ANNA UNIVERSITY, CHENNAI
AFFILIATED INSTITUTIONS
R-2013
B.E. COMPUTER SCIENCE AND ENGINEERING
I TO VIII SEMESTER CURRICULUM AND SYLLABUS

SEMESTER I

SL. No.	COURSE CODE	COURSE TITLE	L	T	P	C
THEORY						
1.	HS6151	Technical English – I	3	1	0	4
2.	MA6151	Mathematics – I	3	1	0	4
3.	PH6151	Engineering Physics – I	3	0	0	3
4.	CY6151	Engineering Chemistry – I	3	0	0	3
5.	GE6151	Computer Programming	3	0	0	3
6.	GE6152	Engineering Graphics	2	0	3	4
PRACTICALS						
7.	GE6161	Computer Practices Laboratory	0	0	3	2
8.	GE6162	Engineering Practices Laboratory	0	0	3	2
9.	GE6163	Physics and Chemistry Laboratory - I	0	0	2	1
		TOTAL	**17**	**2**	**11**	**26**

SEMESTER II

SL. No.	COURSE CODE	COURSE TITLE	L	T	P	C
THEORY						
1.	HS6251	Technical English – II	3	1	0	4
2.	MA6251	Mathematics – II	3	1	0	4
3.	PH6251	Engineering Physics – II	3	0	0	3
4.	CY6251	Engineering Chemistry – II	3	0	0	3
5.	CS6201	Digital Principles and System Design	3	0	0	3
6.	CS6202	Programming and Data Structures I	3	0	0	3
PRACTICALS						
7.	GE6262	Physics and Chemistry Laboratory - II	0	0	2	1
8.	CS6211	Digital Laboratory	0	0	3	2
9.	CS6212	Programming and Data Structures Laboratory I	0	0	3	2
		TOTAL	**18**	**2**	**8**	**25**

SEMESTER III

SL. No.	COURSE CODE	COURSE TITLE	L	T	P	C
THEORY						
1.	MA6351	Transforms and Partial Differential Equations	3	1	0	4
2.	CS6301	Programming and Data Structure II	3	0	0	3
3.	CS6302	Database Management Systems	3	0	0	3
4.	CS6303	Computer Architecture	3	0	0	3
5.	CS6304	Analog and Digital Communication	3	0	0	3
6.	GE6351	Environmental Science and Engineering	3	0	0	3
PRACTICAL						
7.	CS6311	Programming and Data Structure Laboratory II	0	0	3	2
8.	CS6312	Database Management Systems Laboratory	0	0	3	2
		TOTAL	**18**	**1**	**6**	**23**

SEMESTER IV

SL. No.	COURSE CODE	COURSE TITLE	L	T	P	C
THEORY						
1.	MA6453	Probability and Queueing Theory	3	1	0	4
2.	CS6551	Computer Networks	3	0	0	3
3.	CS6401	Operating Systems	3	0	0	3
4.	CS6402	Design and Analysis of Algorithms	3	0	0	3
5.	EC6504	Microprocessor and Microcontroller	3	0	0	3
6.	CS6403	Software Engineering	3	0	0	3
PRACTICAL						
7.	CS6411	Networks Laboratory	0	0	3	2
8.	CS6412	Microprocessor and Microcontroller Laboratory	0	0	3	2
9.	CS6413	Operating Systems Laboratory	0	0	3	2
		TOTAL	**18**	**1**	**9**	**25**

SEMESTER V

SL. No.	COURSE CODE	COURSE TITLE	L	T	P	C
THEORY						
1.	MA6566	Discrete Mathematics	3	1	0	4
2.	CS6501	Internet Programming	3	1	0	4
3.	CS6502	Object Oriented Analysis and Design	3	0	0	3
4.	CS6503	Theory of Computation	3	0	0	3
5.	CS6504	Computer Graphics	3	0	0	3
PRACTICAL						
6.	CS6511	Case Tools Laboratory	0	0	3	2
7.	CS6512	Internet Programming Laboratory	0	0	3	2
8.	CS6513	Computer Graphics Laboratory	0	0	3	2
		TOTAL	**15**	**2**	**9**	**23**

