Revised Programme Outcomes (POs) of Department of I.T.

Engineering Graduates will be able to:

1. Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
2. Problem analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
3. Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
4. Conduct investigations of complex problems: Use research

W	**-**	**Withdrawal**
X	**-**	**Unsatisfactory**
S	**-**	**Satisfactory Completion**

4.0 Evaluation System

4.1 Continuous Assessment**:**

There shall be continuous evaluation of the student during the semester. For evaluation purpose, total marks assigned to each subject shall be distributed as :
Two Mid semester Examination (Minor-1 and Minor-2) with 30 % of total marks assigned to the subject. Best Marks of one of these two will be considered for award of sessional.

Points earned in a semester =

The SGPA is calculated on the basis of grades obtained in all courses, except audit courses and courses in which S/Z grade is awarded, registered for the particular semester.

The CGPA is calculated as given below :

First Year- Second Semester

Course Code	Course Name	Option	Hours per week			Credits			
			L	T	P		Internal Assessment	University Exam	Total
ASC X01	Applied Chemistry	Theory	4	0	0	4	50	50	100
ASC X51	Applied Chemistry (P)	Practical	0	0	3	1.5	50	0	50
ASM 201	Differential Equations and Transforms	Theory	4	1	0	5	50	50	100
HSMC X01	Professional Communication	Theory	2	0	0	2	50	50	100
HSMC X51	Professional Communication (P)	Practical	0	0	2	1	50	0	50
ITC 201	Object Oriented Programming using C++	Theory	3	0	0	3	50	50	100
ITC 251	Object Oriented Programming using C++ (P)	Practical	0	0	4	2	50	0	50
X08	Basic Information Theory and Communication	Theory	2	0	0	2	50	50	100
ESC X58	Basic Information Theory and Communication (P)	Practical	0	0	2	1	50	[redacted]	

Second Year- Fourth Semester

Teaching Scheme for B.E. Third Year

Third Year - Fifth Semester

Subject Code	Subject Name	Scheme of Teaching				Scheme of Examination		
						Theory		Practical (Internal)
		L-T-P	Contact hrs./week	Credits	Category	Internal Ass.	Univ. Exam	
PCIT501	Network Security and Cryptography	3-1-0	4	4	PC	50	50	-
PCIT551	Network Security and Cryptography(P)	0-0-2	2	1	PC	-	-	50
PCIT502	Design and Analysis of Algorithms	3-1-0	4	4	PC	50	50	-

Professional Elective-I *(Choose any one from the following)*		
Sr No.	**Subject**	**Subject Code**
1		

Fourth Year - Eighth SemesterOption-1

Subject Code	Subject Name	Scheme of Teaching			Scheme of Examination			
					Theory			Practical (Internal)
		L-T-P	Contact hrs./week	Credits	Type	Internal Ass.	Univ. Exam	
PCIT801	Embedded System Design	3-1-0	4	4	PC	50	50	-
PCIT851	Embedded System Design (P)	0-0-3	3	1.5	PC	-	-	50
PCIT802	Cloud Computing	3-1-0	4	4	PC	50	50	-
PEIT801a, PEIT801b, PEIT801c, PEIT801d	Professional Elective-V	3-0-0	3	3	PE	50	50	-
HSMC801a, HSMC801b, HSMC801c, HSMC801d, HSMC801e, HSMC801f	Management Elective(Choice Based Elective)	3-0-0	3	3	HS	50	50	-
OEIT 801	*Open Elective-III	3-0						

SYLLABUS FOR B.E. (I.T.) FIRST SEMESTER
COURSE INFORMATION SHEET

Course Code	**ASP X01**
Course Title	**Applied Physics**
Type of Course	
L T P	**4 0 3**
Credits	**4**
Total Lectures	**45**
Course Assessment Methods End Semester Assessment (University Exam.) Continuous Assessment (Sessional)	**50** **50**

SYLLABUS

Note: The examiner shall set seven questions of 10 marks each. First question has to be compulsory, having sections covering the whole syllabus. Three questions have to be set from Section A and three questions from Section B of the syllabus. Candidate is required to attempt at least two questions from each section. All the course outcomes must be covered by the question paper.

SECTION-A	**Hours**
Oscillations Complete mathematical treatment for mechanical as well as electrical free, damped and forced oscillators.Simple harmonic oscillator and solution of the differential equation, Physical characteristics of SHM.Superposition of two SHMs executing in same and perpendicular direction of same frequency and different frequencies, Lissajous figures. Superposition of n SHMs	**(4)**
Damped Oscillations: Concept and cause of damping, differential equation of a damped oscillator and different kinds of damping, Methods of describing damping of an oscillator - logarithmic decrement, relaxation time, quality factor, band width. Series LCR circuit as a damped oscillator. Use of damping in shock absorbers and seismic dampners.	**(4)**
Forced Oscillations: States of forced oscillations, differential equation of forced oscillator its displacement, velocity bandwidth, Quality factor and amplification of forced oscillator, resonance in forced oscillators, vibration insulator.	**(4)**
Electromagnetic waves: Maxwell equations and their significance. Electromagnetic waves in vacuum conducting medium and non-conducting medium. Energy and momentum carried by electromagnetic waves and examples. Momentum carried by electromagnetic waves and resultant pressure. Reflection and transmission of electromagnetic waves for oblique and normal incidence.	**(8)**

RECOMI

Reference

1. Introduc
2. Solid Sta
3. Physics
4. Physics
5. Optics
6. Introduc

COURSE INFORMATION SHEET

Course Code	**ASP X02**
Course Title	**Quantum Physics**
Type of Course	
L T P	**4 0 3**
Credits	**4**
Total Lectures	**45**
Course Assessment Methods End Semester Assessment (University Exam.) Continuous Assessment (Sessional)	**50** **50**

SYLLABUS

Note: The examiner shall set seven questions of 10 marks each. First question has to be compulsory, having sections covering the whole syllabus. Three questions have to be set from Section A and three questions from Section B of the syllabus. Candidate is required to attempt at least two questions from each section. All the course outcomes must be covered by the question paper.

SECTION-A	Hours
Special Theory of Relativity Inertial and non-inertial frames of reference, Galilean transformation, Michelson Morley Experiment, Postulates of special theory of relativity, Lorentz transformation, Simultaneity, Length contraction, Time dilation, Doppler effect, Addition of velocities, variation of mass with velocity, mass-energy relation, Relativistic momentum, Minkowski space .(Section 1.1 to 1.5, 1.7 to 1.9 of Book 1).	**(8)**
Origin and Postulates of Quantum Mechanics Quantum theory of light, Blackbody Radiation, Photoelectric effect, Compton effect, X-rays Gravitational Red Shift, Black holes, de-Broglie hypothesis, particle diffraction, uncertainty principle and its applications . Postulates of quantum mechanics, wave function, Born interpretation and normalization, Schrodinger theory, Time-dependent and Time-	**(9)**

References:

1. Concepts of Modern Physics, by Arthur Beiser (McGraw-Hill)

2. Introduction to Solids by Leonid V. Azaroff

3. Elementary Solid state Physics by M.Ali Omar (Pearson Education)

4. Solid State Physics, by C. Kittel (Wiley Eastern)

5. Solid State Physics, by S.O. Pillai (New Age International)

COURSE INFORMATION SHEET

Course Code	**ASP X52**
Course Title	Quantum Physics **(P)**
Course Assessment Methods Practical (Continuous and end semester evaluation)	50

List of Experiments

1. To study the quantized energy level of the first excited state in the Argon using the Frank-Hertz setup.

3. To study various characteristics of photo-voltaic cell: (a) Voltage-current characteristics, (b) loading characteristics, (c) power-resistance characteristics and (d) inverse square law behavior of the photo-current with distance of source of light from photo-voltaic cell

4. To study the response of a photo-resistor to varying intensity of light falling on it and deduce spectral sensitivity of its semiconductor material.

5. To study the Balmer Series of Hydrogen spectrum using diffraction grating and calculate Rydberg constant.

6. To evaluate charge on an oil drop using Millikan's oil drop method.

7. To verify Rutherford's alpha scattering formula using a mechanical model.

9. To determine Hall coefficient of a gi

of Microstructure in Eutectic Alloy, Equilibrium Diagrams Having Intermediate Phases or0

RECOMMENDED BOOKS			
S.No.	**NAME**	**AUTHORS**	**PUBLISHER**
1.	Material science and engineering An Introduction	William D Callister	6Th edition, John Willey and Sons.
2.	Material Science and Engineering A First Course	V. Raghvan	4th edition, Eastern economy edition
3.	Solid State Physics	S. O. Pillai	New Age International
4.	Introduction to Solids	Leonid V Azaroff	Tata McGraw Hill, 3rd edition.

