

# E.G.S. PILLAY ENGINEERING COLLEGE

(Autonomous)

Approved by AICTE, New Delhi | Affiliated to Anna University, Chennai  
Accredited by NAAC with 'A' Grade | Accredited by NBA (CSE, EEE, MECH)

NAGAPATTINAM – 611 002



## B.TECH. INFORMATION TECHNOLOGY R-2019

### Full Time Curriculum and Syllabus (III – VIII Semesters) SECOND YEAR

SEMESTER III										
Course Code	Course Name	L	T	P	C	Maximum Marks			Category	
						CA	ES	Total		
<b>Theory Course</b>										BS
1901MA301	Engineering Mathematics III (Probability, Queuing Theory and Statistics)	3	2	0	4	40	60	100		BS
1902IT301	Data Structures and Algorithms	3	0	0	3	40	60	100		PC
1902IT302	Computer Organization and Architecture	3	0	0	3	40	60	100		PC
1902IT303	Digital Principles and Design	3	0	0	3	40	60	100		PC
1902IT304	Problem solving using Python	3	0	0	3	40	60	100		BS
1902IT305	Biology for IT	3	0	0	3	40	60	100		BS
<b>Laboratory Course</b>										PC
1902IT351	Data Structures and Algorithms Lab	0	0	2	1	50	50	100		PC
1902IT352	Digital Principles and Design Lab	0	0	2	1	50	50	100		PC
1902IT353	Python Programming Lab	0	0	2	1	50	50	100		PC
1904GE351	Life Skills: Verbal Ability	0	0	2	1	100	-	100		EEC
<b>Audit Course</b>										-
	Constitution of India	2	0	0	-	100	-	100		-
Total		20	2	8	23	590	510	1100		-

SEMESTER IV										
Course Code	Course Name	L	T	P	C	Maximum Marks			Category	
						CA	ES	Total		
<b>Theory Course</b>										BS
1902IT401	Database Management Systems	3	0	0	3	40	60	100		BS
1902IT402	Java Programming	3	0	0	3	40	60	100		PC
1902IT403	Operating Systems	3	0	0	3	40	60	100		PC
1902IT404	Software Engineering and Project Management	3	0	0	3	40	60	100		PC
1902IT405	Computer Networks	3	2	0	4	40	60	100		PC
1902IT406	Principles of Communication	3	0	0	3	40	60	100		PC
<b>Laboratory Course</b>										PC
1902IT451	Database Management Systems Lab	0	0	2	1	50	50	100		PC
1902IT452	Java Programming Lab	0	0	2	1	50	50	100		PC
1902IT453	Operating Systems Lab	0	0	2	1	50	50	100		PC
1904GE451	Life Skills: Softskill	0	0	2	1	100	-	100		EEC
<b>Audit Course</b>										-
	Environmental Sciences	2	0	0	-	100	-	100		-
Total		20	2	8	23	590	510	1100		-

## THIRD YEAR

SEMESTER V										
Course Code	Course Name	L	T	P	C	Maximum Marks			Category	
						CA	ES	Total		
<b>Theory Course</b>										
190211501	Object Oriented Analysis and Design	3	0	0	3	40	60	100	-	PC
190211502	Web Programming	3	0	0	3	40	60	100		PC
190211503	Security in Computing	3	0	0	3	40	60	100		PC
190211504	Internet of Things	3	0	0	3	40	60	100		PC
	Professional Core Elective I	3	0	0	3	40	60	100		PE
	Humanities Science Elective I	3	0	0	3	40	60	100		HSSE
<b>Laboratory Course</b>										
190211551	Web Programming Lab	0	0	2	1	50	50	100		PC
190411551	Case Tools (Mini Project I)	0	0	2	1	50	50	100		EEC
1904GE551	Life Skills: Aptitude I	0	0	2	1	100	-	100		EEC
190411552	Startup Opportunities for IT Engineers	0	0	2	1	100	-	100		EEC
<b>Audit Course</b>										
	Essence of Indian Traditional Knowledge	2	0	0	-	100	-	100		
<b>Total</b>		<b>20</b>	<b>0</b>	<b>8</b>	<b>22</b>	<b>640</b>	<b>460</b>	<b>1100</b>		<b>-</b>



