

**B Sc**  
**COMPUTER SCIENCE**  
**SYLLABUS (2007-2010)**

under  
**CHOICE BASED CREDIT SYSTEM**  
**(CBCS)**



**ST. JOSEPH'S COLLEGE (AUTONOMOUS)**  
(Nationally Reaccredited with A+ Grade / College with Potential for Excellence)  
**TIRUCHIRAPPALLI - 620 002**

## Features of Choice Based Credit System (CBCS)

The Autonomous St. Joseph's College (1978) with A+ Grade from NAAC (2007) has introduced the choice based credit system (CBCS) for UG and PG courses from the academic year 2001-2002.

### OBJECTIVES of Credit System:

- \* To provide mobility and flexibility for students within and outside the parent department
- \* To provide broad based education
- \* To help students learn at their own pace
- \* To provide students scope for acquiring extra credits
- \* To impart more job oriented skills to students
- \* To make any course multi-disciplinary in approach

### What is a credit system?

Weightage to a course is given in relation to the hours assigned for the course. Generally one hour per week has one credit. However, there could be some flexibility because of practicals, field visits and tutorials. The following Table shows the relation between credits and hours.

Hours in a week	Hours (2-3)	Hours (4)	Hours (5-6)
Theory Credits	1	3	4
Practicals Credits	1	2	3

For UG courses a student must earn a minimum of 140 credits to get a pass. The 140 credits are split as follows:

	BA	BSc	BCom
English	16	16	8
Languages	12	12	12
Allied: Compulsory - 2 courses	10	10	10
Allied: Optional - 2 courses	10	8	10
Computer Literacy	2	2	2
Foundation Courses	3	3	3
Environmental Studies	3	3	3
Electives	9	9	9
SHEPHERD	3	3	3
Core Courses	<u>72</u>	<u>74</u>	<u>80</u>
<b>Total</b>	<u>140</u>	<u>140</u>	<u>140</u>

A student can acquire credits more than 140 by taking electives offered by departments in the free hours available to him in 5<sup>th</sup> and 6<sup>th</sup> semesters.

### Allied Courses:

The allied courses are of two categories.

Allied Compulsory and Allied Optional: The student has choice in allied optional as two courses are offered simultaneously. The department must offer two courses. The student has to choose one.

### Electives

A student should take at least three electives.

A least one elective should be from Arts Department for a student of Science Department and vice versa for Arts students.

A student cannot take more than one elective from his parent department.

### Credit System Codes - Subject Code Fixation

The various papers in the different courses are coded. The following code system is adopted.

- The code number of the subject should be as **07UPH1XX** where
    - a) 07 refers to year of revision
    - b) U refers to Undergraduate
    - c) PH refers to Physics\*
    - d) 1 refers to Semester 1
    - e) 0X refers to Languages (Part 1)
    - f) 1X refers to General English (Part 2)
    - g) 2X refers to Core Major (Part 3)
    - h) 5X refers to Core Allied Compulsory (Part 3)
    - i) 7X refers to Core Allied Optional (Part 3)
    - j) 8X refers to Elective (Part 3)
    - k) 9X refers to Foundation Course (Part 4)
- } X - Paper number
- The code number of the subject should be as **07PEC1XX** where
    - a) 07 refers to year of revision
    - b) P refers to Postgraduate
    - c) EC refers to Economics\*
    - d) 1 refers to Semester 1
    - e) 2X refers to Core
    - f) 4X refers to Optional
    - g) 6X refers to EDC
- } X-Paper number

### Codes for Departments:

Sl. No.	Course	Subject Code
1.	Biochemistry	BI
2.	Biotechnology	BT
3.	Business Administration	BU
4.	Chemistry	CH
5.	Commerce	CO
6.	Computer Applications	CA
7.	Computer Science	CS
8.	Information Technology	IT
9.	Economics	EC
10.	English	EN
11.	English - General	GE
12.	Electronics	EL
13.	Foundation Course	FC
14.	French	FR
15.	Hindi	HI
16.	History	HS
17.	Human Resource Management	HR
18.	Mathematics	MA
19.	Physics	PH
20.	Plant Biology & Plant Biotechnology	PB
21.	Personnel Management & Industrial Relations	PM
22.	Sanskrit	SA
23.	Statistics	ST
24.	Tamil	TA
25.	Tamil - General	GT
26.	Transport Management	TM

### Evaluation

For each course there is formative Continuous Internal Assessment (CIA) and Semester Examinations (SE) in the weightage ratio 50:50. The following table illustrates how one evaluates the **Overall Percentage Marks (OPM)** for a student in Part I (English) in the four papers put together.

$$\text{OPM} = \frac{a_1b_1 + a_2b_2 + a_3b_3 + a_4b_4}{(b_1+b_2+b_3+b_4)}$$

Where  $a_1, a_2, a_3$  and  $a_4$  indicate the marks obtained in the 4 semesters for English and  $b_1, b_2, b_3$  and  $b_4$  indicate the corresponding credits for the 4 courses. For example let us consider the following marks scored by a student in the 4 semesters in English.

#### Part II-General English

S. No.	Sem.	Subject	CIA	SE	Total	Avg	Credit	Cr.pts
1.	I	GE-I	50	48	98	49.0	4	196.0
2.	II	GE-II	50	48	98	49.0	4	196.0
3.	III	GE-III	50	50	100	50.0	4	200.0
4.	IV	GE-IV	50	48	98	49.0	4	196.0
<b>TOTAL</b>								<b>788.0</b>

$$\text{OPM} = 788 / \text{total number of credits} = 788.0 / 16 = 49.25$$

**This percentage corresponds to III class.**

If OPM is between 50 and 60 the student gets II class. If OPM is 60 and more then the student is placed in I class.

If scores OPM=75 and more he gets first class with distinction.

Similarly we can compute OPM for part II and Part III using the marks in various subjects and the corresponding credits.

Part IV consists of foundation courses, computer literacy, SHEPHERD programme, Service Organisation and only a pass is indicated for these and Part IV is not taken into account for computing OPM.

#### Declaration of result:

\_\_\_\_\_ has successfully completed B.Sc. degree course with FIRST CLASS. His overall average percentage of marks in part III is \_\_\_\_\_. He has acquired 11 more credits in the course by taking Foundation Courses, Environmental Studies, Computer Literacy, and SHEPHERD programme.