COURSE INFORMATION SHEET

Course Code	**ASP X53**
Course Title	**Physics of Materials (P)**
Course Assessment Methods Practical (Continuous and end semester evaluation)	50

List of Experiments

1. To study the quantized energy of the first excited state in Argon using the Frank-Hertz Set-up.
2. To find the value of
   cell.
3. To study various characteristics of photovoltaic cell: (a) Voltage-current characteristics (b) loading characteristics (c) power-resistance characteristics and (d) inverse squarelaw behavior of photocurrent with distance of source of light from photovoltaic cell.
4. To study the response of a photoresistor to varying intensity of light falling on it and deduce spectral sensitivity of its semiconductor material.
5. To determine Hall coefficient of a semiconductor material and then evaluate the type, density and mobility of charge carrier in a given semiconductor material.
6. To study the hysteresis loop of magnetic material (iron, nickel and steel) and determine its retentivity, coercivity and energy dissipated per unit volume per cycle of hysteresis.
7. To study temperature dependence of resistivity of a semiconductor material using four probe method and further deduce the band gap of this semiconductor.

8. To determine the Curie temperature of a ferroelectric material by measuring dielectric constant as a function of temperature.
9. To determine thermal conductivity of bad conductor by using guarded plate method (Lee's disc method)

RECOMMENDED BOOKS			
S. No.	**NAME**	**AUTHORS**	**PUBLISHER**
1.	Calculus		

COURSE INFORMATION SHEET

Course Code	**ESC X01**
Course Title	**Programming for Problem Solving**
Type of Course	

L T P

Text books:

COURSE INFORMATION SHEET

Course Code	**ESC X51**
Course Title	**Programming for Problem Solving (P)**
Course Assessment Methods Practical (Continuous and end semester evaluation)	50

COURSE INFORMATION SHEET

Course Code	**ESC X53**
Course Title	**WORKSHOP (P)**
Type of Course	
L T P	
Credits	
Total Lectures	
Course Assessment Methods End Semester Assessment (University Exam.) Continuous Assessment (Sessional)	50

Course Objectives (CO)

RECOMMENDED BOOKS			
S. No.	**NAME**	**AUTHORS**	**PUBLISHER**
1.	Fundamentals of Computers	P. K. Sinha	BPB Publications
2.	Fundamentals of Computers	V. Rajaraman	3rd edition, PHI Publications
3.	Data and Computer Communications	William Stallings	PHI Publications
4.	Internet Working with TCP/IP	Douglas E. Coomer	PHI Publications
5.	An Introduction to Database Systems	C J Date	8th edition, Pearson Publications

COURSE INFORMATION SHEET

Course Code	**ASC X01**
Course Title	**Applied Chemistry**
Type of Course	
L T P	
Credits	
Total Lectures	
Course Assessment Methods	50
End Semester Assessment (University Exam.)	50
Continuous Assessment (Sessional)	

RECOMMENDED BOOKS			
S.No.	**NAME**	**AUTHOR(S)**	**PUBLISHER**
1.			

7	Introduction to spectroscopy	D. S. Pavia, G.M. Lasmpman and G.S. Kriz	4th Edition, Thomson learning, Indian Edition 2012.
8	Basic Inorganic Chemistry.	F.A. Cotton, G. Wilkinson and P.L. Gaus	3rd Ed., John Wiley & Sons
9	Inorganic Chemistry- Principles of structure and reactivity	James E. Huheey, Ellen A.	

COURSE INFORMATION SHEET

Course Code	**ASM 201**
Course Title	**Differential Equations and Transforms**
Type of Course	
L T P	
Credits	
Total Lectures	
Course Assessment Methods End Semester Assessment (University Exam.) Continuous Assessment (Sessional)	 50 50
Course Objectives (CO)	To learn the methods to formulate and solve linear differential equations and their applications to engineering problems 1.To learn the concepts of Laplace transforms and to evaluate Laplace transforms and inverse Laplace transform 2.To apply Laplace transforms to solve ordinary differential equations. 3.To learn the concept of Fourier series, integrals and transforms. 4.To learn how to solve heat, wave and Laplace equations.
Course Outcome.	1. The student will learn to solve Ordinary Differential equations. 2. The students will be able to apply the tools of Laplace Transforms to model engineering problems and solve the resulting differential equations. 3. Students will understand the nature and behaviour of trigonometric (Fourier) series and apply it to solve boundary value problems.

SYLLABUS

Note: The examiner shall set seven questions of 10 marks each. First question has to be compulsory, having sections covering the whole syllabus. Three questions have to be set from Section A and three questions from Section B of the syllabus. Candidate is required to attempt at least two questions from each section. All the course outcomes must be covered by the question paper.

SECTION-A	Hours
ORDINARY DIFFERENTIAL EQUATIONS Review of geometrical meaning of the differential equation, directional fields, exact differential equations(scope as in chapter 8, sections 8.1 8.10 of reference 5), solution of differential equations with constant coefficients; methods of differential operators (scope as in chapter 9, sections 9.1 9.5 of reference 5). Non-homogeneous equations of second order with constant coefficients: Solution by method of variation of parameters, reduction by order (scope as in chapter 9, section 9.7, 9.10 of reference 5). Power series method of solution (scope as in chapter 10, section 10.2 of reference 5)	**(6)**

COURSE

Suggested Readings:

(i) Practical English Usage. Michael Swan. OUP. 1995.

(ii) Remedial English Grammar. F.T. Wood. Macmillan.2007

(iii)On Writing Well. William Zinsser. Harper Resource Book. 2001

(iv) Study Writing. Liz Hamp-Lyons and Ben Heasly. Cambridge University Press. 2006.

(v) Communication Skills. Sanjay Kumar and PushpLata. Oxford University Press. 2011.

(vi) Exercises in Spoken English. Parts. I-III. CIEFL, Hyderabad. Oxford University Press.

COURSE INFORMATION SHEET

Course Code	**HSMC X51**
Course Title	Professional Communication (P)
Course Assessment Methods Practical (Continuous and end semester evaluation)	50
Course Outcome	The student will acquire basic proficiency in English including reading and listening comprehension, writing and speaking skills.

Practical

Oral Communication

(This unit involves interactive practice sessions in Language Lab)

1. Telling something about oneself
2. Story Telling and Event
3. Listening Comprehension
4. Pronunciation, Intonation, Stress and Rhythm
5. Common Everyday Situations: Conversations and Dialogues
6. Communication at Workplace

COURSE INFORMATION SHEET

Course Code	**ITC 201**
Course Title	**Object Oriented Programming using C++**
Type of Course	**PC**
L T P	**3 0 4**
Credits	**5**
Total Lectures	**45**
Course Assessment Methods End Semester Assessment (University Exam.) Continuous Assessment (Sessional)	 **50** **50**
Course Objectives (CO)	1. To provide students in-depth theoretical base and fundamentals of Object Oriented Programming paradigm. 2. To prepare students to design and code various projects using C++.
Course Outcome.	After completion of this course, the students are able to: I. Understand the fundamentals of Object Oriented Programming paradigm. II. Learn and apply core objected oriented concepts like classes, objects and overloading, code reusability. III. Learn how the data flows between the programs and files in Object Oriented framework and implement various file handling operations. IV. Analyze information systems in real-world settings and prepare an Object Oriented design for the same.

SYLLABUS

Note: The examiner shall set seven questions of 10 marks each. First question has to be compulsory, having sections covering the whole syllabus. Three questions have to be set from Section A and three questions from Section B of the syllabus. Candidate is required to attempt at least two questions from each section. All the course outcomes must be covered by the question paper.

SECTION-A	**Hours**

Principles of ObGr(o)164 339.65 497.98 0.48001 ref554.62 339.65 0.479981.0.0353 RG[ope)9(r

RECOMMENDED BOOKS			
S.No.	**Name**	**Author**	**Publishers**
1	Programming with C++, 2nd Edition	Bala Guruswamy	Tata McGraw Hill
2	C++ Primer Plus	Prata	Pearson Education
3			

COURSE INFORMATION SHEET

Course Code	**ITC 251**
Course Title	**Object Oriented Programming using C++ (Practical)**
Course Assessment Methods Practical (Continuous and end semester evaluation)	**50**
Course Objectives	To enable students to understand the concepts of object oriented programming using C++ by designing and implementing moderately complex problems. Students should master modern tools for computer aided software engineering along with good program documentation.

List of Experiments
To write and implement program on:

1. Functions, Classes and Objects
2. Constructors and Destructors
3. Operator Overloading and Type Conversion
4. Inheritance and Virtual Functions
5. File Handling
6. Exception Handling and Generic Programming

COURSE INFORMATION SHEET

Course Code	**ESC X08**
Course Title	**Basic Information Theory and Communication**
Type of Course	**ES**
L T P	**2 0 2**
Credits	**3**
Total Lectures	**30**
Course Assessment Methods End Semester Assessment (University Exam.) Continuous Assessment (Sessional)	 **50** **50**
Course Objectives (CO)	1. To have knowledge of Information theory, entropy and coding. 2. To understand about the analog and digital modulation techniques used for signal transmission.
Course Outcome.	After completion of this course, the students are able to: 1. Learn concepts of Information Theory and coding. 2. Acquire knowledge about AM, FM and PM transmission and reception. 3. Understand and analyze various pulse modulation techniques. 4. Understand and apply the principles of digital transmission.