## LIST OF ELECTIVES

Course Code	Course Name	L	T	P	C	Maximum Marks			Category	
						CA	ES	Total		
<b>ELECTIVE - I</b>										
1903IT001	Software Testing Methods and Tools	3	0	0	3	40	60	100	PE	
1903IT002	Virtual Reality	3	0	0	3	40	60	100	PE	
1903IT003	Information Theory and Coding	3	0	0	3	40	60	100	PE	
1903IT004	Mainframe Computing	3	0	0	3	40	60	100	PE	
<b>ELECTIVE - II</b>										
1903IT005	Multi core Architecture	3	0	0	3	40	60	100	PE	
1903IT006	Cyber Security	3	0	0	3	40	60	100	PE	
1903IT007	Compiler Design	3	0	0	3	40	60	100	PE	
1903IT008	Wireless Communication	3	0	0	3	40	60	100	PE	
<b>ELECTIVE - III</b>										
1903IT009	Robot Process and Automation	3	0	0	3	40	60	100	PE	
1903IT010	Computer Vision	3	0	0	3	40	60	100	PE	
1903IT011	Information Management	3	0	0	3	40	60	100	PE	
1903IT012	Software Architectures	3	0	0	3	40	60	100	PE	
<b>ELECTIVE - IV</b>										
1903IT013	Enterprise Resource Planning	3	0	0	3	40	60	100	PE	
1903IT014	Business Intelligence	3	0	0	3	40	60	100	PE	
1903IT015	Data Analytics	3	0	0	3	40	60	100	PE	
1903IT016	Social Network Analysis	3	0	0	3	40	60	100	PE	
<b>ELECTIVE - V</b>										
1903IT017	Human Computer Interaction	3	0	0	3	40	60	100	PE	
1903IT018	Blockchain Technologies	3	0	0	3	40	60	100	PE	
1903IT019	Game Programming	3	0	0	3	40	60	100	PE	
1903IT020	Deep Learning	3	0	0	3	40	60	100	PE	
<b>HUMANITIES AND SCIENCE ELECTIVE - I</b>										
1901MGX04	Principles of Management	3	0	0	3	40	60	100	PE	
1901MGX05	Engineering Economics and Finance	3	0	0	3	40	60	100	PE	
1901MGX06	Human Resource Development in IT	3	0	0	3	40	60	100	PE	
1901MGX01	Total Quality Management	3	0	0	3	40	60	100	PE	
<b>HUMANITIES AND SCIENCE ELECTIVE - II</b>										
1901HS001	Innovation and Entrepreneurship Fundamentals	3	0	0	3	40	60	100	PE	
1901HS002	Intellectual Property Rights for Engineers	3	0	0	3	40	60	100	PE	
1901HS003	Startup Entrepreneurship	3	0	0	3	40	60	100	PE	
1901HS004	Business Model Innovation	3	0	0	3	40	60	100	PE	
<b>HUMANITIES AND SCIENCE ELECTIVE - III</b>										
1901HS005	Social Entrepreneurship	3	0	0	3	40	60	100	OE	
1901HS006	Design Thinking for Innovation	2	0	3	4	50	50	100	OE	
1901HS007	Indian Patent Law and Patent Drafting	3	0	0	3	40	60	100	OE	
1901HS008	IP Management and Commercialization	3	0	0	3	40	60	100	OE	
<b>ONE CREDIT COURSES</b>										
1905IT001	Full Stack Developer	-	-	-	1	40	60	100	EEC	
1905IT002	Devops	-	-	-	1	40	60	100	EEC	
1905IT003	Angular JS	-	-	-	1	40	60	100	EEC	
1905IT004	Sales force Trail Head	-	-	-	1	40	60	100	EEC	
1905IT005	VMware Data Centre And Virtualization	-	-	-	1	40	60	100	EEC	
1905IT006	R-Programming	-	-	-	1	40	60	100	EEC	
1905IT007	EMC Cloud Infrastructure And Services	-	-	-	1	40	60	100	EEC	
1905IT008	Amazon Web Services Cloud Computing Architect	-	-	-	1	40	60	100	EEC	
1905IT009	Agriculture For Engineers	-	-	-	1	40	60	100	EEC	
1905IT010	Mongo And Maria Db	-	-	-	1	40	60	100	EEC	
1905IT011	Building Smart Cities	-	-	-	1	40	60	100	EEC	
1905IT012	Industrial Safety For Engineers	-	-	-	1	40	60	100	EEC	
1905IT013	Introduction To Fisheries Engineering	-	-	-	1	40	60	100	EEC	
1905IT014	Political Science	-	-	-	1	40	60	100	EEC	
1905IT015	Visual Communication	-	-	-	1	40	60	100	EEC	