**B. Sc. Computer Science - Course Pattern**

Sem	Part	Code	Subject Title	Hrs	Credit
I	I	*	Tamil-I / Hindi-I / French-I / Sanskrit-I	4	3
	II	0UGE111	General English-I	5	4
	III	07UCS121	C Programming and Unix	5	5
	III	07UCS122	Digital Computer Fundamentals	5	4
	III	07UCS123	Software Lab – I (C)	3	2
	III	07UMA153	Allied : Mathematics – I	6	5
	IV	07UFC191	Foundations of Humanity	2	1
<b>Total for Semester I</b>				<b>30</b>	<b>24</b>
II	I	*	Tamil-II / Hindi-II / French-II / Sanskrit-II	4	3
	II	07UGE212	General English-II	5	4
	III	07UCS224	COBOL and Systems Analysis	4	4
	III	07UCS225	Discrete Mathematics	4	4
	III	07UCS226	Software Lab – II (COBOL)	3	2
	III	07UCS227	Office Automation #	2	2
	III	07UMA254	Allied : Mathematics – II	6	5
	IV	07UFC293	Social Analysis	2	1
<b>Total for Semester II</b>				<b>30</b>	<b>25</b>
III	I	*	Tamil-III / Hindi-III / French-III / Sanskrit-III	4	3
	II	07UGE313	General English-III	5	4
	III	07UCS328	Programming in C++	5	5
	III	07UCS329	Software Lab – III (C++)	3	2
	III	07UPH374	Allied : Applied Physics – I	4	3
	III	@	Allied : Applied Physics Practical – I / (or)	2	
	III	07UCO371	Allied: Accounts – I	(6)	(4)
	IV	07UFC394	Social Ethics/ (or)		
	IV	07UFC395	Religious Doctrine – I	2	1
	IV	07UFC396	Environmental Studies	4	2
			Library	1	
<b>Total for Semester III</b>				<b>30</b>	<b>21</b>
IV	I	*	Tamil-IV / Hindi-IV / French-IV / Sanskrit-IV	4	3
	II	07UGE414	General English-IV	5	4
	III	07UCS430	Data Structures and Algorithms	4	4
	III	07UCS431	Software Lab – IV (Shell Programming)	3	2
	III	07UCS432	Numerical Aptitude #	2	2
	III	07UPH475	Allied : Applied Physics – II	4	3
	III	07UPH476	Allied : Applied Physics Practical – II / (or)	2	2
	III	07UCO472	Allied : Accounts – II	(6)	(4)
		*	Elective-I	4	3
	IV	07UFC497	Building Men for Others / (or)		
IV	07UFC498	Religious Doctrine – II	2	1	
<b>Total for Semester IV</b>				<b>30</b>	<b>23</b>
V	III	07UCS533	Programming in Java	4	3
	III	07UCS534	Software Engineering	4	3
	III	07UCS535	Database Systems	4	3
	III	07UCS536	Microprocessor	4	3
	III	07UCS537	Software Lab – V (Java)	3	2
	III	07UCS538	Software Lab – VI (RDBMS)	3	2
	III	@	Hardware Lab (Electronics)	3	
		*	Elective-II	4	3
	III	@	Softskills ##	1	
<b>Total for Semester V</b>				<b>30</b>	<b>19</b>

VI	III	07UCS639	Computer Networks	4	3
	III	07UCS640	Operating Systems	4	3
	III	07UCS641	Computer Graphics	4	3
	III	07UCS642	Operations Research	4	3
	III	07UCS643	Software Lab – VII (VB.Net)	3	2
	III	07UCS644	Hardware Lab (Electronics)	3	4
	III	07UCS645	Project lab	3	2
		*	Elective-III	4	3
		07UCS646	Softskills ##	1	2
<b>Total for Semester IV</b>				<b>30</b>	<b>25</b>
I-V	IV		Extension Service: SHEPHERD		3
<b>Total Credits for All Semesters</b>					<b>140</b>

\* Code numbers according to the subject chosen

@ Exam at the end of the year

# Only internal examination

## Examination only internal at the end of the year.

Sem:I  
07UGT101

Hours : 5  
Credits: 4

### பொதுத்தமிழ் - 1

#### நோக்கங்கள்:

1. சமூக மாற்ற உணர்வை ஊட்டும் தலைசிறந்த தற்காலக் கவிஞர்கள், உரைநடை ஆசிரியர்களது படைப்புகளின் இலக்கியநயம் பாராட்டல்.
2. சந்திப்பிழையின்றி எழுதப் பயிற்றுவித்தல்

#### பயன்கள்

1. சமூக உணர்வூட்டும் படைப்புகளை அழகியல் நுகர்ச்சி வாயிலாக மாணாக்கர் கற்றுக்கொள்வர்.
2. சந்திப்பிழை நீக்கி எழுதும் திறன் பெறுவர்.

#### செய்யுள் திரட்டு

1. மகாகவி பாரதியார் கவிதைகள்
2. பாரதிதாசன் கவிதைகள்
3. சுத்தானந்த பாரதியார், தமிழ்க்கனல் ஷஎன்னருமைத் தமிழர்களே'
4. கவிமணி கவிதைகள்
5. கவிஞர் கண்ணதாசன் - இயேசு காவியம்
6. பெருஞ்சித்திரனார் பாடல்கள்
7. அப்துல் ரகுமான் - ஆலாபனை
8. கவிஞர் அறிவுமதி கவிதைகள்
9. மொழிபெயர்ப்புக் கவிதைகள்
10. இலக்கணம்: வல்லினம் மிகும் - மிகா இடங்கள்

இலக்கிய வரலாறு - மூன்றாம் பாகம்

சிறுகதை

உரைநடை : முதல் ஆறு கட்டுரைகள்

#### பாடநூல்

1. செய்யுள் திரட்டு - தமிழ்த்துறை வெளியீடு, 2004-2007
2. இலக்கணம் - மேற்குறித்த நூலில் உள்ளது.
3. சமூகவியல் நோக்கில் தமிழ் இலக்கிய வரலாறு, தமிழ்த்துறை வெளியீடு
4. உரைநடை நூல் - திறன் வளர்க்கும் கட்டுரைகள், தமிழ்த்துறை வெளியீடு, 2004-05 (அறக்கட்டளைச் சொற்பொழிவு நீங்கலாக 12 கட்டுரைகள்)
5. சிறுகதை: உறவு, நியுசெஞ்சரி புத்தகநிலையம், சென்னை, 2007 முதற்பதிப்பு

Sem.: I  
Code: 07UGE111

**GENERAL ENGLISH - I**

Hours : 5  
Credits : 4

**Objectives**

1. To enable students develop their communication skills.
2. To inculcate in students the four basic skills: Reading, Writing, Listening and Speaking.

**Unit I**

1. Prose : At the College
2. Shakespeare : The Merchant of Venice
3. Essential English Grammar : Units 1 to 5
4. Reading Comprehension

**Unit II**

5. Poetry : The Passionate Shepherd to his Love
6. Shakespeare : The Taming of the Shrew
7. Essential English Grammar : Units 6 to 10
8. Letter Writing : Informal

**Unit III**

9. Prose : Outside the Class
10. Shakespeare : The Tempest
11. Essential English Grammar : Units 11 to 15
12. Letter Writing : Formal

**Unit IV**

13. Prose : For Business and Pleasure
14. Poetry : Daybreak
15. Shakespeare : Julius Caesar
16. Essential English Grammar : Units 16 to 22

**Unit V**

17. Poetry : I love to see it lap the miles
18. Shakespeare : King Lear
19. Shakespeare : Macbeth
20. Essential English Grammar : Units 23 to 29

**Required Reading**

1. Krishnaswamy, N. & T. Sriraman: Creative English for Communication (Macmillan)
2. Raju, A.K. (ed.) : Pegasus (Macmillan)
3. Murphy, R. : Essential English Grammar (CUP)
4. Dodd, E.F. : Six Tales from Shakespeare (Macmillan)



Sem.I  
07UCS121

Hours/week :5  
Credit : 5

### **‘C’ PROGRAMMING AND UNIX**

#### **Objectives:**

To develop programming skills using C language, to learn to use the specialities of ‘C’ language for programming and to develop good understanding of the structure of UNIX operating system.