SYLLABUS

Note: The examiner shall set seven questions of 10 marks each. First question has to be compulsory, having sections covering the whole syllabus. Three questions have to be set from Section A and three questions from Section B of the syllabus. Candidate is required to attempt at least two questions from each section. All the course outcomes must be covered by the question paper.

SECTION-A	Hours
Probability and Random Signal theory Set theory, Introduction to probability, Conditional Binomial, Poisson and Normal distribution	**(3)**
Information Theory: Unit of Information, Entropy, Rate of Information, Joint Entropy and Conditional Entropy, Mutual Information, Channel capacity, Bandwidth and SNR trade-off	**(5)**
Coding Coding Efficiency, Shannon Fano Coding, Huffman Coding, Error Control Coding, Block Codes, Convolution Codes	**(6)**
SECTION-B	

SECTION-A	CO(s)
Introduction Introduction to data structures; Introduction to Algorithms Complexity. **(01)**	**1,2,5**
Arrays, Stacks & Queues Concepts; Basic operations & their algorithms: Transverse, Insert, Delete, Sorting of data in these data structures; Prefix, Infix, Postfix Notations. **(08)**	**2,3**
Lists Concepts of Link List and their representation; Two way lists; Circular link list; Basic operations & their algorithms: Transverse, Insert, Delete, Searching and Sorting of data in List; Storage Allocation & Garbage Collection; Linked stack and queues; Generalized List; sparse matrix representation using generalized list structure. **(08)**	**2,3**
SECTION-B	
Trees Binary Trees and their representation using arrays and linked lists; Trees and their applications; Binary tree transversal; Inserting, deleting and searching in binary trees; Heap & Heap Sort; General Trees; Thread binary tree; Height balance Tree (AVL); B-Tree. **(08)**	**2,4**
Graphs and their applications Graphs; Linked Representation of Graphs; Graph Traversal and spanning forests; Depth first search; Breadth first search. **(08)**	**2,4**
Sorting & Searching Insertion sort; Selection sort; Merging; Merge sort; Radix sort; Sequential & Binary Search; Indexed Search; Hashing schemes; Binary search Tree. **(10)**	**2,6**

RECOMMENDED BOOKS

S. No.	NAME	AUTHOR(S)	PUBLISHER
1			

COURSE INFORMATION SHEET

Course Code	**PCIT 351**
Course Title	**Data Structures (Practical)**
Type of Course	**PC**
Credits	**1.5**
Course Assessment Methods: End Semester Assessment (University Exam.) Continuous Assessment (Practical)	 **00** **50**
Course Prerequisites	Object Oriented Programming using C++
Course Objectives	I. To provide knowledge about developing recursive as well as non-recursive algorithms and to gain the knowledge of different data structures. II. To be able to Choose the appropriate data structure and algorithm design method for a specified application and to develop skills to design and analyze simple linear and non linear data structures, III. To strengthen the ability to identify and apply the suitable data structure for the given real world problem and to gain knowledge in practical applications of data structures.

SYLLABUS

List of Programs:

1. **Implementation of Array Operation:** Traversal, Insertion & Deletion at and from a given location; Sparse Matrices; Multiplication, addition.
2. **Stacks**: Implementation of Push, Pop; Conversion of Infix expression to Postfix, Evaluation of Postfix Expressions.
3. **Queues**: Adding, Deleting Elements; Circular Queue: Adding and deleting elements.
4. **Implementation of Linked Lists**: Inserting, deleting, and inverting a linked list. Implementation of stacks and queues using linked lists; Polynomial addition, Polynomial multiplication.
5. **Trees**: Implementation of Binary & Binary Search Trees, Recursive and Non-Recursive traversal of Tress.
6. **Graphs:** BFS & DFS
7. Implementation of sorting and searching algorithms.
8. **Hash Tables Implementation:** Searching, inserting and deleting, searching & sorting techniques.

COURSE INFORMATION SHEET

Course Code	**ESC 301**
Course Title	**Digital Electronics (Theory)**
Type of Course	**ES**
L T P	**3 1 3**
Credits	**04**
Total Lectures	**45**
Course Assessment Methods: End Semester Assessment (University Exam.) Continuous Assessment (Sessional)	 **50** **50**
Course Prerequisites	Basic Information Theory and Communication.
Course Objectives	The objective of this course is that students are able to understand, analyze and design combinational and sequential circuits by applying the concepts of digital electronics.
Course Outcomes	After completion of this course, the students will be able to: 391.74.R0bd1.832.47 5oole8 Tmn9 Tmlgebr 37.92 T,

Course Code	**ESC 351**
Course Title	**Digital Electronics (Practical)**
Type of Course	**ES**
Credits	**1.5**
Course Assessment Methods: End Semester Assessment (University Exam.) Continuous Assessment (Practical)	 **00** **50**
Course Prerequisites	Basic Information Theory and Communication.
Course Objectives	The aim of this course is to provide an understanding of the fundamentals of digital logic design to the students through practical training. The student is given hands-on-experience on the usage of ICs and design of circuits using gates, flip-flops, multiplexers so as to enhance the theoretical study of the subject.

SYLLABUS
List of Experiments:

respective ICs.

d test the truth table of Half adder and Full adder.

ous flip flops: RS, D, JK and T Flip Flops

s counter.

COURSE INFORMATION SHEET

Central Processing Unit	**(08)**

RECOMMENDED BOOKS

S. No.	NAME	AUTHOR(S)	PUBLISHER
1	Computer Architecture & Organization.	J.P Hayes	Tata McGraw Hill
2	Computer System Architecture.	Morris Mano	PHI
3	Advanced Computer Architecture.	Kai Hwang	Tata McGraw Hill
4	Computer Organization and. Architecture.	William Stallings	PHI

at least two questions from each section. All the course outcomes must be covered by the question paper.	
SECTION-A	**CO(s)**
Introduction to Database Systems File Systems Versus a DBMS, Advantages of a DBMS, Describing and Storing Data in a DBMS, Database System Architecture, DBMS Layers, Data independence. **(06)**	**1**
Physical Data Organization File Organization and Indexing, Index Data Structures, Hashing, B-trees, Clustered Index, Sparse Index, Dense Index, Fixed length and Variable Length Records. **(07)**	**1**
Data Models Relational Model, Network Model, Hierarchical Model, ER Model: Entities, Attributes and Entity Sets, Relationships and Relationship Sets, Constraints, Weak Entities, Class	

COURSE INFORMATION SHEET

Course Code	**PCIT 353**
Course Title	**Database Management Systems (Practical)**
Type of Course	**PC**
Credits	**1.5**
Course Assessment Methods: End Semester Assessment (University Exam.) Continuous Assessment (Sessional)	 **00** **50**
Course Prerequisites	Introduction to Information Technology
Course Objectives	1. To use the Oracle and SQL database systems along with hands on experience on DDL, DML as well as DCL Commands. 2. To make students able to implement nested queries and various functions based on programming assignments.
SYLLABUS	

SYLLABUS

SYLLABUS FOR B.E. (I.T.) FOURTH SEMESTER

COURSE INFORMATION SHEET

Course Code	**HSMC-401a**
Course Title	**Economics (Theory)**
Type of Course	**HS**
L T P	**3 0 0**
Credits	**03**
Total Lectures	**45**
Course Assessment Methods: End Semester Assessment (University Exam.) Continuous Assessment (Sessional)	 **50** **50**
Course Prerequisites	**Nil**
Course Objectives	I. To make students understand how society manages its scarce resources for achieving maximum satisfaction. II. To make students learn about economic aspects related

SECTION-B	
Theory of Market Nature and Relevance of Perfect Competition, Monopoly and Monopolistic Competition.	**(08)**
Basic Concepts of Macro Economics National Income: Concept and Measurement, Determination of Equilibrium of Income Inflation: Concept, Causes and Effect of Inflation, Measures to Control Inflation.	**(09)**
Project Presentations	**(04)**

RECOMMENDED BOOKS

S. No.	NAME	AUTHOR(S)	PUBLISHER
1	[redacted]		

COURSE INFORMATION SHEET

Course Code	**HSMC-401b**
Course Title	**Introduction to Psychology (Theory)**
Type of Course	**HS**
L T P	**3 0 0**
Credits	**03**
Total Lectures	**45**
Course Assessment Methods: End Semester Assessment (University Exam.) Continuous Assessment (Sessional)	 **50** **50**
Course Prerequisites	**Nil**
Course Objectives	I. To provide knowledge and understanding about important concepts in Psychology. II. To make students learn the application of principles of psychology in working life.
Course Outcomes	After completion of this course, the students will be able to: I. Learn the causes and dynamics of human

the concept and theoretical framework, motivating people at work	

Primitive, Agrarian, Industrial and Post-Industrial, Features of Industrial and Post-Industrial Society, Impact of Automation and Industrialization on Societyc

relation, paths in relations and digraphs, equivalence relations and sectionitions, operations on relations, transitive closure and (Scope as in Chapter 4, Sections 4.1 4.7 of Reference 2).

