

STUDY PLAN

Master of Computer Science Thesis-Route

Level	Course Code	Course Title	Required or Elective	Prerequisite Courses	Credit Hours
Level 1	14016101-3	Advanced Software Engineering	Required	---	3
	14016102-3	Advanced Database Systems	Required	---	3
	14016103-3	Advanced Operating System	Required	---	3
	14016104-3	Research Methods in CS	Required	---	3
Level 2	14016201-3	Algorithms Design	Required	---	3
	14016202-1	MS Group Project	Required	---	1
	14016xxx-3	Elective 1	Elective	see elective list	3
	14016xxx-3	Elective 2	Elective	see elective list	3
	14016xxx-3	Elective 3	Elective	see elective list	3
Level 3	14016301-2	Independent Studies I	Required	14016104-3	2
	14016403-10	Thesis	Required	14016104-3	0
Level 4	14016401-2	Independent Studies II	Required	14016301-2	2
	14016403-10	Thesis	Required	14016104-3	10
		Total			39

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Elective Courses – Related to Software Engineering

Serial Number	Level	Course ID	Course Name	Pre-Requisite
1	3	14016331-3	Computer Systems Programming	14016101-3
2	3	14016332-3	Design Patterns	14016101-3
3	3	14016333-3	Functional and Concurrent Programming	14016101-3
4	3	14016334-3	Mobile Applications Development	14016101-3
5	3	14016335-3	Service Oriented Architecture	14016101-3
6	3	14016336-3	Simulation Modelling for Computer Science	14016101-3
7	3	14016337-3	Software Architecture	14016101-3
8	3	14016338-3	Software Project Management and Development	14016101-3
9	3	14016339-3	Software Testing	14016101-3
10	3	14016431-3	Web Application Development	14016101-3
11	3	14016432-3	Advanced topics in Software Engineering	14016101-3

Elective Courses – Related to Cyber Security

Serial Number	Level	Course ID	Course Name	Pre-Requisite
1	3	14016321-3	Cryptography Fundamentals	14016103-3
2	3	14016322-	Cyber Defense in Web-Based Attacks	14016103-3
3	3	14016323-3	Cyber Security and Digital Crime	14016103-3
4	3	14016324-3	Digital Forensics and Investigations	14016103-3
5	3	14016325-3	Ethical Hacking and Penetration Testing	14016103-3
6	3	14016326-3	Mobile Security	14016103-3

7	3	14016327-3	Securing Enterprise Infrastructure using Security Techniques	14016103-3
8	3	14016328-3	Introduction to Blockchain	14016103-3
9	3	14016428-3	Advanced Topics in Cyber Security	14016103-3

Elective Courses – Related to Data Science

Serial Number	Level	Course ID	Course Name	Pre-Requisite
1	3	14016311-3	Cloud Computing and Big Data	14016102-3
2	3	14016312-3	Data Management and Governance	14016102-3
3	3	14016313-3	Data Mining	14016102-3
4	3	14016314-3	GIS Analytics	14016102-3
5	3	14016315-3	Information Retrieval and Web Search	14016102-3
6	3	14016316-3	Social Media Analytics	14016102-3
7	3	14016417-3	Healthcare analytics	14016102-3
8	3	14016418-3	Business Analytics	14016102-3
9	3	14016419-3	Advanced topics in Data Science	14016102-3

Elective Courses – General Computer Science Courses

Serial Number	Level	Course ID	Course Name	Pre-Requisite
1	3	14016341-3	Introduction to Bio-Informatics	
2	3	14016342-3	Distributed Systems	
3	3	14016343-3	High Performance Computing	
4	3	14016344-3	Introduction to Robotics	
5	3	14016345-3	IoT Systems	
6	3	14016346-3	IT and Entrepreneurship	

7	3	14016347-3	Wireless Communications and Networks	
8	3	14016448-3	Advanced topics in Computer Science	