#### **Unit – I**

Data Types - Variables - Operators - Control structures - Looping structures - Arrays - Strings - Built-in-functions. (15)

#### **Unit – II**

Function - Scope of Variables - Advanced features of functions - Low level I/O (UNIX file related system Calls). (15)

#### **Unit – III**

Pointer - Pointers to Array - Pointer Array - Pointer Arithmetic - Pointer of Pointer - Functions and Pointers - Structures and Pointers - Dynamic Allocation - Function pointer.(15)

#### **Unit – IV**

Structure - Union- Files - Sequential Files - Random Access Files - Command Line Arguments. (15)

#### **Unit – V**

Structure of Unix - UNIX file system - Types of users, files and permission - Structure of Password file - Directories and Path name - basic directory Commands – standard I/O files - redirecting standard I/O files - Pipelines and filters - Process status -Protecting, Terminating, Setting priority and Killing a process. (15)

#### **Book(s) for Study**

1. E.Balagurusamy, “Programming in ANSI C”, Tata McGraw Hill, New Delhi, 2.1 Edition, 2002.
2. Rebecca Thomas, Jean Yates, “A User Guide to the UNIX System”, Osborne McGraw-Hill, USA, Second Edition, 1985.

#### **Book(s) for Reference**

1. Byron S.Gottfried, “Programming with C”, Schaum’s Outline Series, Tata McGraw Hill Edition, New Delhi, 1991.
2. Brian W. Kernighan, Dennis M.Ritchie, “The C Programming Language”, Prentice Hall of India Pvt. Ltd., New Delhi, 1989.

Sem.I  
07UCS122

Hours/week :5  
Credit : 4

### **DIGITAL COMPUTER FUNDAMENTALS**

#### **Objectives**

To give fundamental principles of digital electronics, semiconductor memories, A/D and D/A converters.

#### **Unit – I**

Number Systems and Logic Circuits: Number systems - Decimal, Binary, Octal, Hexadecimal - conversion from one to another - Characters and codes - ASCII code, Excess-3 code, gray code - binary addition, subtraction, multiplication and division - unsigned binary numbers - signed magnitude numbers - complements in number systems - Truth tables, AND, OR, NOT, NOR & NAND gates, EX-OR gates - parity generators and checkers. (15)

#### **Unit – II**

Boolean Algebra and Digital Circuits : Boolean laws and theorems - De Morgan's theorems - Duality theorem - simplification of sum of product and product of sum expressions - Karnaugh map and simplifications - Simple arithmetic circuits - Half and Full adders - Binary adder/subtractor - BCD adder - Data processing circuits - Multiplexers - Demultiplexers - Encoders and Decoders. (15)

#### **Unit –III**

Sequential Logic Design : Flip-flops - RS, JK, D & T Flip flops - Master/Slave Flip flop - Shift Registers - Counters - Asynchronous and Synchronous Counters. (15)

#### **Unit – IV**

D/A And A/D Conversion : D/A converter - D/A accuracy and resolution -A/D Converter - simultaneous conversion - counter method - continuous conversion - A/D techniques - Dual Slope conversion - A/D accuracy and Resolution. (15)

#### **Unit – V**

Memory Elements : RAM - Linear Select memory organization - decoders - Dimensions of memory access - connecting memory chips to a computer bus - static RAM - Dynamic RAM - ROM - Magnetic Disk memories - Magnetic tape - Magnetic Bubble memories - Computer word structures - Storage Hierarchy - Virtual memory - Cache memory. (15)

#### **Book (s) for study**

Units I, II, III, IV

1. Donald P. Leach and Albert Paul Malvino, "Digital Principles and Application", Fifth Edition, Tata McGraw-Hill Publishing Company Ltd., New Delhi, 2003.

Unit V

2. Thomas C. Bartee, "Computer Architecture and Logic Design", McGraw Hill International Edition, New Delhi, 1991.

#### **Book (s) for reference**

1. Virendra Kumar, "Digital Technology Principles and Practice", New Age International, New Delhi, 2006

Sem.I  
07UCS123

Hours/week :3  
Credit : 2

**SOFTWARE LAB – I (C)**

1. Sorting the array elements
2. Matrix operations
3. String manipulations (Using Array)
4. Structure array
5. Printing five-digit number into words using functions
6. String manipulations (using Pointers)
7. Editing a record using function and structure pointer
8. Sequential file processing
9. Random file processing
10. Programming using system Calls – fork, exec

Sem - I  
07UMA153

Hrs/ Week: 6  
Credit : 5

### ALLIED: MATHEMATICS - I

#### Objectives:

1. To train the students in mastering the techniques of various branches of Mathematics.
2. To motivate the students to apply the technique in their respective major subjects.

#### Unit I Matrices and Determinants

Solutions of system of linear equations - Using Cramer's rule- Rank of a matrix using linear independence and dependence - Eigen values and Eigen vectors of a matrix - Cayley Hamilton's Theorem (Without proof). (Chapter I, Section 1.20-1.23, Chapter III, Section 3.1-3.5 and Chapter V, Section 5.1- 5.4, 6.3)

#### Unit II Differential Equations

Second order differential equations - all the types of equations including variables coefficients. (Chapter V, Sections 47- 62). Partial Differential Equation: Formation-General, singular, particular integrals- standard forms- Lagrange's for  $Pp+Qq=R$ . (Chapter VI Section 1-6)

#### Unit III Series

Concept of limit of a function - simple problems- convergence, divergence and oscillation of a series- geometric series - test of convergence and divergence, comparisons ratio and root test (without proof). (Chapter VI, Section 1-14)

#### Unit IV Laplace Transforms

Definition- properties- the inverse transforms- solving differential equations using Laplace transforms (Chapter IV Section 1-5)

#### Unit V Fourier Series

Fourier series - Even and odd functions - properties of odd and even functions - Half range Fourier series (Omitting general interval) (Chapter IV, Sections 1-5.2)

#### Books for study:

1. Venkataraman, M.K., "Engineering Mathematics" (Vol II) Third Edition, The National Publishing Co., Madras, 1988. (Full for Unit I & II)
2. Venkataraman, M.K., "Higher Mathematics for Engineering and Science", Third Edition, The National Publishing Co., Madras, 1986.( For Unit III)
3. Narayanan and Manickavachagam Pillai, " Ancillary Maths" Book II , S. Viswanathan Pvt. Ltd., Madras(For unit IV & V)

Sem:II  
07UGT202

Hours : 5  
Credits: 4

### பொதுத்தமிழ்-2

#### நோக்கங்கள்

1. சமயநல்லிணக்க உணர்வை வளர்த்தல்
2. தமிழ்க்காப்பியங்களில் அழகும் அறிவுணர்வும் ஊட்டும் பகுதிகளைப் படித்துப் புரிந்து கொள்வர். உரைநடைக்கட்டுரை எழுதும் திறன் பெறுவர்.