Functions, One-to-one and onto functions, Special functions. The pigeon hole principle. Function composition and inverse functions (Scope as in Chapter 5, Sections 5.1 5.6

COURSE INFORMATION SHEET

Course Code	**PCIT 401**
Course Title	**Microprocessor & Assembly Language Programming (Theory)**
Type of Course	**PC**
L T P	**3 1 3**
Credits	**04**
Total Lectures	**45**
Course Assessment Methods: End Semester Assessment (University Exam.) Continuous Assessment (Sessional)	 **50** **50**
Course Prerequisites	Basic Information Theory and Communication, Computer Architecture and Organization.
Course Objectives	To understand and apply the concepts of 8085 Microprocessor so as to prepare the graduates to write assembly language programs for solving various problems.
Course Outcomes	After completion of this course, the students will be able to: I. Recall the concepts of number system, digital circuits, data buses, memory, registers, ports. II. Understand the architecture of 8085 and its interfacing with Memory and peripheral I/O devices. III. Apply the concepts of microprocessor to write assembly language programs using 8085 programming instructions. IV. Analyze the problems, time delays caused and breakdown the problem into subroutines. V. Synthesis and develop solution in assembly language by employing the concepts of stacks, subroutines, interrupts and various Programmable Peripheral devices. VI. Evaluate and assess the output of assembly language program.

SYLLABUS

Note: The examiner shall set seven questions of 10 marks each. First question has to be compulsory, having sections covering the whole syllabus. Three questions have to be set from Section A and three questions from Section B of the syllabus. Candidate is required to attempt at least two questions from each section. All the course outcomes must be covered by the question paper.

SECTION-A	**CO(s)**
Microprocessor Architecture and Microcomputer Systems Microprocessor Architecture, The 8085 MPU: Block Diagram, Pin Diagram, Address/Data Buses, Concept of de-multiplexing of Buses, Control and status signals, Registers, Ports, Flags, Instruction Decoding and Execution, memory Interfacing. **(06)**	**1,2**

Interfacing I/O Devices Basic Interfacing Concepts, Interfacing Output Displays, Interfacing Input Devices, Memory-Mapped I/O. **(06)**	**2**
Programming the 8085 Introduction to 8085 Assembly Language Programming, The 8085 Programming Model, Instruction Classification, Instruction Format. Data Transfer (Copy) Operations, Arithmetic Operations, Logic Operations, Branch Operations, Writing Assembly Language Programs. **(07)**	**3,6**
Programming Techniques with Additional Instructions Programming Techniques Looping, Counting and Indexing, Additional Data Transfer and 16-Bit Arithmetic Instructions, Arithmetic Operations Related to Memory, Logic Operations. **(6)**	**3,6**
SECTION-B	
Counters and Time Delays Counters and Time Delays, Hexadecimal Counter, Modulo Ten, Counter, Generating Pulse Waveforms, Debugging Counter and Time-Delay Programs. **(06)**	**4,6**
Stack and Subroutines Stack, Subroutine, Conditional Call and Return Instructions. **(04)**	**5**
Interrupts The 8085 Interrupt, 8085 Vectored interrupts. **(03)**	**5**
General ï Purpose Programmable Peripheral Devices Block Diagram, Working and Control word of: The 8255A Programmable Peripheral Interface, The 8259 A Programmable Interrupt Controller, Programmable communications interface 8251. **(07)**	**5**

RECOMMENDED BOOKS

S. No.	NAME	AUTHOR(S)	PUBLISHER
1	Microprocessor Architecture, Programming and Applications with the 8085	Ramesh S.Gaonkar	PHI
2	Advanced Microprocessors & Interfacing	Badri Ram	Tata McGraw Hill
3	Microprocessor Principles and Applications		

COURSE INFORMATION SHEET

Course Code	**PCIT 451**
Course Title	**Microprocessor & Assembly Language**

COURSE INFORMATION SHEET

Course Code	**PCIT 452**
Course Title	**Computer Networks(Practical)**
Type of Course	**PC**
Credits	**1.5**
Course Assessment Methods: End Semester Assessment (University Exam.) Continuous Assessment (Practical)	 **00** **50**
Course Prerequisites	Introduction to Information Technology, Basic Information Theory and Communication.
Course Objectives	This course is to provide students with an overview of the concepts of data communication

SYLLABUS

1.To Study different type of network cables.
2.To implement the cross-wired cable and straigt cable using clamping tool.
3.To study various network devices in detail.
4.To study IP address subnetting.
5.To connect the computers in LAN.
6.To Study basic network command and networks communication commands.
7.To configure a network topology.
8.Cisco packet tracer can be used to configure networks.

SECTION-A	CO(s)
Basic Functions and Concepts of Operating Systems Concept of an operating systems, batch system, Multi-programmed, Time sharing, Personal Computer System, Parallel system, Real time system, General system Architecture. **(05)**	**1**
Features and Objectives of Operating Systems System components, operating system services, System calls, System Programs, System Structure, System design and implementation. Concept of process, process states, process state transition, process control block, operations of processes, concurrent processes, deadlocks, scheduling algorithms, scheduling criteria, Process Synchronization. **(11)**	**2**
Memory Management Logical and physical address space, storage allocation and management techniques, swapping, concepts of multi programming, paging, segmentation, virtual storage management strategies, Demand Paging, Page Replacement Algorithms, and Thrashing. **(06)**	**3**
SECTION-B	
Information Management File concept, Access method, Directory structure, Protection File system structure, Allocation methods, Free space management, Directory implementation, Disk structure, Disk Scheduling, Disk management, Swap space management. **(06)**	**4**
Distributed-System Structures Network operating system, Distributed operating systems, Remote services, Robustness, Design Issues. **(06)**	**5**
Distributed file systems and Distributed Coordination Naming and Transparency, Remote file Access, Stateful versus stateless service, File replication, Event ordering, Mutual Exclusion, Atomicity, Concurrency control, Deadlock Handling, Election Algorithms, Reaching Agreement. **(06)**	**5**
Case Studies: Unix O.S. Architecture, Operating system services, user perspective, representation of files in Unix system processes and their structure, Input-output system, Memory management, Unix shell, history and evolution of Unix system. **(05)**	**6**

RECOMMENDED BOOKS

S. No.	NAME	AUTHOR(S)	PUBLISHER
1	Operating Systems, 5th Edition	Galvin & Silberschatz	Addison Wesley Publishing Ltd
2	An Introduction to Operating System, 3rd Edition	Harvey M. Deitel	Narosa Publishing House
3	Operating Systems: Design and implementation, 3rd Edition	Andrew S. Tanenbaum	PHI
4	Operating system, 5th Edition	Millan Milankovic	McGraw Hill

COURSE INFORMATION SHEET

Course Code	**PCIT 453**
Course Title	**Operating System (Practical)**
Type of Course	**PC**
Credits	**1.5**
Course Assessment Methods: End Semester Assessment (University Exam.) Continuous Assessment (Practical)	 **00** **50**
Course Prerequisites	Programming Fundamental. Object Oriented Programming using C++
Course Objectives	I. To teach students about various operating systems including Windows, and UNIX. II. To be able to students learn about systems configuration and administration. Students learn, explore and practice technologies related to UNIX.

SYLLABUS

List of Practicals:

1. Implement various CPU scheduling algorithms.
2.
3. Write programs to implement Page replacement algorithms.
4. Write an algorithm and program to implement Disc scheduling.
5. Installation of the Linux operating system
6. Using basic commands-man, who, more, pipe, finger, cat, redirect, ls, cp, mv, rm.Working with directory and plain files-pwd, cd, mkdir, rmdir, lp, wc, date, cal, sort, diff, uniq and grep commands.
7. Using miscellaneous commands-head, tail, cut, copy, paste, spell, find and bc.
8.

SYLLABUS FOR B.E. (I.T.) FIFTH SEMESTER

COURSE INFORMATION SHEET

Course Code	**PCIT501**
Course Title	**Network Security and Cryptography (Theory)**
Type of Course	**PC**
L T P	**3 1 2**
Credits	**04**
Total Lectures	**45**
Course Assessment Methods: End Semester Assessment (University Exam.) Continuous Assessment (Sessional)	 **50** **50**
Course Prerequisites	Computer Networks.
Course Objectives	I. To understand and apply the principles of encryption algorithms, conventional and public key cryptography. II. To gain knowledge about authentication, hash functions and application level security mechanisms.
Course Outcomes	After completion of this course, the students will be able to: I. To perform analysis of real time systems for identifying security threats. II. To understand and compare public and private cryptographic algorithms and make use of the same for encryption and decryption of messages. III. To describe key management protocols and design confidential systems with minimum possible threats. IV. To understand hash algorithms and apply both cryptography and hashing to create digital signatures and certificates for achieving integrity. V. To understand application of cryptosystems in design of Kerberos, IPSec, AH, and ESP protocols. VI. To understand and compare https vs SET protocols and Firewall Vs Virtual Private Network .