SEMESTER VI

SL. No.	COURSE CODE	COURSE TITLE	L	T	P	C
THEORY						
1.	CS6601	Distributed Systems	3	0	0	3
2.	IT6601	Mobile Computing	3	0	0	3
3.	CS6660	Compiler Design	3	0	0	3
4.	IT6502	Digital Signal Processing	3	1	0	4
5.	CS6659	Artificial Intelligence	3	0	0	3
6.	IT6004	Software Testing	3	0	0	3
PRACTICAL						
7.	CS6611	Mobile Application Development Laboratory	0	0	3	2
8.	CS6612	Compiler Laboratory	0	0	3	2
9.	GE6674	Communication and Soft Skills - Laboratory Based	0	0	4	2
		TOTAL	**18**	**1**	**10**	**25**

SEMESTER VII

SL. No.	COURSE CODE	COURSE TITLE	L	T	P	C
THEORY						
1.	CS6701	Cryptography and Network Security	3	0	0	3
2.	CS6702	Graph Theory and Applications	3	0	0	3
3.	CS6703	Grid and Cloud Computing	3	0	0	3
4.	CS6704	Resource Management Techniques	3	0	0	3
5.	IT6801	Service Oriented Architecture	3	0	0	3
6.	CS6007	Information Retrieval	3	0	0	3
PRACTICAL						
7.	CS6711	Security Laboratory	0	0	3	2
8.	CS6712	Grid and Cloud Computing Laboratory	0	0	3	2
		TOTAL	**18**	**0**	**6**	**22**

SEMESTER VIII

SL. No.	COURSE CODE	COURSE TITLE	L	T	P	C
THEORY						
1.	CS6801	Multi – Core Architectures and Programming	3	0	0	3
2.	CS6008	Human Computer Interaction	3	0	0	3
3.	GE6075	Professional Ethics in Engineering	3	0	0	3

PRACTICAL

4.	CS6811	Project Work	0	0	12	6
		TOTAL	**9**	**0**	**12**	**15**

TOTAL NO. OF CREDITS: 184

HS6151 TECHNICAL ENGLISH – I   L   T P   C
                                                                       3   1 0   4

OUTCOMES: Learners should be able to:

➤ Speak clearly, confidently, comprehensibly, and communicate with one or many listeners
   using appropriate communicative strategies.
➤ Write cohesively and coherently and flawlessly avoiding grammatical errors, using a
   wide vocabulary range, organizing their ideas logically on a topic.
➤ Read different genres of texts adopting various reading strategies.
➤ Listen/view and comprehend different spoken discourses/excerpts in different accents.

MA6151   MATHEMATICS – I   L T P C
                                                                      3 1 0 4

OUTCOMES:

➤ This course equips students to have basic knowledge and understanding in one fields of
   materials, integral and differential calculus.

PH6151   ENGINEERING PHYSICS – I   L T P C
                                                                      3 0 0 3

OUTCOMES:
➤ The students will have knowledge on the basics of physics related to properties of matter,
   optics, acoustics etc., and they will apply these fundamental principles to solve practical
   problems related to materials used for engineering applications

CY6151   ENGINEERING CHEMISTRY – I   L T P C
                                                                      3 0 0 3
OUTCOMES:

➤ The knowledge gained on polymer chemistry, thermodynamics. spectroscopy, phase rule
   and nano materials will provide a strong platform to understand the concepts on these
   subjects for further learning.

GE6151 COMPUTER PROGRAMMING　　　　　　　　　　　**L T P C**
　　　　　　　　　　　　　　　　　　　　　　　　　　　　3 0 0 3

OUTCOMES: At the end of the course, the student should be able to:

 ➢ Design C Programs for problems.
 ➢ Write and execute C programs for simple applications

GE6152 ENGINEERING GRAPHICS　　　　　　　　　　　**L T P C**
　　　　　　　　　　　　　　　　　　　　　　　　　　　　2 0 3 4

OUTCOMES: On Completion of the course the student will be able to:

 ➢ Perform free hand sketching of basic geometrical constructions and multiple views of objects.
 ➢ Do orthographic projection of lines and plane surfaces.
 ➢ Draw projections and solids and development of surfaces.
 ➢ Prepare isometric and perspective sections of simple solids.
 ➢ Demonstrate computer aided drafting.