#### பயன்கள்

தமிழைத் திருத்தமாகப் படிக்கவும் பேசவும் பிழையின்றி எழுதவும் தேர்ச்சி பெறுதல்.  
தம் படைப்புக்களில் படித்தவற்றை முறையாகப் பயன்படுத்தல்

#### 1. செய்யுள் திரட்டு

1. சிலப்பதிகாரம்
2. மணிமேகலை
3. சீவகசிந்தாமணி
4. கம்பராமாயணம்
5. தேம்பாவணி
6. சீறாப்புராணம்
7. இரட்சணிய சரிதம்
8. இலக்கணம்: எழுத்து, சொல்

#### 2. இலக்கணம் - எழுத்து, சொல் (தமிழ்த் துறை வெளியீடு)

இலக்கிய வரலாறு - இரண்டாம் பாகம் (தமிழ்த்துறை வெளியீடு, 2001)  
உரைநடை நூல்-7 முதல் இறுதிக்கட்டுரைகள் வரை, திறன்வளர்க்கும் கட்டுரைகள் (7-12) (தமிழ் ஆய்வுத்துறை வெளியீடு, 2001)

#### பாடநூல்:

செய்யுள் திரட்டு - தமிழ்த்துறை வெளியீடு, 2004-07

Sem. : II  
Code : 07UGE212

Hours : 5  
Credits : 4

### GENERAL ENGLISH - II

#### Objectives

1. To enable students develop their communication skills.
2. To inculcate in students the four basic skills: Reading, Writing, Listening and Speaking.

#### Unit I

1. Prose : Are you Smart?
2. Jules Verne : Around the World in 80 Days (Chap. 1 to 5)
3. Essential English Grammar : Units 30 to 35
4. Reading Comprehension

#### Unit II

5. Poetry : Gitanjali (Song 36)
6. Jules Verne : Around the World in 80 Days (Chap. 6 to 10)
7. Essential English Grammar : Units 36 to 40
8. Note-making

#### Unit III

9. Prose : Are you Creative?
10. Jules Verne : Around the World in 80 Days (Chap. 11 to 15)
11. Essential English Grammar : Units 41 to 45
12. Note-taking

#### Unit IV

13. Prose : How to Win?
14. Poetry : The Pond
15. Jules Verne : Around the World in 80 Days (Chap. 16 to 20)
16. Essential English Grammar : Units 46 to 50

#### Unit V

17. Poetry : The Tree
18. Jules Verne : Around the World in 80 Days (Chap. 21 to 26)
19. Essential English Grammar : Units 51 to 57
20. Dialogue Writing

#### Required Reading

1. Krishnaswamy, N. & T. Sriraman : Creative English for Communication (Macmillan)
2. Raju, A.K. (ed.) : Pegasus (Macmillan)
3. Murphy, R. : Essential English Grammar (CUP)
4. Verne, J. (Retold by M. Green) : Around the World in Eighty Days (Macmillan)

Sem.II  
07UCS224

Hours/week :4  
Credit : 4

## COBOL AND SYSTEMS ANALYSIS

### Objectives

- ✧ To expose different features of COBOL language and program development in COBOL and also to give basic concepts of systems analysis for systems development.

### UNIT I

Introduction to COBOL programming- DIVISIONS of COBOL program-coding form-level numbers-editing picture characters-ACCEPT, DISPLAY and MOVE verbs-input/output and arithmetic verbs. (12)

### UNIT II

DATA and PROCEDURE Divisions additional features-usage, synchronized, justified, redefines, renames and sign clauses-Corresponding, rounded and on-size error options. Conditional and sequence Control verbs- IF and PERFORM statements – table handling. (12)

### UNIT III

File Processing – Sequential file processing, sorting and merging of files. Report Writer – general format of a report. (12)

### UNIT IV

System concepts-characteristics and elements of systems-types of systems – system development life cycle- role of systems analyst- system planning and initial investigation. (12)

### UNIT V

Information gathering – interviews and questionnaire methods-tools of structured analysis-feasibility analysis- cost benefit analysis. (12)

### Book(s) for study

1. MK Roy, DG Dastidar, “COBOL Programming”, TATA Mc-Graw Hill, NewDelhi, 1990.
2. Elias M Awad, “Systems Analysis and Design”, Golgotia Publications, New Delhi, 2001.

### Book(s) for reference

1. Leonard J Kazmir & Andreas S.Philipakis, “Structured COBOL” Mc Graw Hill, 1986
2. Hawryczkiewicz I.T “Introduction to System Analysis and Design”, PHI, New Delhi, 1994.

Sem.II  
07UCS225

Hours/week :4  
Credit : 4

## DISCRETE MATHEMATICS

### Objectives

- ✧ To know the applications of graph theory, computer representations of graph, fundamental ideas of mathematical logic, concepts of set theory, lattices and boolean algebra.

### Unit I

Graph: Introduction – paths and circuits – isomorphism – sub graphs- connectedness – euler graph – operations – Hamiltonian paths and circuits – Traveling Salesman Problem. (12)

### Unit II

Trees: properties of trees – distance and centers – rooted and binary tree – spanning tree- matrix representations of graph: Incidence matrix – adjacency matrix – graph theoretic algorithms – shortest path between two vertices – shortest path between all pairs. (12)

### Unit III

Mathematical Logic: statements and notation – connectives – negation – conjunction – disjunction – statement formulas and truth tables – conditional and bi-conditional – well formed formulas – tautologies – equivalence of formulas – duality law – disjunctive normal form – conjunctive Normal form. (12)

### Unit IV

Basic concepts of set theory – notation – inclusion and equality – power set – operations – venn Diagrams – identifiers – cartesian products – relations and ordering – functions – composition – inverse- binary and n-ary operations. (12)

### Unit V

Lattices as partially ordered sets: Definition – properties – special lattices: complete, complemented, distributive lattices – boolean algebra: properties of boolean algebra. (12)

### Book(s) for study

Units I, II

1. Narsing Deo, “Graph Theory with Applications to Engineering and Computer Science”, Prentice Hall, 1974, Chapters: 1,2,3.1-3.7,7.1,7.9,9.1,9.2,11.5

Units III, IV, V

2. J.P.Tremblay, R. Manohar, “Discrete Mathematical Structure with Applications to Computer Science”, McGraw-Hill International Edition,1987. Chapters:1.1,1.2.1-1.2.10,1.3.1-1.3.4,2.1,2.3,2.4.1-2.4.4

### Book(s) for reference

1. Seymour Lipschutz and Mars Lipson, “Discrete Mathematics”, Second Edition, Schaum’s outline series, Tata McGraw-Hill publishing company Limited, New Delhi,1999
2. Bernard Kolman & Robert C.Busby, “Discrete Mathematical Structure for Computer Science”, Second Edition, Prentice Hall of India, New Delhi, 1987



Sem.II  
07UCS226

Hours/week :3  
Credit : 2

**SOFTWARE LAB – II (COBOL)**

1. Simple Interest calculations/Conversion from Fahrenheit to Centigrade using Accept/display.
2. Creating Employee File and Display Information.
3. Payroll Processing using sequential files.
4. Telephone bill/Electricity bill preparation.
5. Mark sheet Processing.
6. Bank Transactions.
7. Inventory problems.
8. Sorting and Merging of files.
9. Library Information System.
10. Railway Reservation system.

Sem.II  
07UCS227

Hours/week :2  
Credit : 2

## OFFICE AUTOMATION

### Objectives

To impart the knowledge about the office automation and the features of MS-Office.