## FINAL YEAR

SEMESTER VII									
Course Code	Course Name	L	T	P	C	Maximum Marks			Category
						CA	ES	Total	
<b>Theory Course</b>									
	Professional Ethics	3	0	0	3	40	60	100	HS
1902IT701	Cloud Computing	3	0	0	3	40	60	100	PC
	Professional Core Elective III	3	0	0	3	40	60	100	PE
	Humanities Science Elective III	3	0	0	3	40	60	100	HSSE
	Open Elective - II	3	0	0	3	40	60	100	OE
<b>Laboratory Course</b>									
1904IT751	Software Development (Mini Project III)	0	0	2	1	50	50	100	EEC
1904GE751	Life Skills: Comprehensive	2	0	0	2	100	-	100	EEC
	Total	<b>17</b>	<b>0</b>	<b>2</b>	<b>18</b>	<b>350</b>	<b>350</b>	<b>700</b>	-

SEMESTER VIII									
Course Code	Course Name	L	T	P	C	Maximum Marks			Category
						CA	ES	Total	
<b>Theory Course</b>									
	Professional Core Elective IV	3	0	0	3	40	60	100	PE
	Professional Core Elective V	3	0	0	3	40	60	100	PE
<b>Laboratory Course</b>									
1904IT851	Project Work	0	0	14	7	50	50	100	EEC
	Total	<b>6</b>	<b>0</b>	<b>14</b>	<b>13</b>	<b>130</b>	<b>170</b>	<b>300</b>	-



**SEMESTER III**

Course Code	Course Name	L	T	P	C	Maximum Marks			Category
						CA	ES	Total	
<b>Theory Course</b>									
1901MA301	Engineering Mathematics III (Probability, Queuing Theory and Statistics)	3	2	0	4	40	60	100	BS
1902IT301	Data Structures and Algorithms	3	0	0	3	40	60	100	PC
1902IT302	Computer Organization and Architecture	3	0	0	3	40	60	100	PC
1902IT303	Digital Principles and Design	3	0	0	3	40	60	100	PC
1902IT304	Problem solving using Python	3	0	0	3	40	60	100	PC
1902IT305	Biology for IT	3	0	0	3	40	60	100	BS
<b>Laboratory Course</b>									
1902IT351	Data Structures and Algorithms Lab	0	0	2	1	50	50	100	PC
1902IT352	Digital Principles and Design Lab	0	0	2	1	50	50	100	PC
1902IT353	Python Programming Lab	0	0	2	1	50	50	100	PC
1904GE351	Life Skills: Verbal Ability	0	0	2	1	100	-	100	EEC
<b>Audit Course</b>									
	Constitution of India	2	0	0	-	100	-	100	-
	<b>Total</b>	<b>20</b>	<b>2</b>	<b>8</b>	<b>23</b>	<b>590</b>	<b>510</b>	<b>1100</b>	<b>-</b>

