2	
IS321	Advanced Project Management	3	IS221		✓	3		2 H <sup>O</sup>
IT311	Network Security	3	IT351	✓		3		2 H <sup>O</sup>
IT331	Network Management	3	IT351	✓		2		3 H <sup>S</sup>
IT351	Computer Networks	3	IT251, CE221	✓		3		2 H <sup>T</sup>
IT361	Field Training	3	IS221	✓				
IT371	Web Programming	3	IT251 , IT101	✓		3		2 H <sup>T</sup>
MM301	Introduction to Multimedia Technology	3	CS241		✓	3		2 H <sup>T</sup>
MATH301	Numerical Analysis	3	MATH102		✓	3	2	
Subtotal				30	0-15			
Total				30-45				

4 <sup>th</sup> Level Courses								
Code	Course	Credits	Prerequisites	Type		Teaching Hours		
				R	E	L	T	P
IT431	Wireless and Mobile Computing	3	IT251	✓		3		2 H <sup>T</sup>
IT451	Network Analysis and Design	3	IT351, MATH202	✓		3		2 H <sup>T</sup>
IT432	Network Programming	3	IT351		✓	3		2 H <sup>T</sup>
IT441	Enterprise Architecture	3	IT351	✓		3		2 H <sup>O</sup>
IT471	E-commerce	3	IT371		✓	3		2 H <sup>O</sup>
IT433	Network Forensics	3	IT351		✓	3		2 H <sup>O</sup>
IT452	Networked Embedded Systems	3	IT351, CE422		✓	3		2 H <sup>O</sup>
IT461	Capstone Project I	3	CS381, IS221	✓		1		4 H <sup>S</sup>
IT462	Capstone Project II	3	CS381, IS221	✓		1		4 H <sup>S</sup>
CS451	Computer Animation	3			✓	3		2 H <sup>T</sup>
CS431	Parallel Computation	3			✓	3		2 H <sup>T</sup>
CS452	Computer Vision	3	CS241, PHYS102		✓	3		2 H <sup>T</sup>
CS461	Intelligent Systems	3	CS361		✓	3		2 H <sup>O</sup>
IS411	Advanced Database	3	IS212		✓	3		2 H <sup>O</sup>
IS412	Distributed and Object Databases	3	IS212		✓	3		2 H <sup>O</sup>
MM402	Virtual Reality	3			✓	3		2 H <sup>O</sup>
CE421	Advanced Computer Architecture	3	CE221		✓	3		2 H <sup>O</sup>
CE422	Embedded Systems	3	CE221		✓	3		2 H <sup>O</sup>
Subtotal				15	21-24			
Total				36-39				

## برنامج تصميم الوسائط المتعددة

جدول 24. مقررات المستوى الثاني لتخصص تصميم الوسائط المتعددة

2 <sup>nd</sup> Level Courses								
Code	Course	Credits	Prerequisites	Type		Teaching Hours		
				R	E	L	T	P
CS201	Discrete Structures	3	MATH102	✓		3	2	
CS211	Data Structures and Algorithms	3	CS241	✓		3		2 H <sup>T</sup>
CS241	Object-Oriented Programming	3	CS141	✓		3		2 H <sup>T</sup>
IS201	Foundations of Information Systems	3	IT101		✓	2		2 H <sup>T</sup>
IS211	File Organization	3	CS241		✓	2		2 H <sup>T</sup>
IS212	Databases	3	IS201	✓		3		2 H <sup>T</sup>
IS221	Project Management	2	IT101	✓		2		2 H <sup>O</sup>
IS231	Systems Analysis and Design	3	IT101		✓	3	2	
IT251	Data Communications	3	IT101	✓		3	2	
CE221	Computer Architecture	3	CS141, CS201	✓		3		2 H <sup>T</sup>
MATH201	Mathematics III	3	MATH102		✓	3	2	
MATH202	Probability and Statistics	2	MATH102	✓		2		2 H <sup>T</sup>
EE201	Digital Signal Processing	3	MATH201		✓	3		2 H <sup>T</sup>
HUM231	Business Administration	2	-	✓		2		
HUM232	Technical Writing	2	HUM111	✓		2		2 H <sup>O</sup>
HUM241	Computers and Ethics	1	-	✓		1		
Subtotal				27	0-12			
Total				27-39				

جدول 25. مقررات المستوى الثالث لتخصص تصميم الوسائط المتعددة

3 <sup>rd</sup> Level Courses								
Code	Course	Credits	Prerequisites	Type		Teaching Hours		
				R	E	L	T	P
CS301	Operation Research	3	CS201		✓	3		2 H <sup>T</sup>
CS302	Simulation and Modeling	3	MATH202		✓	3		2 H <sup>T</sup>
CS321	Operating Systems	3	CE221	✓		3		2 H <sup>T</sup>
CS341	Visual Programming	3	CS211		✓	3		2 H <sup>T</sup>
CS351	Computer Graphics	3	IT101, CS201	✓		3		2 H <sup>T</sup>
CS352	Image Processing	3			✓	3		2 H <sup>T</sup>
CS353	Advanced Computer Graphics	3	CS352		✓	3		2 H <sup>O</sup>
CS381	Software Development and Professional Practice	3	CS211, CS391	✓		3		3 H <sup>O</sup>
CS391	Software Engineering	3	CS211	✓		3	2	
IT351	Computer Networks	3	IT251, CE221	✓		3		2 H <sup>T</sup>
MM301	Introduction to Multimedia Technology	3	CS241	✓		3		2 H <sup>T</sup>
MM302	Introduction to Digital Video	3	CS241, MATH202	✓		3		2 H <sup>T</sup>
MM321	3D Modeling and Animation	3	IT101	✓		1		6 H <sup>S</sup>
MM331	Field Training	3	IS221	✓				
MATH301	Numerical Analysis	3	MATH102		✓	3	2	
Subtotal				27	0-15			
Total				27-42				

جدول 26. مقررات المستوى الرابع لتخصص تصميم الوسائط المتعددة

4 <sup>th</sup> Level Courses								
Code	Course	Credits	Prerequisites	Type		Teaching Hours		
				R	E	L	T	P
MM401	Interactive Multimedia Development	3	MM301	✓		3		2 H <sup>T</sup>
MM402	Scripting and Storyboarding	3	MM301		✓	3		2 H <sup>T</sup>
MM411	Virtual Reality	3	CS352	✓		3		3
MM412	Human Computer Interaction	3	CS341		✓	3		2 H <sup>T</sup>
MM421	3D Photography and Geometry Processing	3	MM301		✓	3		2 H <sup>T</sup>
MM431	Capstone Project I	3	CS381, IS221	✓		1		4 H <sup>S</sup>
MM432	Capstone Project II	3	CS381, IS221	✓		1		4 H <sup>S</sup>
MM422	Principles of 2D Animation	3	MM301		✓	3		2 H <sup>T</sup>
CS451	Computer Animation	3	CS352	✓		3		2 H <sup>T</sup>
CS452	Computer Vision	3	CS241, PHYS102	✓		3		2 H <sup>T</sup>
CS471	Introduction to Computer Security	3	CS211, IT351		✓	3		2 H <sup>O</sup>
CS463	Pattern Recognition	3	CS361		✓	3		2 H <sup>O</sup>
CS453	Game Programming	3	MM301		✓	3		2 H <sup>O</sup>
IS417	Multimedia Databases	3	IS212, CS241		✓	3		2 H <sup>O</sup>
IT371	Web Programming	3	CS141, IT251		✓	3		2 H <sup>T</sup>
Subtotal				18	18-24			
Total				36-42				