SYLLABUS

Note: The examiner shall set seven questions of 10 marks each. First question has to be compulsory, having sections covering the whole syllabus. Three questions have to be set from Section A and three questions from Section B of the syllabus. Candidate is required to attempt at least two questions from each section. All the course outcomes must be covered by the question paper.

SECTION-A	**CO(s)**

Basic Encryption and Decryption Threats and Types of attacks, Challenges for Information Security, Classical Cryptographic Algorithms: Monoalphabetic Substitutions such as Caesar Cipher, Cryptanalysis of Monoalphabetic ciphers; Polyalphabetic Ciphers such as Vigenere, Vernam Cipher; Transposition Cipher. **(06)**	**1,2**
Stream and Block Ciphers Rotor Based System and Shift Register Based System. Block cipher: principles, modes of operations. Data Encryption Standard (DES), Analyzing and Strengthening of DES, Introduction to Advance Encryption Standard (AES). **(07)**	**2**
Number Theory and Basic Algebra Modular Arithmetic, Euclidean algorithm, Random number generation. **(04)**	**2**
Key Management Protocols: Solving Key Distribution Problem, Diffie-Hellman Algorithm, Key Exchange with Public Key Cryptography. **(05)**	**3**
SECTION-B	
Public Key Encryption Systems Concept and Characteristics of Public Key Encryption system, Rivets-Shamir-Adleman (RSA) Encryption, Digital Signature Algorithms and authentication protocols, Digital Signature Standard (DSA). **(06)**	**2,4**
Hash Algorithms Hash concept, description of Hash Algorithms, Message Digest Algorithms such as MD4 and MD5, Secure Hash Algorithms such as SH1 and SHA2. **(05)**	**4**
Network Security Kerberos, IP security: Architecture, Authentication Header, Encapsulating Security Payload. **(04)**	**2,5**
Web Security Web security consideration, Secure Socket Layer Protocol, Transport Layer Security, Secure Electronic Transaction Protocol. **(04)**	**6**
Firewalls Firewall Design principles, Trusted Systems, Virtual Private Networks. **(04)**	**6**

RECOMMENDED BOOKS

S. No.	NAME	AUTHOR(S)	PUBLISHER

COURSE INFORMATION SHEET

Course Code	**PCIT 502**
Course Title	**Design and Analysis of Algorithms(Theory)**
Type of Course	**PC**
L T P	**3 1 2**
Credits	**04**
Total Lectures	**45**
Course Assessment Methods: End Semester Assessment (University Exam.) Continuous Assessment (Sessional)	 **50** **50**
Course Prerequisites	Programming for problem solving, Data Structures.
Course Objectives	The objective of the course is to develop an understanding about basic algorithms and different problem solving strategies. It aims to improve creativeness and the confidence to solve non-conventional problems and expertise for analyzing existing solutions. The course covers asymptotic analysis and algorithm design strategies that can be applied on different problem domains.
Course Outcomes	After completion of this course, the students will be able to:

General Method, Binary Search, Matrix Multiplication, Merge Sort, Quick Sort and their performance analysis. **(07)**	
Greedy Approach Elements of Greedy strategy, Knapsack problem, Single source Shortest paths problem, Minimum Spanning tree problem and analysis of these problems. **(07)**	**3,5**
SECTION-B	
Dynamic Programming General Method, Multistage Graph , All Pairs Shortest Path Algorithm , 0/1 Knapsack Problem, Traveling Salesman Problem. **(09)**	**3,5**
Backtracking The General Method , 8-Queens Problem- Sum of Subsets ,Knapsack. **(07)**	**3**
P and NP Problems Nondeterministic Algorithms, NP Hard and NP complete problems, Reducibility and NP completeness. **(06)**	**6**

RECOMMENDED BOOKS

S. No.	NAME	AUTHOR(S)	PUBLISHER
1	Fundamentals of Computer Algorithms	Ellis Horowitz, SartajSahni	Galgotia
2	Introduction to Algorithms	Thomas H. Cormen, Charles E. Leiserson, Ronald L. Rivest	Prentice Hall
3	The Design and Analysis of Computer Algorithms	Aho A.V., Hopcroft J.E., Ullman J.D.	Pearson Education
4	Fundamentals of Algorithms	Gilles Brassard & Paul Bratley	Prentice Hall

COURSE INFORMATION SHEET

COURSE INFORMATION SHEET

Course Code	**PCIT 553**
Course Title	

Java Methods, Classes and Inheritance Introduction; classes; methods; constructors; overloading methods; arrays; recursion; passing arrays and objects to methods; Inheritance; method overriding; abstract classes; using final; packages; interfaces. **(8)**	**1**
Exceptional Handling and Multithreaded Programming Exception handling fundamentals; exception types; uncaught exceptions; try and catch; creating exception classes; throwing exceptions; Java thread model; thread priorities; creating a thread; interthread communication; thread synchronization; suspending, resuming and stopping threads. **(8)**	**1,2**
I/O, Applets and Graphics I/O basics; stream classes; byte and character streams; reading and writing files; Applet fundamentals; Applet class; Applet initialization and termination; event handling; keyboard and mouse events; AWT class; Layout managers; panels; canvases; Frame windows; drawing lines, rectangles, ellipses. **(8)**	**6**

COURSE INFORMATION SHEET

Course Code	**PEIT 501b**
Course Title	**Unix Networking Programming (Theory)**
Type of Course	**PE-I**
L T P	**3 0 3**
Credits	**3**
Total Lectures	

SECTION-A	CO(s)
INTRODUCTION TO NETWORK PROGRAMMING: OSI model, Unix standards, TCP and UDP,TCP connection establishment and termination, Buffer sizes and limitations,Standard Internet services, Protocol usage by common internet applications. **(7)**	**1**
SOCKETS AND APPLICATION DEVELOPMENT Introduction To Socket Programming System Calls Address Conversion Functions OSIX-Signal Handling Server With Multiple Clients Boundary Conditions Server Process C Rashes Server Host Crashes, Server Cashes And Reboots,Server Shutdown I/O,Multiplexing I/ Models - TCP Echo Client/Server with I/O Multiplexing. **(7)**	**2,3,4**
SOCKET OPTIONS socket Options Getsockopt And Setsockopt Functions Generic Socket Options IP Socket Option ICMP Socket Options TCP Socket Options Multiplexing TCP And UDP Sockets SCTP Sockets CTP Client/Server Streaming Example Domain Name System Gethostbyname, Gethostbyaddr, Getservbyname And Getservbyport Functions Protocol Independent Functions In CP Client/Server Scenario **.** **(8)**	**2,3,4**
SECTION-B	
ADVANCED SOCKETS IPv4 And IPv6 Interoperability Threaded Servers Thread Creation And Termination TCP Echo Server Using Threads Mutex Condition Variables Raw Sockets Raw Socket Creation Raw Socket Output Raw Socket Input Ping Program Traceroute Program. **(8)**	**5**
SIMPLE NETWORK MANAGEMENT SNMP Network Management Concepts SNMPv1 Management Information MIB Structure Object Syntax MIB-II Groups SNMPv1 Protocol And Practical Issues. **(8)**	**6**
SNMP V2, V3 AND RMO Introduction To SNMPv2 SMI For SNMPV2 Protocol SNMPv3 Architecture And Applications Security And Access Control Model Overview Of RMON. **(7)**	**6**

RECOMMENDED BOOKS

S. No.	NAME	AUTHOR(S)	PUBLISHER
1	UNIX Network Programming, Sockets API, Volume I, 3rd Edition, PHI, 2010.	W.Richard Stevens,	PHI
2	Pearson Edition, 2009	William Stallings	PHI
3	UNIX Systems Programming using C++ 1st Edition, PHI, 2010	T. Chan	PHI

COURSE INFORMATION SHEET

Course Code	**IT551c**
Course Title	**Python Programming (Practical)**

COURSE INFORMATION SHEET

Course Code	**IT-501d**
Course Title	**Mobile Application Development**
Type of Course	**PE-I**
L T P	**3 0 3**
Credits	**3**
Total Lectures	**45**

Course Assessment Methods:

RECOMMENDED BOOKS

S.NO	NAME	AUTHOR(S)	PUBLISHER
1	Android Application Development		

COURSE INFORMATION SHEET

Course Code	**PEIT 551d**
Course Title	**Mobile Application Development (Practical)**
Type of Course	**PE-I**
Credits	**1.5**
Course Assessment Methods: End Semester Assessment (University Exam.) Continuous Assessment (Practical)	 **00** **50**
Course Prerequisites	Introduction to Information Technology.
Course Objectives	1.Understand and comprehend the basics of mobile application programming. 2.Develop real-world applications using android programming.