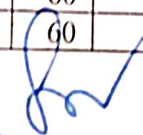
DATABASE MANAGEMENT SYSTEMS				L	T	P	C
				3	0	0	3
AIM: To introduce the concepts of database management systems and the design of relational databases							
PREREQUISITE: Computer Programming Languages							
COURSE OBJECTIVES:							
<ol style="list-style-type: none"> <li>To understand the fundamentals of data models and conceptualize and depict a database system using ER diagram</li> <li>To make a study of SQL and relational database design</li> <li>To know about data storage techniques a query processing.</li> <li>To impart knowledge in transaction processing, concurrency control techniques and recovery procedures.</li> <li>To familiarize the students with the different types of databases.</li> </ol>							
<b>UNIT I INTRODUCTION</b>							<b>9 Hours</b>
Introduction to database - Data Base Architecture - Data Independence - Functional Dependencies - Relational Algebra-Entity relationship model - mapping cardinalities-keys, E-R diagrams.							
<b>UNIT II QUERY LANGUAGE &amp; OPTIMIZATION</b>							<b>9 Hours</b>
Relational Calculus - Tuple Relational Calculus - Domain Relational Calculus - SQL - DDL- DML- DCL-TCL-Embedded SQL-Static Vs Dynamic SQL - Views - Constraints - Query processing and optimization- Normal Forms - 1NF to 5NF-Domain Key Normal Form							
<b>UNIT III TRANSACTION PROCESSING</b>							<b>9 Hours</b>
Transaction Processing - Properties of Transactions - Serializability - Concurrency Control-Locking Mechanisms - Time Stamp ordering -Two phase Commit Protocol-Deadlock-Recovery systems-Log-based recovery.							
<b>UNIT IV FILES AND INDEXING</b>							<b>9 Hours</b>
Overview of Physical Storage Media-RAID -File Organization-File operations - Hashing Techniques - Indexing -Single level and Multi-level Indexes-B+ tree Index Files-B tree Index Files.							
<b>UNIT V ADVANCED TOPICS</b>							<b>9 Hours</b>
Data warehousing, heterogeneous component systems-Data mining and knowledge discovery-OODBMS- Object Relational Databases -XML Data Base - Cloud based systems - NOSQL introduction -Hbase data model -Database Tuning -Case Study for Design and Manage the Database for any Project.							
						<b>TOTAL:</b>	<b>45 HOURS</b>
<b>FURTHER READING / SEMINAR :</b>							
<ol style="list-style-type: none"> <li>Advanced Database Technology</li> <li>Data mining and Data warehousing, Data Analytics</li> </ol>							
<b>COURSE OUTCOMES:</b>							
After completion of the course, Student will be able to							
CO1	Classify the modern and futuristic database applications based on size and complexity						
CO2	Map ER model to Relational model to perform database design effectively						
CO3	Apply queries using normalization criteria and optimize the queries						
CO4	Compare and contrast various indexing strategies in different database systems						
CO5	Appraise how advanced databases differ from traditional databases						
CO6	Design XML schema, able to write XML queries for information retrieval						
<b>REFERENCES:</b>							
1.Abraham Silberschatz, Henry F.Korth and S.Sundarshan "Database System Concepts", Sixth Edition, McGraw Hill, 2017.							
2. Ramez Elmasri and Shamkant B. Navathe, "Fundamentals of Database Systems", Fifth Edition, Pearson Education, 2013.							
3.Thomas M. Connolly and Carolyn E. Begg, —Database Systems - A Practical Approach to Design, Implementation, and Management, fifth edition, Pearson Education, 2011							
4.C.J.Date, A.Kannan and S.Swamynathan, —An Introduction to Database Systems, Eighth Edition, Pearson Education, 2012.							
5.Raghu Ramakrishnan, —Database Management Systems, Fourth Edition, McGraw-Hill College Publications, 2015.							
6.Frank. P. Coyle, "XML, Web Services And The Data Revolution", Pearson Education, 2012							



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### LIST OF ELECTIVES

Course Code	Course Name	L	T	P	C	Maximum Marks			Category
						CA	ES	Total	
<b>PROFESSIONAL CORE ELECTIVE II</b>									
1903IT006	Multicore Architecture	3	0	0	3	40	60	100	PE
1903IT007	Cyber Security	3	0	0	3	40	60	100	PE
1903IT008	Compiler Design	3	0	0	3	40	60	100	PE
1903IT009	Wireless Communication	3	0	0	3	40	60	100	PE
<b>HUMANITIES AND SCIENCE ELECTIVE - II</b>									
1901HS001	Innovation and Entrepreneurship Fundamentals	3	0	0	3	40	60	100	PE
1901HS002	Intellectual Property Rights for Engineers	3	0	0	3	40	60	100	PE
1901HS003	Startup Entrepreneurship	3	0	0	3	40	60	100	PE
1901HS004	Business Model Innovation	3	0	0	3	40	60	100	PE

  
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