GE6161 COMPUTER PRACTICES LABORATORY　　　　　**L T P C**
　　　　　　　　　　　　　　　　　　　　　　　　　　　　0 0 3 2

OUTCOMES: At the end of the course, the student should be able to:

 ➢ Apply good programming design methods for program development.
 ➢ Design and implement C programs for simple applications.
 ➢ Develop recursive programs.

GE6162 ENGINEERING PRACTICES LABORATORY　　　　**L T P C**
　　　　　　　　　　　　　　　　　　　　　　　　　　　　0 0 3 2

OUTCOMES:

 ➢ Ability to fabricate carpentry components and pipe connections including plumbing works.
 ➢ Ability to use welding equipments to join the structures.
 ➢ Ability to fabricate electrical and electronics circuits.

GE6163 PHYSICS AND CHEMISTRY LABORATORY – I   **L T P C**
                                                      0 0 3 2

OUTCOMES:

> The hands on exercises undergone by the students will help them to apply physics
> principles of optics and thermal physics to evaluate engineering properties of materials.

OUTCOMES:
> The students will be outfitted with hands-on knowledge in the quantitative chemical
> analysis of water quality related parameters

SEMESTER – II

HS6251 TECHNICAL ENGLISH II   **L T P C**
                                                      3 0 0 3

OUTCOMES: Learners should be able to:

> Speak convincingly, express their opinions clearly, initiate a discussion, negotiate, argue
> using appropriate communicative strategies.
> Write effectively and persuasively and produce different types of writing such as
> narration, description, exposition and argument as well as creative, critical, analytical and
> evaluative writing.
> Read different genres of texts, infer implied meanings and critically analyse and evaluate
> them for ideas as well as for method of presentation.
> Listen/view and comprehend different spoken excerpts critically and infer unspoken and
> implied meanings.

MA6251   **MATHEMATICS – II**   **L T P C**
                                                      3 0 0 3

OUTCOMES:
> The subject helps the students to develop the fundamentals and basic concepts in vector
> calculus, ODE, Laplace transform and complex functions. Students will be able to solve
> problems related to engineering applications by using these techniques.

PH6251 ENGINEERING PHYSICS – II **L T P C**
3 0 0 3

OUTCOMES:
➢ The students will have the knowledge on physics of materials and that knowledge will be used by them in different engineering and technology applications

CY6251 ENGINEERING CHEMISTRY-II **L T P C**
3 0 0 3

OUTCOMES:
➢ The knowledge gained on engineering materials, fuels, energy sources and water treatment techniques will facilitate better understanding of engineering processes and applications for further learning.

CS6201 **DIGITAL PRINCIPLES AND SYSTEM DESIGN** **L T P C**
3 0 0 3

OUTCOMES: At the end of this course, the student will be able to:

➢ Perform arithmetic operations in any number system.
➢ Simplify the Boolean expression using K-Map and Tabulation techniques.
➢ Use boolean simplification techniques to design a combinational hardware circuit.
➢ Design and Analysis of a given digital circuit – combinational and sequential.
➢ Design using PLD.

CS6202 **PROGRAMMING AND DATA STRUCTURES I** **L T P C**
3 0 0 3

OUTCOMES: At the end of the course, the student should be able to:

➢ Use the control structures of C appropriately for problems.
➢ Implement abstract data types for linear data structures.
➢ Apply the different linear data structures to problem solutions.
➢ Critically analyse the various algorithms.

GE6262   PHYSICS AND CHEMISTRY LABORATORY – II   L T P C
                                                                3 0 0 3

OUTCOMES:

> The students will have the ability to test materials by using their knowledge of applied physics principles in optics and properties of matter.

CS6211   DIGITAL LABORATORY   L T P C
                                                              3 0 0 3

OUTCOMES: At the end of this course, the student will be able to:

> Use boolean simplification techniques to design a combinational hardware circuit.
> Design and Implement combinational and sequential circuits.
> Analyze a given digital circuit – combinational and sequential.
> Design the different functional units in a digital computer system.
> Design and Implement a simple digital system.

CS6212 PROGRAMMING AND DATA STRUCTURES LABORATORY I   L T P C
                                                          3 0 0 3

OUTCOMES: At the end of the course, the student should be able to:

> Design and implement C programs for implementing stacks, queues, linked lists.
> Apply good programming design methods for program development.
> Apply the different data structures for implementing solutions to practical problems.
> Develop searching and sorting programs.