SYLLABUS

COURSE INFORMATION SHEET

Course Code	**PEIT 501e**
Course Title	**Data Acquisition and Hardware Interfacing (theory)**
Type of Course	**PE-I**
L T P	**3 0 3**
Total Lectures	**45**
Course Assessment Methods End Semester Assessment (University Exam.) Continuous Assessment (Sessional, Assignments, Quiz)	 **50** **50**
Course Prerequisites	Computer architecture and organization, Microprocessor & Assembly Language Programming
Course Objectives (CO)	This course will introduce various data acquisition systems and techniques and their application using different hardware interfacing mechanisms.
Course Outcome	After completion of this course, the students will be able to: I. Recall different interface mechanism of devices for data transfer. II. Understand the principles of operation and limitations of the data acquisition system (single and multiple channels). III. Apply acquired knowledge to design a system of acquisition and control. IV. Analyze

Fundamentals of programming logic: Labview: Virtual instruments; indicators and controls; front panel and block diagram; data types and data flow programming; case and sequence structures; arrays, loops, and clusters; graphs and charts; sub VIs; and file I/O. **(9)**	**3,4**
SECTION-B	
Instrument control: Components of an instrument control system (GPIB and RS-232); detecting and configuring instruments; and instrument drivers. **(6)**	**2**
Instrumentation system design: Design specifications; functional block representation; design, debugging, and testing; interpretation and presentation of data; user interface; temperature control system design; motor speed control system design; and instrumentation project incorporating multiple sensors, signal interfacing electronics, data-acquisition hardware, instrument control. **(6)**	**4,5**
Buses Industry standard architecture (ISA), peripheral component Interconnect (PCI) Instrumentation Buses: Serial (RS232C, USB) and Parallel (GPIB) Accelerated Graphics port (AGP) plug-and-play devices SCSI concepts USB architecture. **(6)**	**2**
Project work using Labview Generation of signal (different function generators) on PC and acquiring the signal from sensor at PC again with different sampling rate and quantization level. Representations of different characteristics of acquired signals and their analysis and reporting. **(8)**	**6**

RECOMMENDED BOOKS:

S. No.	NAME	AUTHOR(S)	PUBLISHER
1.	Instrumentation Devices And Systems	Rangan C. S., Sarma G. R. and Mani V. S. V	Tata McGraw-Hill.
2.	"Modern Electronic Instrumentation and Measurement Techniques"	Helfrick Albert D. and Cooper W. D	Prentice Hall India.
3.	Digital Instrumentation	A. J. Bouvens	McGraw-Hill.
4.	Process Control Instrumentation Technology	Johnson Curtis D	Prentice Hall India.
5.	A Course In Electrical And Electronics Measurements And Instrumentation	Shawhney A. K	Dhanpat Rai & Sons.

COURSE INFORMATION SHEET

Course Code	**PEIT 551e**
Course Title	**Data Acquisition and Hardware Interfacing (Practical).**
Type of Course	**PE-I**

Course Code

COURSE INFORMATION SHEET

Course Code	**PEIT 501g**

COURSE INFORMATION SHEET

Course Code	**PWIT 551**
Course Title	**Industrial Training (After 4th Semester)**
Type of Course	**PW**
L T P	**0 0 0**
Credits	**1**
Course Assessment Methods: End Semester Assessment (University Exam.) Continuous Assessment (Practical)	 **00** **50**
Course Prerequisites	Nil
Course Objectives	1.To enable students to integrate theory with practice. 2.To provide opportunity to students to hands on current problems industrial practitioners are dealing with. 3.To introduce students to work culture and industrial practices.
Course Outcomes	After completion of this course, the students will be able to: I. Analyse practical aspects of a problem and apply engineering methods to design its solution.

COURSE INFORMATION SHEET

Course Code	**HSMC 501**
Course Title	**Cyber Laws & IPR (Theory)**
Type of Course	**HS**

SYLLABUS FOR B.E. (I.T.) SIXTH SEMESTER

COURSE INFORMATION SHEET

Course Code	**PCIT 601**
Course Title	**Theory of Computation (Theory)**
Type of Course	**PC**
L T P	**3 1 0**
Credits	**4**
Total Lectures	**45**

Course Assessment Methods:

S. No	NAME	AUTHOR(S)	PUBLISHER
1	Theory of computation	Mishra &Chandrashekharan	PHI Learning Pvt. Ltd.
2	Introduction to automata theory, languages and computation	Hopcroft H.E. & Ullman	Pearson/Addison Wesley
3	An introduction to formal languages and automata	Peter linz	Jones & Bartlett Learning
4	Introduction to languages and the theory of automata	John C Martin	McGraw-Hill
5	Elements of theory of computation	H.P. Lewis and C.H. papadimition	Prentice-Hall

COURSE INFORMATION SHEET

Course Code	**PCIT 602**
Course Title	**Machine Learning**
Type of Course	**PC**
L T P	**4 0 3**
Credits	**04**
Total Lectures	**45**
Course Assessment Methods: End Semester Assessment (University Exam.) Continuous Assessment (Sessional)	 **50** **50**
Course Prerequisites	Discrete Structures.
Course Objectives	The objective is to familiarize the students with some basic learning algorithms and techniques and their applications, as well as general issues related to analyzing and handling data.
Course Outcomes	After completion of this course, the students will be able to: I. Recall the concepts of supervised learning, unsupervised learning and neural networks. II. Understand

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COURSE INFORMATION SHEET

Professional Elective-

RECOMMENDED BOOKS

S no	NAME	AUTHOR(S)	PUBLISHER
1.	Internet of Things: A Hands-On Approach	Vijay Madisetti, Arshdeep Bahga	Orient Blackswan Private Ltd,2015
2	The Internet of Things in the Cloud: A Middleware Perspective	Honbo Zhou	CRC Press, 2012
3	The Internet of Things Key applications		

COURSE INFORMATION SHEET

Course Code	**PEIT 601b**
Course Title	**Computer Graphics (Theory)**
Type of Course	**PE-II**
L T P	**3 0 0**
Credits	**03**
Total Lectures	**45**
Course Assessment Methods: End Semester Assessment (University Exam.) Continuous Assessment (Sessional)	 **50** **50**
Course Prerequisites	Data Structures
Course Objectives	The objective of the course is to build the foundation of digital image generation concepts and techniques so as to use this knowledge for building graphics applications.
Course Outcomes	After completion of this course, the students will be able to: I. Understand the basic principles of interactive graphics, and its applications. II. Learn and implement various algorithms for scan conversion and polygon filling. III. Apply geometric transformations on graphics objects and learn its application in composite form. IV. Define, analyze and perform the perspective and orthographic projections on points and scenes in three-dimensional space V. Analyze and implement clipping methods and its transformation to graphics display device. VI. Learn splines and curves formation in computer graphics and understand visible surface detection methods.

SYLLABUS

Output primitives

Scan conversion, Frame buffer, Point and Lines, Line Drawing Algorithms: DDA

RECOMMENDED BOOKS

S. No.	NAME	AUTHOR(S)	PUBLISHER
1	Computer Graphics C Version	Donald Hearn, M.P. Baker	Pearson Education
2	Principle of interactive Computer Graphics, 2nd Edition	Newman and Sproul	McGraw Hill
3	Graphics, A programming Approach, 2nd Edition	Steven Harrington	Tata McGraw Hill
4	Mathematical Elemants of Computer Graphics, 2nd Edition	Rogar and Adams	McGraw Hill
5	Introduction to Computer Graphics, 1st Edition	N.Krishnamurthy	Tata McGraw Hill

COURSE INFORMATION SHEET

Course Code

Course Code	**PEIT 601d**
Course Title	**Software Engineering (Theory)**
Type of Course	**PE -II**
L T P	**3 0 0**
Credits	

RECOMMENDED BOOKS

S. No.	NAME	AUTHOR(S)	PUBLISHER
1	Software Engineering, 3rd Edition	Ian Somerville	Pearson Education
2	S/W Engineering-A Practitioner's Approach, 6th Edition	Roger S. Pressman	McGRAW-HILL
3	Software Engineering: Theory and Practice, Second Edition	S.L. Pfleeger, J.M. Atlee	Pearson Education
4	Software Engineering for Students, Fourth Edition	Douglas Bell	Pearson Education
5	Software Engineering		

Professional Elective-III

COURSE INFORMATION SHEET

Course Code	**PEIT 602a**
Course Title	**Principles of Telecommunication and Information Theory (Theory)**
Type of Course	**PE-III**
L T P	**3 0 0**
Credits	**03**
Total Lectures	**45**
Course Assessment Methods: End Semester Assessment (University Exam.) Continuous Assessment (Sessional)	 **50** **50**
Course Prerequisites	Basics of information theory and Communication.
Course Objectives	I. To understand the terminology, fundamental concepts, issues and design approaches of various communication systems. II. To understand and apply the concepts of Information Theory .
Course Outcomes	After completion of this course, the students will be able to: I. R7.02 Tm0f1 0 0 1.0353a306.89 238.13 242.

