



**Batch Wise Approved Curriculum**

From the Desk of **MUHAMMAD ABID RAFI**

I

**Electives**

CID	CCode	Course Title	Cr Hrs	Total Marks	Pre Requisite
2443	CS 7201	<b>Advanced Algorithm Analysis</b>	3	100	
2318	CS 7401	Advanced Computer Networks	3	100	
4011	CS 7202	<b>Advanced Software Engineering</b>	3	100	
5613	CS 7101	Advanced Theory Of Computation	3	100	
7368	CS 9199	Dissertation	6	100	
2205	EE 7107	Research Methodology	3	100	
7369	CS 8199	Thesis	6	100	

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CID	CCode	Course Title	Cr Hrs	Total Marks	Pre Requisite
2133	CS 7216	<b>Advanced Artificial Intelligence</b>	3	100	
2354	EE 7601	<b>Advanced Communication Networks</b>	3	100	
2307	EE 7701	<b>Advanced Computer Architecture</b>	3	100	
4178	CS 7217	<b>Advanced Human Computer Interaction</b>	3	100	
2131	CS 7207	<b>Advanced Object Oriented Programming</b>	3	100	
2359	CS 7103	<b>Advanced Operating Systems</b>	3	100	
2277	CS 8206	<b>Advanced Optimization Techniques And Algorithms</b>	3	100	
2180	CS 7218	<b>Advanced Programming And Algorithms</b>	3	100	
2137	CS 8205	<b>Agent Oriented Software Engineering</b>	3	100	
2357	CS 7410	Cloud Computing	3	100	
2112	CS 7411	<b>Computer And Network Security</b>	3	100	
2356	CS 7408	Cryptography	3	100	
2290	CS 7104	<b>Data Warehousing And Data Mining</b>	3	100	
4003	CS 7220	<b>Design And Analysis Of Algorithms</b>	3	100	
2136	CS 8202	<b>Empirical Software Engineering</b>	3	100	
2291	CS 8204	<b>Enterprise System Databases And Programming</b>	3	100	
2194	EE 7606	<b>Error Control Coding</b>	3	100	
2349	CS 7109	<b>Game Theory</b>	3	100	
2287	CS 7208	<b>Graphics Programming</b>	3	100	
2210	CS 7407	<b>High-Speed Broadband Networks</b>	3	100	
2391	CS 7501	Information Theory And Coding	3	100	
2181	CS 7221	<b>Internet Programming</b>	3	100	
2209	CS 7402	Internet Protocols	3	100	
2211	CS 8402	<b>Internetworking Architectures, Protocols And Applications</b>	3	100	
2285	CS 7405	<b>Ip Telephony And Voice Over Ip</b>	3	100	
2134	CS 7219	<b>Knowledge Engineering</b>	3	100	
4004	EE 8804	<b>Multi-Core Programming And Architecture</b>	3	100	
2175	CS 7406	<b>Multi-Layer Switching Architecture</b>	3	100	
2174	CS 7404	<b>Multimedia Networking</b>	3	100	
2127	CS 7403	<b>Network Management</b>	3	100	
2394	CS 7409	<b>Network Performance Analysis</b>	3	100	
2236	CS 8101	<b>Neural And Fuzzy Systems</b>	3	100	
2320	CS 8405	<b>Next Generation Networks</b>	3	100	
2361	CS 7211	<b>Object Oriented Software Engineering</b>	3	100	
2250	EE 7610	<b>Optical Communication Systems</b>	3	100	
2319	CS 8404	<b>Qos Architectures For Multimedia Wireless Networks</b>	3	100	
2286	CS 8401	<b>Selected Topics In Computer And Communication Networks</b>	3	100	



**HAMDARD UNIVERSITY**

City Campus  
Doctor of Philosophy in Computer Science  
SPM-2019-PHDCS-CC (I Semester)

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CID	CCode	Course Title	Cr Hrs	Total Marks	Pre Requisite
4005	CS 8201	<i>Selected Topics In Software Engineering</i>	3	100	
2362	CS 7212	<i>Software Architecture</i>	3	100	
2289	CS 7213	<i>Software Design Patterns</i>	3	100	
2213	CS 7203	<i>Software Development Methods</i>	3	100	
2364	CS 8203	<i>Software Engineering And Formal Specifications</i>	3	100	
2130	CS 7205	<i>Software Engineering Economics</i>	3	100	
2363	CS 7214	<i>Software Process Improvement</i>	3	100	
2214	CS 7204	<i>Software Project Management</i>	3	100	
2360	CS 7206	<i>Software Testing And Quality Assurance</i>	3	100	
4002	EE 7613	<i>Telecommunication Traffic Engineering</i>	3	100	
2177	CS 7417	Ubiquitous Computing	3	100	
2179	CS 7209	<i>Web Services And Service Oriented Architecture</i>	3	100	
2115	EE 7602	<i>Wireless And Mobile Communication Systems</i>	3	100	
2381	EE 7614	<i>Wireless Multiple Access Communication</i>	3	100	
2128	CS 7416	<i>Wireless Sensor Networks</i>	3	100	