Academic Regulations, Curriculum and Syllabi

2016

B. Tech.
Computer Science and Engineering
(4 Year Program)

Department of Computer Science and Engineering
GMR Institute of Technology
Rajam, Andhra Pradesh
(An Autonomous Institute Affiliated to JNTU Kakinada, AP)
NBA Accredited and NAAC Accredited

Department of Computer Science and Engineering
[Minimum Credits to be earned: 174 (for regular students)/132(for Lateral entry students)]

First Semester

No	Course Code	Course	POs	L	T	P	C
				Periods			
1	16HSX01	English Communication Skills I	10	3	1	-	3
2	16MAX01	Engineering Mathematics I	1,2	3	1	-	3
3	16PYX01	Engineering Physics	1,2	3	1	-	3
4	16MEX01	Engineering Mechanics	1,2,3	3	1	-	3
5	16CSX01	Problem Solving using C	1,2,3	3	1	-	3
6	16PYX02	Engineering Physics Lab	4	-	-	3	2
7	16CSX02	Problem Solving using C Lab	4	-	-	3	2
8	16MEX02	Engineering Drawing	4,9,10	-	-	3	2
		Total		15	5	9	21

Second Semester

No	Course Code	Course	POs	L	T	P	C
1	16HSX03	English Communication Skills II	10	3	1	-	3
2	16MAX02	Engineering Mathematics II	1,2	3	1	-	3
3	16CYX01	Engineering Chemistry	1,2	3	1	-	3
4	16EEX01	Basic Electrical Engineering	1,3	3	1	-	3
5	16CHX01	Environmental Studies	1,3, 6,7	3	1	-	3
6	16HSX02	English Communication Skills Lab	10	-	-	3	2
7	16CYX02	Engineering Chemistry Lab	4	-	-	3	2
8	16MEX03	Engineering Workshop	1,2,10,12	-	-	3	2
		Total		15	5	9	21

Third Semester

No	Course Code	Course	POs	L	T	P	C
				Periods			
1	16IT305	Data Structures	1,2,3	3	1	-	3
2	16IT306	Object Oriented Programming through Java	1,2,3	3	1	-	3
3	16CS303	Computer Organization and Architecture	1,2,3	3	1	-	3
4	16CS304	Database Management Systems	1,2,3	3	1	-	3
5	16CS305	Digital Logic Design	1,2,3,6	3	-	2	4
6	16CS306	Discrete Structures & Graph Theory	1,2,3	3	1	-	3
7	16IT308	Data Structures Lab	3,4,5	-	-	3	2
8	16IT309	Java Lab	2, 3, 4, 5	-	-	3	2
9	16CS309	Database Management Systems Lab	2, 3, 4, 5	-	-	3	2
10		CCEC Activity - I		-	-	3	-
11	16ESX01	Employability Skills - I		-	2	-	-
		Total		18	7	14	25

Fourth Semester

No	Course Code	Course	POs	L	T	P	C
1	16MA405	Probability and Statistics	1,2	3	1	-	3
2	16EC410	Microprocessors and Interfacing	1,2, 3	3	1	-	3
3	16IT406	Operating Systems	1, 2, 3	3	1	-	3
4	16CS404	Software Engineering	1,2, 3, 4, 5	3	-	2	4
5	16CS405	Theory of Computation	1, 2, 3	3	1	-	3
6	16CS406	Web Technologies	1,3, 5, 6	3	1	-	3
7	16EC411	Microprocessors and Interfacing Lab	2, 4, 9	-	-	3	2
8	16CS408	Linux Programming Lab.	1,4, PSO2	-	-	3	2
9	16CS409	Web Technologies Lab	3, 4, 5, 8	-	-	3	2
10		CCEC Activity - I		-	-	3	1
11	16ESX02	Employability Skills – II		-	2	-	1
		Total		18	7	14	27