Bluetooth, WiFi networks and WLAN IEEE 802.11 standards, ZigBee Radios and IEEE 802.15.4, RFID systems and EPC Global UHF Class 1 Generation 2,WiMax, LTE, LTE-A. **(12)**

RECOMMENDED BOOKS

COURSE INFORMATION SHEET

Course Code	**PEIT 602b**
Course Title	**Multimedia System (Theory)**
Type of Course	**PE-III**
L T P	**3 0 0**
Credits	**03**
Total Lectures	**45**

Course Assessment Methods:

End Semester Assessment (University Exam.)

Continuous Assessment (Sessional)

COURSE INFORMATION SHEET

Course Code

RECOMMENDED BOOKS:

S. No.	NAME	AUTHOR(S)	PUBLISHER
1.	Computer Forensics: Computer Crime Scene Investigation.	John R VACCA	Firewall Media , 2009 edition Reprint 2012.
2.	Guide To Computer Forensics And Investigations	Bill Nelson, Amelia Phillips,Christopher Stuart	Cengage Learning publications, latest edition.
3.	Cybercrime	Bernadette H Schell, Clemens Martin	ABC

COURSE INFORMATION SHEET

Course Code	**PEIT 602d**
Course Title	**Software Project Management**
Type of Course	**PE-III**
L T P	**3 0 0**
Credits	**03**
Total Lectures	**45**
Course Assessment Methods: End Semester Assessment (University Exam.) Continuous Assessment (Sessional)	 **50** **50**
Course Prerequisites	
Course Objectives	I. To study the Introduction of project management and its basic concepts and techniques. II. To understand how to calculate risk, manage people, and to do resource allocation.

Course Outcomes

Requirement Specification, Management Control, Steps in project planning. **(08)**	
Programme management and project evaluation: Programme Management, Managing resources within programme, Strategic programme management, Aids to programme management, Evaluation / Assessment of projects, Cost-benefit Analysis, Cash flow forecasting, Cost-benefit evaluation techniques, Risk evaluation. **(08)**	**1,2,5**
Project approach and Software effort estimation: Selection of an appropriate project technology, Choice of process model, Data Structure, Delivery Model, Basis for software estimation, Problem with over and under estimates, Estimation Techniques, Expert judgment, Albrecht Function Point Analysis, Function points Mark II, COSMIC Function point, COCOMO Model. **(10)**	**1,2**
SECTION-B	
Activity Planning: Objective of Planning, Project Schedule, Activities Sequencing and Scheduling, Development of Project Network, Time Estimation, Forward and backward Pass, Critical Path and Activities. **(03)**	**3**

Risk Management:
Risk, Risk categories, identificati

RECOMMENDED BOOKS:

COURSE INFORMATION SHEET

RECOMMENDED BOOKS

S.No. NAME

COURSE INFORMATION SHEET

Course Code

Definition of direct, inverse z-transform and its properties. System functions of a LTI system. Inverse z-

RECOMMENDED BOOKS

S. No.	NAME	AUTHOR(S)	PUBLISHER
1.	Digital Signal Processing: Principles, Algorithms and Applications, 3rd Edition	Proakis&Manolakis	Pearson
2.	Digital Signal Processing	E C Ifeacher and B W Jervis	Prentice Hall
3.	Digital Signal Processing, 1st Edition	S Salivaharan, A Vallavraj, C Granapriya	TMH
4.	Digital Signal Processing	Sanjay Sharma	S.K. Kataria& Sons

COURSE INFORMATION SHEET

Course Code	**PCIT 751**
Course Title	**Digital Signal Processing (Practical)**
Type of Course	**PC**
Credits	**1.5**
Course Assessment Methods: End Semester Assessment (University Exam.) Continuous Assessment (Practical)	 **00** **50**
Course Prerequisites	Basic Information Theory and communication.
Course Objectives	To develop skills for analyzing and synthesizing systems that process discrete time signals, digital filters with emphasis on realization and simulation.

SYLLABUS

Practical based on theory.

COURSE INFORMATION SHEET

Course Code	**PCIT 702**
Course Title	**Compiler Design (Theory)**
Type of Course	**PC**
L T P	**3 1 0**
Credits	**04**
Total Lectures	**45**
Course Assessment Methods: End Semester Assessment (University Exam.) Continuous Assessment (Sessional)	 **50** **50**
Course Prerequisites	Computer Architecture and Organization, Theory

Overview of Software Defined Networking: History and Evaluation of SDN**,** Introduction to SDN, Advantages of SDN over Traditional Network Architecture, Separation of Control and Data Plane, Use Cases of SDN. **(6)**	**1**
SDN Components How SDN Works - SDN Architecture : Data plane, Control plane, Application Plane, Southbound Interface, Northbound Interface, Pure and Hybrid openflow switches, Software and Hardware based Openflow switches, Programmable Network Hardware. **(6)**	**2**
SDN Controllers: Overview, Centralized & Distributed Controllers, Open source SDN Controllers: POX , Ryu, Floodlight, OpenDaylight, Advantages and Disadvantages of each controller**.** **(5)**	**3**
OpenFlow Protocol OpenFlow Overview- OpenFlow 1.0 and OpenFlow Basics-, OpenFlow 1.1 Additions, OpenFlow 1.2 Additions, OpenFlow 1.3 Additions, Flow table components: matching rules, Actions, Counters, OpenFlow security, Proactive and reactive approach to insert flow table entries, Comparison of Openflow with other Southbound interfaces, OpenFlow Limitations. **(6)**	**2**
SECTION-B	
Mininet Emulation Tool Creating Default & Custom topologies in Mininet using low level API, mid-level API, high level API, Developing Switching and Firewall Applications in Mininet. **(6)**	**4**
Programming SDN: Northbound Application Programming Interface, Current Languages and Tools, Composition of SDNs. **(5)**	

COURSE INFORMATION SHEET

Course Code

crypto currency, Application of Cryptography to Blockchain- Using hash functions to chain blocks, Digital Signatures to sign transactions, Using hash functions for Proof-of-Work. **(10)**	
SECTION-B	
UNIT 3 ï Introduction to Bitcoin: Wallet, Blocks, Merkley Tree, Hardness of mining, Transaction verifiability, Anonymity, Forks, Double spending, P2P gateway, Mathematical analysis of properties of Bitcoin. **(8)**	**4**
UNIT 4 ï Ethereum and Hyperledger: Ethereum networks, Ethereum Virtual Machine (EVM), Wallets for Ethereum, Solidity language, decentralized applications using Ethereum. Solidity- Smart Contracts, Attacks on smart contracts, Hyperledger fabric, the plug and play platform and mechanisms in permissioned blockchain. **(8)**	**4,5**
UNIT 5 - Security issues in Blockchain : Pseudo-anonymity vs. anonymity, Zcash and Zk-SNARKS for anonymity preservation, attacks on Blockchains such as Sybil attacks, selfish mining, 51% attacks - -advent of algorand, and Sharding based consensus algorithms . **(7)**	**6**

RECOMMENDED BOOKS:

S. No. NAME AUT98 1342 52.32 0.48 r(

COURSE INFORMATION SHEET

Course Code	**PEIT 701d**
Course Title	**Agile Software Development (Theory)**
Type of Course	**PE-IV**
L T P	**3 0 0**
Credits	**03**
Total Lectures	**45**
Course Assessment Methods: End Semester Assessment (University Exam.) Continuous Assessment (Sessional)	 **50** **50**
Course Prerequisites	Introduction of Information Technology

Course Objectives

SECTION-B	
Agile Project Management Overview of Agile project management, Agile project management model: Overview of agile enterprise framework and agile delivery framework, Scaling and governing agile projects. Tools for Agile project management. **(10)**	**5**
Agile Testing Introduction to agile testing, Principles for testers, Overview of organizational challenges, The Agile testing Quadrants, Test Automation, The Agile lifecycle and its impact on testing, Types of testing in agile : TDD, BDD, Acceptance tests Exploratory testing, Risk based testing, Regression tests, Unit testing, Integration testing, system testing, Tools to support the Agile Tester. **(12)**	**5,6**

RECOMMENDED BOOKS

S. No.	NAME	AUTHOR(S)	PUBLISHER
1	Agile Principles, Patterns, and Practices in C#	Martin C. Robert, Martin Micah	Prentice Hall, 2006
2	Agile Project Management: Creating Innovative Products, 2nd Edition	Jim Highsmith	Addison-Wesley Professional, 2010
3	Agile Testing: A Practical Guide for Testers and Agile Teams	Janet Gregory, Lisa Crispin	Addison-Wesley .

COURSE INFORMATION SHEET

Course Code	**PWIT 751**
Course Title	**Industrial Training (after 6th Semester)**
Type of Course	**PW**
L T P	**0 0 0**
Credits	**01**
Course Assessment Methods: End Semester Assessment (University Exam.) Continuous Assessment (Practical)	 **00** **50**
Course Prerequisites	**Nil**

COURSE INFORMATION SHEET

Course Code	**PWIT 752**
Course Title	**Project-III**
Type of Course	**PW**
L T P	**0 0 4**
Credits	**02**
Course Assessment Methods: End Semester Assessment (University Exam.) Continuous Assessment (Practical)	 **00** **100**
Course Prerequisites	**Nil**
Course Objectives	1. Students learning skills to tackle realistic problems as they would be solved in the real world. 2. To work as team to deliver project that matches the required specification.
Course Outcomes	After the completion of this course, the students will be able to: I. Plan, Analyze, design and implement gathered skills and knowledge over the field of research and to solve real life problem. II. Apply software development lifecycle to plan & manage the projects. III. Demonstrate the ability to communicate effectively in orally and in writing. IV. Learn to work in team and focus on getting work done on time.