#### Unit I:

Office Automation: Introduction - Information - Nature of Office work - Functions of an Office - Office Communications - Services of an Office - Need for office automation – Summary of Office Automation. (6)

#### Unit II:

MS Word: Introduction to Word - Editing Document - Formatting Text and Paragraph - Spelling Checking - Enhancing Document - Columns, Tables and Other Features - Using Graphics - Mail Merge. (6)

#### Unit III:

MS Excel: Introduction to Excel - Using Commands and Functions - Inserting and Deleting Rows and Columns - Formatting a Worksheet - Printing the Worksheet - Creating Charts. (6)

#### Unit IV:

MS PowerPoint: Introduction to PowerPoint - Creating Presentation - Running Slide Show - Printing Presentation. (6)

#### Unit V:

MS Access: Introduction to Access - Creating a Simple Database and Tables - Entering and Editing Data - Finding, Sorting and Displaying Data. (6)

### Book(s) for study

1. Taxali, R. K. : PC Software for WINDOWS Made Simple, Tata McGraw- Hill Publishing Company Ltd., New Delhi: 1998.

### Book(s) for reference:

1. Sanjay Saxena : A First Course in Computers, Vikas Publishing House Pvt. Ltd., New Delhi, 1999.

Sem - II  
07UMA252

Hrs/Week: 6  
Credit : 5

### ALLIED: MATHEMATICS- II

#### Objectives:

1. To train the students in mastering the techniques of various branches of Mathematics
2. To motivate the students to apply the techniques in their respective major subjects.

#### Unit I

Solving algebraic and transcendental equations- Bisection - False Position and Newton-Raphson method. Solving simultaneous equations - Gauss elimination- finding inverse of a matrix using Gauss elimination methods - Iteration methods - Gauss-Jacobi and Gauss-Seidal Methods (problems only)

(Chapter III, Section 2, 4, 5, Chapter IV, Section 1, 2, 3 & 6)

#### Unit II

Interpolation- Newton Gregory forward and backward interpolation formulae- Lagrange's Interpolation formula. Numerical Interpolation - Trapezoidal rule and Simpson's 1/3 rd rule(problems only) (Chapter VI, Section1, 2, 3 & 4, Chapter VIII, Section 4 and Chapter IX Section 7, 8, 10)

#### Unit III

Solving differential equations (First order differential equation only). Solutions by Taylor's series - Euler's Method- Runge-Kutta 2<sup>nd</sup> and 4<sup>th</sup> order method - Milne's predictor corrector method (problems only)

(Chapter XI, Section 6, 7, 10, 11, 12, 13, 14, 15)

#### Unit IV

Probability - Conditional probability - Baye's theorem - Applications of Binomial Poisson, Normal distributions. (Problems only) (Chapter 18, Pages 692-722 & Chapter 19, Pages 723-764)

#### Unit V

Correlation coefficient- Rank correlation - curve fitting by least square methods - Fitting a straight line, Parabola, power curve and exponential curves. (No derivation, Numerical problems only) (Book 2: Chapter 12, Pages 385-391, Book 1: Chapter 1, sec 1.6, 1.7, 1.8, 1.9(Pages 24-42))

#### Book for study

1. Venkataraman, M.K., "Numerical Methods in science and Engineering", 2nd Edition, the National Publishing Co., Madras 1987 (For Units I&II,III).
2. Pillai, R.S.N and Bagavathi, "Statistics", S.Chand and Co. Ltd., New Delhi 1995. Chapters: 9, 11, 12, 15, 17, and 19 (Relevant portions only) (For Unit IV & V).

Sem:III  
07UGT303

Hours : 5  
Credits: 4

### பொதுத்தமிழ்-3

#### நோக்கங்கள்

1. தமிழ்ச்செய்யுள்களைப் படித்துப் பொருள் புரிந்து கொள்ளுதல்
2. செய்யுள்களில் அமைந்துள்ள சமூகக்கருத்துக்களை உணர்தல்
3. படைப்புத்திறனை வளர்த்தெடுத்தல்

#### பயன்கள்

1. புரிந்து கொண்ட கருத்துக்களில் பயனுள்ளவற்றைத் தெளிவாக, இனிமையாக எடுத்துச்சொல்லும் திறனைப் பெறுதல்.
2. தமிழ் மொழியின் சிறப்பை அறிதல்.

#### செய்யுள் திரட்டு

1. குறுந்தொகை
2. பதிற்றுப்பத்து
3. கலித்தொகை
4. புறநானூறு
5. சிறுபாணாற்றப்படை
6. பதினெண் கீழ்க்கணக்கு - திருக்குறள்
7. இலக்கணப் பகுதி: யாப்பு, அணி

#### இலக்கணம் : யாப்பு, அணி

புதினம் - சூரியகாந்தன், *அம்மன் பூவோடு*, பாவைபதிப்பகம், சென்னை, 2003  
இலக்கிய வரலாறு - முதல் பாகம்.

#### பாடநூல்

செய்யுள் திரட்டு - தமிழ்த்துறை வெளியீடு 2004-07  
சமூகவியல் நோக்கில் இலக்கிய வரலாறு - தமிழ்த்துறை வெளியீடு

Sem. : III  
Code : 07UGE 313

Hours : 5  
Credits : 4

### GENERAL ENGLISH - III

#### Objectives

1. To enable students to acquire reading habit and thus develop their reading skills.
2. To make them activate their passive vocabulary and sentence structures through prescribed texts.
3. To enhance their taste for reading that will naturally develop their vocabulary power and sentence structures.
4. To develop the listening, speaking and writing skills of students through the prescribed texts.

#### Unit – I

1. Guy de Maupassant : The Diamond Necklace
2. Emile Gaboriou : The Accursed House
3. Sheila Kaye-Smith : Mrs. Adis
4. Anton Tchekov : The Bet
5. Reading Comprehension

#### Unit – II

6. O. Henry : After Twenty years
7. Leonard Merrick : The Judgement of Paris
8. Stephen Leacock : The Conjuror's Revenge
9. A.E. Coppard : The Halfyard Ham
10. Expansion of a Maxim

#### Unit – III

11. Far From the Madding Crowd : Chapters 1 to 4
12. Far From the Madding Crowd : Chapters 5 to 8
13. Far From the Madding Crowd : Chapters 9 to 11
14. Far From the Madding Crowd : Chapters 12 and 13
15. Essential English Grammar : Units 58 to 72

#### Unit – IV

16. P.G. Wodehouse : The Prize Poem
17. Mulk Raj Anand : The Barber's Trade Union
18. R.K. Narayan : Wife's Holiday
19. Kushwant Singh : The Mark of Vishnu
20. Essential English Grammar : Units 73 to 91

#### Unit - V

21. Far From the Madding Crowd : Chapters 14 to 15
22. Far From the Madding Crowd : Chapters 16 to 18
23. Far From the Madding Crowd : Chapters 19 to 21
24. Far From the Madding Crowd : Chapters 22 to 24
25. Précis Writing

#### Required Reading

1. Ramesh, K.P. (Ed.) : The Diamond Necklace and Other Stories (Macmillan)
2. Hardy, T. (Retold by EF Dodd) : Far From the Madding Crowd (Macmillan)
3. Murphy, Raymond : Essential English Grammar (CUP)

Sem.III  
07UCS328

Hours/week :5  
Credit : 5

## PROGRAMMING IN C++

### Objectives

- ✧ To impart the concepts of object oriented programming, the syntax of all the statements in C++ language and to impart the programming skills in C++.