SEMESTER - III

MA6351 TRANSFORMS AND PARTIAL DIFFERENTIAL EQUATIONS   L T P C
                                                         3 0 0 3

OUTCOMES:
> The understanding of the mathematical principles on transforms and partial differential equations would provide them the ability to formulate and solve some of the physical problems of engineering.

CS6301   PROGRAMMING AND DATA STRUCTURES II   L T P C
3 0 0 3

OUTCOMES: At the end of the course, the student should be able to:

- Design problem solutions using Object Oriented Techniques.
- Apply the concepts of data abstraction, encapsulation and inheritance for problem solutions.
- Use the control structures of C++ appropriately.
- Critically analyse the various algorithms.
- Apply the different data structures to problem solutions.

CS6302   DATABASE MANAGEMENT SYSTEMS   L T P C
3 0 0 3

OUTCOMES: At the end of the course, the student should be able to:

- Design Databases for applications.
- Use the Relational model, ER diagrams.
- Apply concurrency control and recovery mechanisms for practical problems.
- Design the Query Processor and Transaction Processor.
- Apply security concepts to databases.

CS6303   COMPUTER ARCHITECTURE   L T P C
3 0 0 3

OUTCOMES: At the end of the course, the student should be able to:

- Design arithmetic and logic unit.
- Design and anlayse pipelined control units
- Evaluate performance of memory systems.
- Understand parallel processing architectures.

CS6304 ANALOG AND DIGITAL COMMUNICATION   L T P C
3 0 0 3
OUTCOMES: At the end of the course, the student should be able to:

- Apply analog and digital communication techniques.
- Use data and pulse communication techniques.
- Analyze Source and Error control coding.
- Utilize multi-user radio communication.

GE6351   ENVIRONMENTAL SCIENCE AND ENGINEERING   L T P C
                                                                  3 0 0 3

OUTCOMES:
- ➢ Environmental Pollution or problems cannot be solved by mere laws. Public participation is an important aspect which serves the environmental Protection. One will obtain knowledge on the following after completing the course.
- ➢ Public awareness of environment at infant stage.
- ➢ Ignorance and incomplete knowledge has lead to misconceptions.
- ➢ Development and improvement in standard of living has lead to serious environmental disasters.

CS6311 PROGRAMMING AND DATA STRUCTURE LABORATORY II   L T P C
                                                                  3 0 0 3

OUTCOMES: At the end of the course, the student should be able to:

- ➢ Design and implement C++ programs for manipulating stacks, queues, linked lists, trees, and graphs.
- ➢ Apply good programming design methods for program development.
- ➢ Apply the different data structures for implementing solutions to practical problems.
- ➢ Develop recursive programs using trees and graphs.

CS6312 DATABASE MANAGEMENT SYSTEMS LABORATORY   L T P C
                                                                  3 0 0 3

OUTCOMES: At the end of the course, the student should be able to:

- ➢ Design and implement a database schema for a given problem-domain
- ➢ Populate and query a database
- ➢ Create and maintain tables using PL/SQL.
- ➢ Prepare reports.

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SEMESTER - IV

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MA6453   PROBABILITY AND QUEUEING THEORY   L T P C
                                                                  3 0 0 3

OUTCOMES:

- ➢ The students will have a fundamental knowledge of the probability concepts.
- ➢ Acquire skills in analyzing queueing models.
- ➢ It also helps to understand and characterize phenomenon which evolve with respect to time in a probabilistic manner.

CS6551 COMPUTER NETWORKS   **L T P C**
                                                                3 0 0 3

OUTCOMES: At the end of the course, the student should be able to:

  ➢ Identify the components required to build different types of networks
  ➢ Choose the required functionality at each layer for given application
  ➢ Identify solution for each functionality at each layer
  ➢ Trace the flow of information from one node to another node in the network

CS6401 OPERATING SYSTEMS   **L T P C**
                                                                3 0 0 3

OUTCOMES: At the end of the course, the student should be able to:

  ➢ Design various Scheduling algorithms.
  ➢ Apply the principles of concurrency.
  ➢ Design deadlock, prevention and avoidance algorithms.
  ➢ Compare and contrast various memory management schemes.
  ➢ Design and Implement a prototype file systems.
  ➢ Perform administrative tasks on Linux Servers.