Fifth Semester

No	Course Code	Course	POs	Periods			
				L	T	P	C
1	16IT404	Computer Networks	1,2, 3	3	1	-	3
2	16IT505	Object Oriented Analysis and Design	2, 3, 4, 5	3	-	2	4
3	16IT602	Artificial Intelligence	2, 3,PS02	3	1	-	3
4	16CS504	Compiler Design	2, 3, 5	3	1	-	3
5	16CS505	Design and Analysis of Algorithms	2, 3	3	1	-	3
6		Elective I / CC		3	1	-	3
7	16IT409	Computer Networks Lab	2, 4, 5	-	-	3	2
8	16CS509 / 16CS510	Term Paper / Mini Project	2, 4, 8, 10, 12; 2, 3, 4, 5, 8, 9, 10, 11, PSO1, PSO2	-	-	3	2
9		CC & EC Activity II		-	-	3	-
10	16ESX03	Employability Skills – III		-	2	-	-
11		Summer Internship		-	-	-	-
			Total	18	5	11	23

Sixth Semester

No	Course Code	Course	POs	Periods			
				L	T	P	C
1	16HSX04	Engineering Economics & Project Management	11, POS2	3	1	-	3
2	16CS602	Data Mining	2, 3, 4, 5	3	-	2	4
3	16CS603	Internet of Things	3, 7	3	1	-	3
4	16CS604	Mobile Computing	2, 3, 5				
5		Elective II/CC		3	1	-	3
6		Elective III (Open Elective)		3	1	-	3
7	16CS607	IoT Lab	4	-	-	3	2
8	16CS510 / 16CS509	Mini Project / Term Paper	2, 4. 8. 10. 12 ; 2, 3, 4, 5, 8, 9, 10, 11, PSO1, PSO2	-	-	3	2
9		Audit Course		-	-	-	-
10		CC & EC Activity II		-	-	3	1
11	16ESX04	Employability Skills - IV		-	2	-	1
		Total		18	5	11	25

Seventh Semester

No	Course Code	Course	POs	Periods			
				L	T	P	C
1	16IT701	Big Data Analytics	2, 5, 6	3	1	-	3
2		Elective IV/CC		3	1	-	3
3		Elective V/CC		3	1	-	3
4	16IT705	Big Data Analytics Lab	3, 4, 5	-	-	3	2
5	16CS705	Mobile Application Development Lab	2, 3, 4,5,8	-	-	3	2
6	16CS706	Full Semester Internship[1]	2,5,8,9,10,11,12	-	-	-	16
			Total	9	3	6	13/16

Eighth Semester

No	Course Code	Course	POs	Periods			
1	16IT802	Professional Ethics	6, 8	3	1	-	3
2	16CS802	Machine Learning	2, 5	3	1	-	3
3		Elective VI/CC		3	1	-	3
4	16CS804	Project work	1, 3,4,9,10,11,12, PSO2	-	-	-	10
5	16CS706	Full Semester Internship[2]	2,5,8,9,10,11,12, PSO1	-	-	-	16
			Total	9	3	-	19/16

[1] Student who opt for FSI-16CS706 during 7th semester, have to register one more additional elective and 16CS704 & 16CS705 as additional lab courses during 8th semester

[2] Student the who opt for FSI-16CS706 during 8th semester, have to register an additional course in consultation with HoD during 7th semester

List of Electives, Contemporary Courses, Courses, Audit Courses, Employability Skills and One Credit Courses