### Unit-I:

Introduction: Advantages of OOP-Characteristics of OO languages: classes - objects-inheritance-reusability - creating new data types - polymorphism and overloading - C++ programming basics - Loops and decisions. (15)

### Unit-II :

Functions: Simple Functions-passing arguments to functions - returning values from functions - reference arguments - overloaded functions-inline functions - default arguments-variables and storage classes - returning by reference. (15)

### Unit-III:

Objects and Classes: A simple class - C++ objects as physical objects and data types - constructors - destructors - objects as function arguments - returning objects from functions - structures and classes-class, object and memory - static class data - arrays and strings. (15)

### Unit-IV:

Operator overloading: Unary and binary operators - data conversion-inheritance: derived class constructors - overloading member functions - class hierarchies - public and private inheritance - levels of inheritance - multiple inheritance - pointers. (15)

### Unit-V :

Virtual functions: Friend functions - static functions-assignment and copy initializations - this pointer - Files and Streams: streams - string I/O - character I/O - Object I/O - I/O with multiple objects - file pointers - disk I/O with member functions – error handling - redirection - command-line arguments - pointer output - overloading the extraction and insertion operators. (15)

### Book(s) for study

1. Robert Lafore, “Object-Oriented Programming In Microsoft C++”, Galgotia Publications, New Delhi, 2000.

### Book(s) for reference

1. Herbert Schildt, “C++: The Complete Reference”, Tata McGraw Hill, New Delhi, Second edition , 1998.
2. Bjarne Stroustrup, “The C++ Programming Language”, Addison-Wesley, New York, 1999.

Sem.III  
07UCS329

Hours/week :3  
Credit : 2

**SOFTWARE LAB - III (C++)**

1. Simple programs using classes and objects
2. Biggest of three numbers using all types of constructors
3. Single dimensional arrays
4. Multi-dimensional arrays
5. String manipulations using pointers
6. Operator overloading (Unary, Binary, << and >>)
7. Array of objects
8. Passing objects, arrays as function arguments and function overloading
9. Inheritance and overriding
10. Dynamic polymorphism
11. I/O Streams

Sem.III  
07 UPH 374

Hours / Week : 4  
Credits : 3

### **Allied: APPLIED PHYSICS - I**

#### **Objectives:**

- To acquire the knowledge of current electricity and types of resistors and capacitors.
- To understand the basic principles of electromagnetism and magnetic materials and circuits
- To study the basic principles of Lasers and optical fibres.
- To understand the Principle and application of Holography.
- To learn about alternating currents and principle of a transformer.

#### **Unit I : CURRENT ELECTRICITY RESISTORS AND CAPACITORS**

Electric Current and its units – Definitions of important parameters – Ohm's law and its verification – Effect of temperature on resistance – Electric power and Electric energy and their units – Resistances in Series – Resistances in Parallel – Grouping of Cells – Kirchhoff's Law – Principle of a Capacitor – Capacity of a capacitor – Capacity of a parallel plate capacitor – Grouping of capacitors – Energy of a charged capacitor.

#### **Unit II : ELECTROMAGNETISM**

Magnetic lines of force – Magnetic field and magnetic induction – Hall effect – Magnetic flux – Magnetic field around a current carrying conductor – Direction of Magnetic field and electric current – Magnetic field due to a current carrying circular loop – Magnetic field due to a solenoid – Biot-Savart's law - Magnetic field inside a solenoid – Force experienced by a current carrying conductor in a magnetic field – Fleming's left hand rule – Force between two long parallel conductors – Galvanometer – shunt – conversion of a galvanometer into an ammeter and voltmeter.

#### **Unit III: MAGNETIC PROPERTIES OF MATERIALS AND MAGNETIC CIRCUITS**

Force between magnetic poles – Permeability, Susceptibility, Magnetic field intensity and Intensity of Magnetisation – Magnetic Shell – Para, Dia, Ferro-magnetic Substances – Magnetic Circuits, Magneto-Motive Force – Reluctance – Permeance – Ohm's law of magnetic circuits –Reluctances in series and parallel – Comparison between Magnetic and electric circuits – Relation between MMF and magnetizing force – Magnetic circuit due to a solenoid - Hysteresis loop – Energy loss due to Hysteresis.

#### **Unit IV : LASERS AND OPTICAL FIBRES**

Spontaneous and Stimulated Emission – Population Inversion, Pumping and Active System – The Ruby Laser – Gas Laser – Semiconductor Laser – CO<sub>2</sub> Laser – Uses Of Lasers.  
Principle of an optical fiber – structure and classification of optical fibers – The numerical aperture – fibre optics communication system

#### **Unit V : ALTERNATING CURRENT AND TRANSFORMERS**

Laws of Electro-Magnetic induction- Induced EMF in a conductor – Alternating Currents – Basic Definitions – Effective value, R.M.S. value and Average value of AC – Generation of Alternating Currents and Voltages – Transformers – Principle of a transformer - step up and step down transformers



**Book For Study :**

1. R K Gaur And S L Gupta Engineering Physics, Chanpaj Rai Publications 2<sup>nd</sup> Edition.

<b>Unit</b>	<b>Book</b>	<b>Ch</b>	<b>Sections</b>
I	1	44	44.1, 44.4 – 44.6, 44.11 - 44.12
		46	46.1 - 46.7, 46.10- 46.19
II	1	47	47.1 – 47.4, 47.7 – 47.14, 47.17,18. 47.21,22, 47.23 – 47.28
III	1	48	48.1 – 48.5, 48.10, 48.12, 48.17, 48.18 – 48.29
IV	1	31	31.2 – 31.8
		32	32.1 – 32.12
V	1	49	49.2 -49.9
		50	50.1 – 50.13

Sem-III  
07UCO371

Hours/Week: 6  
Credits: 5

**Allied: ACCOUNTS - I**

**Objectives :**

1. To enable the students to have a thorough knowledge of the fundamental concept & basic principles of Accountancy.
2. To provide knowledge on maintaining various book of accounts.

**Unit 1**

Accounting principles- concepts-Subsidiary Books –Ledger.

**Unit 2**

Trial Balance – Bank Reconciliation Statement.

**Unit 3**

Trading, Profit and Loss Accounts – Balance Sheet of a Sole Trader (Simple Adjustments)

**Unit 4**

Non – trading Organization – Preparation of Income and Expenditure Account form Receipts and Payment Accounts (Simple Adjustments)

**Unit 5**

Single Entry or Accounts from Incomplete records.

**Text Book**

TS Reddy & A Murthy, Financial Accounting, Margham Publications, Chennai, 2006

**References**

1. Shukla MC, Grewal TS & Gupta SC, 2006 Advanced Accounts Volume I , S. Chand & Company Ltd., New Delhi.
2. R. L. Gupta & V. K. Gupta, 2006, Financial Accounting, Sultan Chand & Sons, New Delhi
3. R. L Gupta & M. Radhaswamy,2006, Advanced Accountancy , Volumen I, Sultan Chand & Sons, New Delhi
4. S.P. Jain & K.L. Narang ,2004, Advanced Accountancy Volume I, Kalyani Publishers
5. S N Maheshwari & S K Maheshwari, 2005, Introduction to Accouny, Vikas Publishing House Pvt. Ltd., New Delhi.