CS6402 DESIGN AND ANALYSIS OF ALGORITHMS   **L T P C**
                                                                3 0 0 3

OUTCOMES: At the end of the course, the student should be able to:

  ➢ Design algorithms for various computing problems.
  ➢ Analyze the time and space complexity of algorithms.
  ➢ Critically analyze the different algorithm design techniques for a given problem.
  ➢ Modify existing algorithms to improve efficiency.

EC6504 MICROPROCESSOR AND MICROCONTROLLER   **L T P C**
                                                                3 0 0 3

OUTCOMES: At the end of the course, the student should be able to:

  ➢ Design and implement programs on 8086 microprocessor.
  ➢ Design I/O circuits.
  ➢ Design Memory Interfacing circuits.
  ➢ Design and implement 8051 microcontroller based systems.

CS6403 SOFTWARE ENGINEERING   **L T P C**
                                                              3 0 0 3

OUTCOMES: At the end of the course, the student should be able to

- ➢ Identify the key activities in managing a software project.
- ➢ Compare different process models.
- ➢ Concepts of requirements engineering and Analysis Modeling.
- ➢ Apply systematic procedure for software design and deployment.
- ➢ Compare and contrast the various testing and maintenance.

CS6411 NETWORKS LABORATORY   **L T P C**
                                                              3 0 0 3

OUTCOMES: At the end of the course, the student should be able to

- ➢ Use simulation tools
- ➢ Implement the various protocols.
- ➢ Analyse the performance of the protocols in different layers.
- ➢ Analyze various routing algorithms

CS6412 MICROPROCESSOR AND MICROCONTROLLER LABORATORY L T P C
                                                              3 0 0 3

OUTCOMES: At the end of the course, the student should be able to:

- ➢ Write ALP Programmes for fixed and Floating Point and Arithmetic
- ➢ Interface different I/Os with processor
- ➢ Generate waveforms using Microprocessors
- ➢ Execute Programs in 8051
- ➢ Explain the difference between simulator and Emulator

CS6413 OPERATING SYSTEMS LABORATORY   **L T P C**
                                                              3 0 0 3

OUTCOMES: At the end of the course, the student should be able to

- ➢ Implement deadlock avoidance, and Detection Algorithms
- ➢ Compare the performance of various CPU Scheduling Algorithm
- ➢ Critically analyze the performance of the various page replacement algorithms
- ➢ Create processes and implement IPC

MA6566 DISCRETE MATHEMATICS   **L T P C**
    3 0 0 3

OUTCOMES: At the end of the course, students would:

- ➢ Have knowledge of the concepts needed to test the logic of a program.
- ➢ Have an understanding in identifying structures on many levels.
- ➢ Be aware of a class of functions which transform a finite set into another finite set which relates to input and output functions in computer science.
- ➢ Be aware of the counting principles.
- ➢ Be exposed to concepts and properties of algebraic structures such as groups, rings and fields.

CS6501 INTERNET PROGRAMMING   **L T P C**
    3 0 0 3

OUTCOMES: At the end of the course, the student should be able to:
- ➢ Implement Java programs.
- ➢ Create a basic website using HTML and Cascading Style Sheets.
- ➢ Design and implement dynamic web page with validation using JavaScript objects and by applying different event handling mechanisms.
- ➢ Design rich client presentation using AJAX.
- ➢ Design and implement simple web page in PHP, and to present data in XML format.
- ➢ Design and implement server side programs using Servlets and JSP.

CS6502 OBJECT ORIENTED ANALYSIS AND DESIGN   **L T P C**
    3 0 0 3

OUTCOMES: At the end of the course, the student should be able to:

- ➢ Design and implement projects using OO concepts.
- ➢ Use the UML analysis and design diagrams.
- ➢ Apply appropriate design patterns.
- ➢ Create code from design.
- ➢ Compare and contrast various testing techniques

CS6503 THEORY OF COMPUTATION   **L T P C**
    3 0 0 3

OUTCOMES: At the end of the course, the student should be able to:

- ➢ Design Finite State Machine, Pushdown Automata, and Turing Machine.
- ➢ Explain the Decidability or Undecidability of various problems

CS6504   COMPUTER GRAPHICS   L T P C
                                                            3 0 0 3

OUTCOMES: At the end of the course, the student should be able to:

- Design two dimensional graphics.
- Apply two dimensional transformations.
- Design three dimensional graphics.
- Apply three dimensional transformations.
- Apply Illumination and color models.
- Apply clipping techniques to graphics.
- Design animation sequences.