SYLLABUS FOR B.E. (I.T.) EIGHTH SEMESTER

COURSE INFORMATION SHEET

Course Code	**PCIT 801**
Course Title	**Embedded System Design (Theory)**
Type of Course	**PC**
L T P	**3 1 3**
Credits	**04**

Course Assessment Methods:

RECOMMENDED BOOKS

S. No.	NAME	AUTHOR(S)	PUBLISHER
1.	The 8051 Microcontroller and Embedded Systems	Muhammed Ali Mazidi, Janice GillispieMazidi and Robin D. Mckinlay	Pearson 2nd Edition
2.	The 8051 Microcontroller: Architecture, Programming & Applications		

COURSE INFORMATION SHEET

Course Code	**PCIT 802**
Course Title	**Cloud Computing (Theory)**
Type of Course	**PC**
L T P	**3 1 0**
Credits	**04**
Total Lectures	**45**
Course Assessment Methods: End Semester Assessment (University Exam.) Continuous Assessment (Sessional)	 **50** **50**
Course Prerequisites	Operating System , Computer Networks
Course Objectives	I. To understand the basics of Cloud Computing, different deployment models and service models of Cloud. II. To have an overview about the Public cloud and Private cloud, and the security issues related to Cloud computing.
Course Outcomes	After the completion of this course, the students will be able to: I.

RECOMMENDED BOOKS

S. No.	NAME	AUTHOR(S)	PUBLISHER
1.	Cloud Computing: Principles and Paradigms	RajkumarBuyys, James Broberg, Andrzej Goscinski (Editors)	Wiley, 2011
2.	Cloud Computing	Michael Miller	Pearson Education 2009
3.	Cloud Computing for dummies,	Judith Hurwitz, Robin Bllor, Marcia Kaufman, Fern Halper	Wiley, 2009
4.	Cloud Computing: A Practical Approach	Anthony T. Velte, Toby J. Velte, and Robert Elsenpeter	McGraw Hill, 2010.
5.	Handbook of Cloud Computing		

Professional Elective-V
COURSE INFORMATION SHEET

Course Code	**PEIT 801a**
Course Title	**Optical Communication**
Type of Course	**PE-V**
L T P	**3 0 0**
Credits	**03**
Total Lectures	**45**

Course Assessment Methods:

Optical Fiber Wave Guides: Ray Theory of Transmission: Total Internal reflection, Acceptance Angle, Numerical Aperture, Step-Index Fiber, Graded Index Fiber, Modes in SI and GRIN fiber. **(9)**	**2**
Signal Degradation in Optical Fibers: Attenuation, Material absorption losses, linear and non linear scattering losses, fiber bend loss, dispersion viz intermodal dispersion and intramodal dispersion, overall fiber dispersion and polarization mode dispersion, Introduction to nonlinear effects: Self phase modulation, cross phase modulation, Stimulated Brillion and Raman scattering, Four Wave Mixing. **(7)**	**3**
SECTION-B	
Optical Sources Lasers: Principles of Laser, absorption and emission of adiation,population inversion, optical feedback and laser oscillation. Optical emsission from semiconductore- pn junction,spontaneous emission.LED: basic concepts, advantages, power and efficiency. **(5)**	**4**
Optical detectors Principles of Photodetection, Photomultiplier, Semiconductor Photodiode, PIN photodiode, Avalanche photdiode. **(6)**	**5**
Optical fiber connections: joints and couplers: Fiber alignment and joint loss, Fiber splices, Fiber connectors principles, Fiber couplers. **(8)**	**6**

RECOMMENDED BOOKS

S. No.	NAME	AUTHOR(S)	PUBLISHER
1	Fiber Optic Communications, latest Edition	Joseph C. Palais	

Introduction to Snort, Snort Installation Scenarios, Installing Snort, Running Snort on Multiple,Network Interfaces, Snort Command Line Options. Step-By-Step Procedure to Compile and Install Snort Location of Snort Files, Snort Modes Snort Alert Modes. **(9)**	
SECTION-B	
UNIT-IV Working with Snort Rules, Rule Headers, Rule Options, Snort Configuration File etc., Plugins, Preprocessors and Output Modules, Using Snort with MySQL. **(9)**	**3,4**
UNIT-V Using ACID and Snort, Snarf with Snort, Agent development for intrusion detection, Architecture models of IDs and IPs. **(9)**	**5,6**

RECOMMENDED BOOKS:

S. No.	NAME	AUTHOR(S)	PUBLISHER
1.		Rafeeq Rehman	1st Edition, Prentice Hall , 2003.
2.		Christopher Kruegel, Fredrik Valeur, Giovanni Vigna	1st Edition, Springer, 2005
3.		. Carl Endorf, Eugene Schultz and Jim Detection &	1st Edition, Tata McGraw-Hill, 2004.
4.	Detection.	Stephen Northcutt, Judy Novak	3rd Edition, New Riders Publishing, 2002.
5.	Development and Computing	T. Fahringer, R. Prodan	Khanna Publishers, 2012.

RECOMMENDED BOOKS:

S. No.	NAME	AUTHOR(S)	PUBLISHER
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RECOMMENDED BOOKS:

S. No.	NAME	AUTHOR(S)	PUBLISHER
1	Principles and Practices of Management	Rao V.S.P. and Narayana P.S.	Konark Publishers, 1987
2	Principles & Practice of Management	Prasad L.M.	8th Edition, Sultan Chand & Sons, 2012
3	Essentials of Management: International and Leadership Perspective	Weihrich H.and Koontz H.	Edition, McGraw Hill, 2012
4	The New Era of Management	Daft R.L	11th

Corporate Governance Concept, Elements and Essentials of Good Governance.	**(3)**
Contract Law Concept, Types and Essentials Elements of Contract.	**(3)**
Sectionnership Law Nature of Sectionnership, Provisions of Sectionnership Act, Issues Related to Sectionnership Firm, Hypothetical Formation of a Sectionnership Firm.	**(2)**
Company Law Nature of Company, Provisions of Company Act, Issues Related to Incorporation of Company, Hypothetical Formation of a Company.	**(2)**

RECOMMENDED BOOKS:

S. No.	NAME	AUTHOR(S)	PUBLISHER

COURSE INFORMATION SHEET

Course Code	**HSMC 801c**
Course Title	**Entrepreneurship and Project Management**
Type of Course	**HS**

Nature and Functions of Financial Institutions: Reserve Bank of India (RBI), Securities and Exchange Board of India (SEBI), Discount and Finance House of India (DFHI) .	
Long Term Investment Decisions Capital Budgeting: Concept, Importance, Factors Techniques/Methods with Numerical Applications (Pay Back Period, Accounting Rate of Return, Net Present Value, Internal Rate of Return and Profitability Index), Case Study.	**(3)**
Short Term Investment Decisions Working Capital: Nature, Type and Factors Affecting the Requirement of Working Capital, Case Study.	**(2)**
Financing Decisions Capital Structure: Essentials and Approaches of Capital Structure Sources of Finance (long-term and short-term), Financial Leverage: Concept and Numerical Application, Case Study.	**(3)**
Dividend Decisions Types of Dividend, Dividend Policy: Nature and Factors Affecting Dividend Policy, Case Study.	**(2)**

RECOMMENDED BOOKS:

S.No.	NAME	AUTHOR(S)	PUBLISHER
1	Financial Management	Shah P.	

COURSE INFORMATION SHEET

Course Code	**HSMC 801e**
Course Title	**Marketing Management**
Type of Course	**HS**
L T P	**3 0 0**
Credits	**3**

Course Assessment Methods

End Semester Assessment (University Exam.)

Continuous Assessment (Sessional, Assignments, Quiz)

COURSE INFORMATION SHEET

Course Code	**PWIT851**
Course Title	**Project-IV**
Type of Course	**PW**
L T P	**0 0 4**
Credits	**02**
Course Assessment Methods: End Semester Assessment (University Exam.) Continuous Assessment (Practical)	 **00** **100**
Course Prerequisites	**Nil**
Course Objectives	1. Students learning skills to tackle realistic problems as they would be solved in the real world. 2. To work as team to deliver project that matches the required specification.
Course Outcomes	After the completion of this course, the students will be able to: I. Plan, Analyze, design and implement gathered skills and knowledge over the field of research and to solve real life problem. II. Apply software development lifecycle to plan & manage the projects. III. Demonstrate the ability to communicate effectively in orally and in writing. IV. Learn to work in team and focus on getting work done on time.

COURSE INFORMATION SHEET

Course Code