Sem: IV  
07UGT404

Hours : 5  
Credits: 4

### பொதுத்தமிழ்-4

#### நோக்கம்

1. நாடகத்தின் நோக்கம், அதன் போக்கு, உத்திகள், பாத்திரப்பாங்கு, உரையாடல் முறை, கற்பனைத்திறம் போன்றவற்றை வெளிப்படுத்தல்
2. புதிய நாடகங்களைப் படைக்கும் திறனை மாணவர்களிடையே உருவாக்குதல்.

#### பயன்கள்

1. நாடகவழி அழகியல் உணர்வுகளை வளர்த்தல்.
2. நாடகங்களைச் சமூகப் பயன்பாட்டிற்கு ஏற்ப உருவாக்குதல்

#### செய்யுள் நாடகம் :

மனோன்மணியம், பேராசிரியர் சுந்தரனார்

- அலகு 1: மனோன்மணியம், பாயிரம், அங்கம் 1, களம் 1-5 வரை  
 அலகு 2: மனோன்மணியம், பாயிரம், அங்கம் 2, களம் 1-3 வரை  
 அலகு 3: மனோன்மணியம், பாயிரம், அங்கம் 3, களம் 1-4 வரை  
 அலகு 4: மனோன்மணியம், பாயிரம், அங்கம் 4, களம் 1-5 வரை  
 அலகு 5: மனோன்மணியம், பாயிரம், அங்கம் 5, களம் 1-3 வரை

#### உரைநடை நாடகம் :

முனைவர் ஆ. சிவக்கண்ணன், பேராசிரியர் பிரம்மச்சாரி, நியூசெஞ்சுரி புத்தகநிலையம், 2005. (உரைநடை நாடகம் முழுமையும்)

#### பாடநூல்

1. பேராசிரியர் சுந்தரனார் , மனோன்மணியம் - (பதி) தமிழ்த்துறை, தூய வளனார் கல்லூரி, திருச்சிராப்பள்ளி
2. முனைவர் சிவக்கண்ணன், பேராசிரியர் பிரம்மச்சாரி, பாவைப்பதிப்பகம்.

#### மதிப்பெண் பகிர்வு

மனோன்மணியம்	- 80
உரைநடை நாடகம்	- 20

உரைநடை பாகம் 3-இல் நாடகம் கட்டுரை வினாவில் மட்டும் இடம் பெற வேண்டும்.

Sem. : IV  
Code : 07UGE414

Hours : 5  
Credits : 4

### GENERAL ENGLISH - IV

#### Objectives

1. To enhance reading skills towards developing vocabulary power and composition skills.
2. To create in students a taste for enjoying English One-Act Plays thus making them imbibe dramatic skills.
3. To develop the listening, speaking and writing skills of students through the prescribed texts.

#### Unit – I

1. A. Ball : The Seven Slaves
2. R.H. Wood : Post Early for Christmas
3. Reading Comprehension
4. Essential English Grammar : Units 92 to 98

#### Unit – II

5. Monica Thorne : The King Who Limped
6. A.E.M. Bayliss : One Good Turn
7. A Tale of Two Cities : Part I
8. Essential English Grammar : Units 99 to 106

#### Unit – III

9. A Tale of Two Cities : PART II: Chapters 1 to 3
10. A Tale of Two Cities : PART II: Chapters 4 to 7
11. A Tale of Two Cities : PART II: Chapters 8 to 10
12. General Essay

#### Unit – IV

13. Allan Monkhouse : Night Watches
14. Ella Adkins : The Unexpected
15. A Tale of Two Cities : PART II: Chapters 11 to 13
16. Essential English Grammar : Units 107 to 114

#### Unit – V

17. Josephina Niggli : Sunday Costs Five Pesos
18. A Tale of Two Cities : PART III: Chapters 1 to 5
19. A Tale of Two Cities : PART III: Chapters 6 to 9
20. Report Writing

#### Required Reading

1. K.S. Ramamurthy (Ed.) : Seven One-Act Plays (OUP)
2. Dickens, C. (Retold by P. Atkinson): A Tale of Two Cities (Macmillan)
3. Murphy, Raymond : Essential English Grammar (CUP)

Sem.IV  
07UCS430

Hours/week :4  
Credit : 4

## DATA STRUCTURES AND ALGORITHMS

### Objectives:

- ✧ To give a fundamental knowledge on data structures and exposure to development of Algorithms related to data structures.

### Unit I

Arrays: Ordered Lists-Representation of arrays. Stacks and queues: fundamentals- evaluation of expressions-multiple stacks and queues. (12)

### Unit II

Linked Lists: Singly Linked Lists-Linked stacks and queues-polynomial addition-Doubly linked lists - Garbage collection and compaction. (12)

### Unit III

Trees: Basic terminology-Binary trees-Binary tree representation-Binary tree traversal. (12)

### Unit IV:

Complete Development of an algorithm : - Statement – model development – Design of an algorithm – Correctness – Implementation – Analysis and complexity - Testing – Documentation (12)

### Unit V:

Design methods of an Algorithm: Sub goals-Hill Climbing-Working Backward-Heuristic-Back Track.- Recursion (12)

### Book(S) for Study

1. Ellis Horowitz and Sartaj Sahni, “Fundamentals of Data structure”, Galgotia Publications, New Delhi.1985 Units I, II, III
2. S.E. Goodman and S.T. Hedetniemi, “Introduction to the Design and analysis of algorithms”, McGrawHill, International edition,1988 : Units IV,V

### Book(s) for reference

1. Tanenbaum A.M. and Augustein M.J., “Data structures with Pascal”, Prentice Hall of India Ltd, New Delhi, 1985.
2. Ellis Horowitz and Sartaj Sahni, “Fundamentals of computer algorithms”, Galgotia Publications, New Delhi, 1985.

Sem.IV  
07UCS431

Hours/week :3  
Credit : 2

### **SOFTWARE LAB - IV (SHELL PROGRAMMING)**

1. Write a menu driven shell program for the following :
  - List of files
  - Processes of users
  - Today's date
  - Users of system
  - Quit of Unix
2. Write a shell program which accepts the name of a file from the standard input and then performs the following tests in it:
  - File existence
  - File readable
  - File writable
  - Both readable and writable
3. Write a shell program using 3 arguments to take the pattern as well as input and output file names. If the pattern is found, display "pattern found" else display "error message". Also check if right number of the arguments are entered.
4. Write a shell program which accepts the name of a file from the standard input and then perform the following tasks on it.
  - Enter the 5 names in a file
  - Sort the names
  - List unsorted and sorted file
5. Write a menu driven shell program to copy, edit and delete a file.
6. Write a menu driven shell program to perform the following tasks.
  - Enter the sentence in a file
  - Search the given word in an existing file.
  - Quit
7. Write a program to find out the users who are currently working and send a mail to all of them.
8. Write a shell program to sum up the series
9. Write a shell program to display the result PASS or FAIL using the information given below.
  - Student name, Student Reg. No, Mark1, Mark2, Mark3, Mark4
  - The minimum pass for each subjects is 50.
10. Write a shell program to convert upper case letters into lower case letters in a file.