CS6511   CASE TOOLS LABORATORY   L T P C
                                                            0 0 3 2

OUTCOMES: At the end of the course, the student should be able to

- Design and implement projects using OO concepts.
- Use the UML analysis and design diagrams.
- Apply appropriate design patterns.
- Create code from design.
- Compare and contrast various testing techniques

CS6512   INTERNET PROGRAMMING LABORATORY   L T P C
                                                            0 0 3 2

OUTCOMES: At the end of the course, the student should be able to

- Design Web pages using HTML/XML and style sheets
- Create user interfaces using Java frames and applets.
- Create dynamic web pages using server side scripting.
- Write Client Server applications.
- Use the frameworks JSP Strut, Hibernate, Spring
- Create applications with AJAX

CS6513   COMPUTER GRAPHICS LABORATORY   L T P C
                                                            0 0 3 2

OUTCOMES: At the end of the course, the student should be able to

- Create 3D graphical scenes using open graphics library suits
- Implement image manipulation and enhancement
- Create 2D animations using tools

CS6601   DISTRIBUTED SYSTEMS   L T P C
                                                          3 0 0 3

OUTCOMES: At the end of the course, the student should be able to:

- ➢ Discuss trends in Distributed Systems.
- ➢ Apply network virtualization.
- ➢ Apply remote method invocation and objects.
- ➢ Design process and resource management systems.

IT6601   MOBILE COMPUTING   L T P C
                                                          3 0 0 3

OUTCOMES: At the end of the course, the student should be able to:

- ➢ Explain the basics of mobile telecommunication system
- ➢ Choose the required functionality at each layer for given application
- ➢ Identify solution for each functionality at each layer
- ➢ Use simulator tools and design Ad hoc networks
- ➢ Develop a mobile application.

CS6660   COMPILER DESIGN   L T P C
                                                          3 0 0 3

OUTCOMES: At the end of the course, the student should be able to:

- ➢ Design and implement a prototype compiler.
- ➢ Apply the various optimization techniques.
- ➢ Use the different compiler construction tools.

IT6502   DIGITAL SIGNAL PROCESSING   L T P C
                                                          3 1 0 4

OUTCOMES: Upon completion of the course, students will be able to:

- ➢ Perform frequency transforms for the signals.
- ➢ Design IIR and FIR filters.
- ➢ Finite word length effects in digital filters

CS6659   ARTIFICIAL INTELLIGENCE   L T P C
                                                          3 0 0 3
OUTCOMES:
At the end of the course, the student should be able to:

- ➢ Identify problems that are amenable to solution by AI methods.

- ➢ Identify appropriate AI methods to solve a given problem.
- ➢ Formalise a given problem in the language/framework of different AI methods.
- ➢ Implement basic AI algorithms.
- ➢ Design and carry out an empirical evaluation of different algorithms on a problem formalisation, and state the conclusions that the evaluation supports.

IT6004   SOFTWARE TESTING   L T P C
3 0 0 3

OUTCOMES: At the end of the course the students will be able to

- ➢ Design test cases suitable for a software development for different domains.
- ➢ Identify suitable tests to be carried out.
- ➢ Prepare test planning based on the document.
- ➢ Document test plans and test cases designed.
- ➢ Use of automatic testing tools.
- ➢ Develop and validate a test plan.

CS6611   MOBILE APPLICATION DEVELOPMENT LABORATORY` L T P C
0 0 3 2

OUTCOMES: At the end of the course, the student should be able to:

- ➢ Design and Implement various mobile applications using emulators.
- ➢ Deploy applications to hand-held devices

CS6612   COMPILER LABORATORY   L T P C
0 0 3 2

OUTCOMES: At the end of the course, the student should be able to

- ➢ Implement the different Phases of compiler using tools
- ➢ Analyze the control flow and data flow of a typical program
- ➢ Optimize a given program
- ➢ Generate an assembly language program equivalent to a source language program