No	Course Code	Course	POs	L	T	P	C
Elective I							
1	16IT001	Information System Design	2, 3, 4, 12	3	1	-	3
2	16CS001	Computer Graphics & Multimedia	1,2, 3, 4	3	1	-	3
3	16CS002	Software Design Patterns	2, 3, 5	3	1	-	3
4		MOOCs		-	-	-	3
Elective II							
1	16CS003	Qualitative Data Analysis	3, 5	3	1	-	3
2	16CS004	Real Time Operating Systems	2, 3, 5, PSO1	3	1	-	3
3	16CS005	Service Oriented Architecture	3, 5, 8	3	1	-	3
4		MOOCs		-	-	-	3
Elective III (Open Electives – Mathematics, Chemistry, Entrepreneurship Skills, Industrial Safety and Engineering & Technology)							
1	16CE007	Disaster Management	2, 6, 7, 10	3	1	-	3
2	16EE004	Renewable Energy Sources	7, 11, 12	4	-	-	3
3	16ME009	Principles of Entrepreneurship	11	3	1	-	3
4	16EC004	Fundamentals of GPS	2,4,5,6	3	1	-	3
5	16CS006	Computational Intelligence	1,2,3,4, 9	3	1	-	3
6	16CS007	IoT for Engineering Applications	1,5	3	1	-	3
7	16CH007	Industrial Safety and Hazard Management	2,3,6,8	3	1	-	3
8	16IT005	Fundamentals of Cloud Computing	2,5,6	3	1	-	3
9	16PE007	Smart Grid Technology	4,7	3	1	-	3
10	16MA001	Computational Mathematics	2,9	3	1	-	3
11	16CY001	Nano Science & Technology	2,3,6,7,12	3	1	-	3
Elective IV							
1	16EC602	Digital Signal Processing	2, 3, 4	3	1	-	3
2	16IT006	Human Computer Interaction	2, 3, 5	3	1	-	3
3	16IT003	Information Retrieval Systems	3, 5, 6	3	1	-	3
4	16CS008	Software Project Management	3, 5, 6, PSO2	3	1	-	3
5		MOOCs		-	-	-	3
Elective V							
1	16IT002	Distributed Systems	3, 7	3	1	-	3
2	16IT007	Middleware Technologies	3, 5	3	1	-	3
3	16IT009	Cryptography and Network Security	5,6,8	3	1	-	3
4	16CS009	Social Network Analysis	2, 4, 5, 12	3	1	-	3
5		MOOCs		-	-	-	3
Elective VI							
1	16EC005	Digital Image Processing	2, 3, 5, 6	3	1	-	3
2	16IT010	Computer Forensics	2, 3, 5	3	1	-	3
3	16IT011	E & M Commerce	5, 6				
4	16IT504	Cloud Computing	3, 5, 6	3	1	-	3
5	16CS010	Multimedia Databases	3, 5, 6				
6	16CS011	Wireless Ad hoc Networks	3, 5, 6	3	1	-	3
		MOOCs		-	-	-	3

Contemporary Courses (CC)³

1	16IT012	Data Analytics I	3,5,6	4	-	-	3
2	16IT013	Data Analytics II	3, 5,6,7	4	-	-	3
3	16IT014	Data Analytics III	3,5,6	4	-	-	3
4	16CS012	Security Analytics I	3, 5, 6	4	-	-	3
5	16CS013	Security Analytics II	1,2,4,5	4	-	-	3
6	16CS014	Security Analytics III	2,4,5	4	-	-	3
7	16IT016	Enterprise Application Development using IBM RAD & Bluemix	3, 5, 6,7	4	-		
8	16IT017	Big Data Analytics with Hadoop Platform	3, 5, 6, 7	4	-		
9	16IT018	Foundation Course in Security Identity and Access Management	3, 5, 6, 7	4	-		
10	16CSX16	Digital Marketing (Self Study)	2, 5, 12	-	-	-	1

One Credit Course (s)³

1	16CSI01	Tibero DB		1	0	0	1
2	16CSI02	Data Modeling		1	0	0	1

Audit Courses

1	16AT001	Contemporary India: Economy, Polity and Society (ME)		-	-	-	-
2	16AT002	Indian Heritage and Culture (EEE)		-	-	-	-
3	16AT003	Intellectual Property Rights and Patents (ECE)		-	-	-	-
4	16AT004	Introduction to Journalism (CSE)		-	-	-	-
5	16AT005	Professional Ethics and Morals (CE)		-	-	-	-
6	16AT006	Science, Technology and Development (Chem)		-	-	-	-
7	16AT007	Industrial sociology (PE)		-	-	-	-
8	16AT008	Organizational Behavior (IT)		-	-	-	-
9	16AT009	Communication Etiquette in workplaces (BS & H)		-	-	-	-

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³ Contemporary and One Credit Courses may vary from one Academic Year to another Academic Year and depends on the recent trends in the industries