GE6674 COMMUNICATION AND SOFT SKILLS - LABORATORY BASED L T P C
0 0 4 2

OUTCOMES: At the end of the course, learners should be able to

- ➢ Take international examination such as IELTS and TOEFL
- ➢ Make presentations and Participate in Group Discussions.
- ➢ Successfully answer questions in interviews

CS6701   CRYPTOGRAPHY AND NETWORK SECURITY   L T P C
3 0 0 3

OUTCOMES: Upon Completion of the course, the students should be able to:

➢ Compare various Cryptographic Techniques
➢ Design Secure applications
➢ Inject secure coding in the developed applications

CS6702   GRAPH THEORY AND APPLICATIONS   L T P C
3 0 0 3

OUTCOMES:
Upon Completion of the course, the students should be able to:

➢ Write precise and accurate mathematical definitions of objects in graph theory.
➢ Use mathematical definitions to identify and construct examples and to distinguish examples from non-examples.
➢ Validate and critically assess a mathematical proof.
➢ Use a combination of theoretical knowledge and independent mathematical thinking in creative investigation of questions in graph theory.
➢ Reason from definitions to construct mathematical proofs.

CS6703   GRID AND CLOUD COMPUTING   L T P C
3 0 0 3

OUTCOMES: At the end of the course, the student should be able to:

➢ Apply grid computing techniques to solve large scale scientific problems.
➢ Apply the concept of virtualization.
➢ Use the grid and cloud tool kits.
➢ Apply the security models in the grid and the cloud environment.

CS6704   RESOURCE MANAGEMENT TECHNIQUES   L T P C
3 0 0 3

OUTCOMES: Upon Completion of the course, the students should be able to:

➢ Solve optimization problems using simplex method.
➢ Apply integer programming and linear programming to solve real-life applications.
➢ Use PERT and CPM for problems in project management

IT6801   SERVICE ORIENTED ARCHITECTURE   **L T P C**
                                                                      3 0 0 3

OUTCOMES:
Upon successful completion of this course, students will be able to:

- Build applications based on XML.
- Develop web services using technology elements.
- Build SOA-based applications for intra-enterprise and inter-enterprise applications.

CS6007   INFORMATION RETRIEVAL   **L T P C**
                                                                      3 0 0 3

OUTCOMES: Upon completion of the course, students will be able to

- Apply information retrieval models.
- Design Web Search Engine.
- Use Link Analysis.
- Use Hadoop and Map Reduce.
- Apply document text mining techniques.

CS6711   SECURITY LABORATORY   **L T P C**
                                                                      0 0 3 2

OUTCOMES: At the end of the course, the student should be able to

- Implement the cipher techniques
- Develop the various security algorithms
- Use different open source tools for network security and analysis

CS6712   GRID AND CLOUD COMPUTING LABORATORY   **L T P C**
                                                                      0 0 3 2

OUTCOMES: At the end of the course, the student should be able to

- Use the grid and cloud tool kits.
- Design and implement applications on the Grid.
- Design and Implement applications on the Cloud.

SEMESTER - VIII

CS6801   MULTI-CORE ARCHITECTURES AND PROGRAMMING L T P C
                                                                      3 0 0 3

OUTCOMES: At the end of the course, the student should be able to:

- Program Parallel Processors.

- ➢ Develop programs using OpenMP and MPI.
- ➢ Compare and contrast programming for serial processors and programming for parallel processors.

CS6008   HUMAN COMPUTER INTERACTION   L T P C
3 0 0 3

OUTCOMES: Upon completion of the course, the student should be able to:

- ➢ Design effective dialog for HCI.
- ➢ Design effective HCI for individuals and persons with disabilities.
- ➢ Assess the importance of user feedback.
- ➢ Explain the HCI implications for designing multimedia/ ecommerce/ e-learning Web sites.
- ➢ Develop meaningful user interface.

GE6075   PROFESSIONAL ETHICS IN ENGINEERING   L T P C
3 0 0 3

OUTCOMES:

- ➢ Upon completion of the course, the student should be able to apply ethics in society, discuss the ethical issues related to engineering and realize the responsibilities and rights in the society

CS6811   PROJECT WORK   L T P C
0 0 12 6

OUTCOMES:

- ➢ On Completion of the project work students will be in a position to take up any challenging practical problems and find solution by formulating proper methodology.