Sem.IV  
07UCS432

Hours/week :2  
Credit : 2

### NUMERICAL APTITUDE

#### Objectives :

- \* To revise and master the basic techniques of arithmetic operations so that these skills will augment to their professional capacity.

#### Unit I:

Numbers, HCF, LCM, Decimal fractions, Simplification, Square roots, cube roots, average, problems in numbers and ages. (6)

#### Unit II:

Indices, percentage, profit and loss, ratio and proportion, partnership, chain rule, time and work, pipes and distance (6)

#### Unit III

Time and distance, problems on trains, boats and streams, alligation, simple interest, compound interest, logarithms, area (6)

#### Unit IV

Volume and surface area, races and games of skill, calendar, clocks, stocks and shares, permutations and combination, probability (6)

#### Unit V

True discount, Banker's discount, Height and distances, Odd man out and series, tabulation, Bar graph, pie chart (6)

#### Book(s) for study:

1. R.S. Aggarwal, "Quantitative Aptitude for competitive examinations", seventh revised edition, S.Chand and Co Ltd, New Delhi,2005

#### Book(s) for reference:

1. Barron's Guide for GMAT, Galgotia publications, New Delhi, 2006.

Sem IV  
07UPH475

Hours / Week : 4  
Credits : 3

### **Allied: APPLIED PHYSICS - II**

#### **Objectives :**

- To understand the different switches and the supporting devices of a computer.
- To acquire knowledge of semiconductor diodes and transistors.
- To understand various communication systems.

#### **Unit I :SWITCHES AND DEVICES**

Microphones – Digital Displays – Loud Speakers, head phones and earpieces – Cathode Ray tube – Pick-ups – Heat and light sensors – relays and reed switches – Electric Motors

#### **Unit II : SEMICONDUCTOR DIODES AND TRANSISTORS**

Semiconductors – P type and N type semiconductors – Junction diode – Junction diode characteristics – semiconducting diode as a rectifier – **(Other diodes)** - Transistor as a current amplifier – Transistor as a switch – Transistor as a voltage amplifier – JFET

#### **Unit III : POWER SUPPLIES, SAFETY AND MEASURING INSTRUMENTS**

Electricity in the home – Dangers of electricity: safety precautions – Generating Electricity – Sources of EMF – Rectifier Circuits – Smoothing Circuits – Stabilizing Circuits – Power control – Multimeters – Oscilloscopes – Signal generators

#### **Unit IV : ANALOG ELECTRONICS**

Transistor Voltage Amplifier I, II and III – FET Voltage Amplifier – Amplifiers and Feedback – Amplifiers and Matching – Impedance Matching Circuits – **(Transistor Oscillators)** – Operational Amplifier – Op-Amp voltage amplifier – Op-amp summing amplifier – Op-Amp Comparator – Op-Amp Integrators – Op-Amp Oscillators

#### **Unit V : COMMUNICATION SYSTEMS**

Audio Systems \_ Sound recording – audio amplifier – complete hi-fi system - Radio and Television - Radio Waves, Radio systems – Black and White television – Colour Television – Cable and Satellite TV - Telephone Systems\_ Simple telephone circuits - Telephone dial and keypad – Telephone exchange – Telephone links – other telephone services

#### **Book For Study :**

1. Tom Duncan, Electronics – For Today And Tomorrow, BPB Publications 3<sup>rd</sup> edition.

<b>Unit</b>	<b>Book</b>	<b>Chapter</b>	<b>Sections</b>
I	1	1	17 – 25
II	1	2	26 – 35
III	1	3	36 – 48
IV	1	4	49 – 65
V	1	5	82 – 97



Sem IV  
07UPH476

Hours / Weeks : 2  
Credits : 3

**Allied: APPLIED PHYSICS PRACTICALS**  
Any 16 Experiments

1. Resistance of a thermister using multimeter.
2. EMF of a thermocouple using multimeter.
3. Potentiometer – Ammeter calibration.
4. Field along the axis of the coil.
5. BG – Figure of merit.
6. Temperature coefficient - Post – Office Box.
7. Determination of L – Rayleigh’s method / Anderson’s method.
8. Junction diode characteristics.
9. Zener diode characteristics.
10. Bridge rectifier – study.
11. Regulated power supply using zener diode – study.
12. Transistor characteristics – CE.
13. FET characteristics.
14. Single stage CE amplifier – study.
15. FET amplifier – study.
16. Potentiometer – low range voltmeter.
17. Logic gates – study using IC’s.
18. Op. amp – basic operations.

Sem-IV  
07UCO472

Hours/Week: 6  
Credits: 5

### **ALLIED: ACCOUNTS – II**

#### **Objectives**

1. To impart basic knowledge of Partnership and Company Accounts.
2. To help the students to know the treatment of accounting in different situations.

#### **Unit- 1**

Partnership Accounts – Admission – Meaning of goodwill valuation of good will – treatment of goodwill – revaluation of assets and liabilities – new profit sharing ratio- capital accounts – balance sheet after admission.

#### **Unit 2**

Retirement and death of partners – Revaluation of Assets & Liabilities – Treatment of Goodwill – Closing of retiring Partner's capital a/c – Joint life policy – Balance Sheet after retirement and death.

#### **Unit 3**

Partnership accounts II – Dissolution – Realization account – Dissolution of firm- Insolvency of partners Garner Vs Murray- Piece meal distribution.

#### **Unit 4**

Company accounts- Principles of company accounts- issues of shares- Application – Allotment – Forfeiture – Reissue of Share.

#### **Unit 5**

Company final accounts with simple adjustments.

#### **Text Book**

TS Reddy & A Murthy, Financial Accounting, Margham Publications, Chennai,2006

#### **References**

1. Shukla MC, Grewal TS & Gupta SC, 2006 Advanced Accounts Volume I & II , S. Chand & Company Ltd., New Delhi.
2. R. L. Gupta & V. K. Gupta, 2006, Financial Accounting, Sultan Chand & Sons, New Delhi
3. R. L Gupta & M. Radhaswamy,2006, Advanced Accountancy , Volume I & II, Sultan Chand & Sons, New Delhi
4. S N Maheshwari & S K Maheshwari, 2005, Introduction to Accountancy, Vikas Publishing House Pvt. Ltd., New Delhi.

Sem.V  
07UCS533

Hours/week :4  
Credit : 3

## PROGRAMMING IN JAVA

### Objectives

✧To impart sound knowledge in Object Oriented Programming and programming skills in JAVA.

### Unit – I

Object Oriented Fundamentals - Class: Objects - Reference Variable - Constructors - Methods - 'this' keyword - Wrapper Classes - Static and Abstract Classes - Exception handling. (12)

### Unit – II

Inheritance: Super class - Sub class - 'Super' Keyword - method overriding - Private, Public and Protected - Packages - Interfaces - Final and Finalize - String Handling. (12)

### Unit – III

GUI: AWT Components - Layout - Event model - Graphics (12)

### Unit – IV

Applets - Applet tags in HTML - Threads - Multithreads - Stream I/O and files. (12)

### Unit – V

Servlets - JDBC – Networking (12)

### Book(s) for Study

1. Patrick Naughton , “JAVA Hand Book”, Tata-McGraw Hill, NewDelhi, 1996.

### Book(s) for Reference

1. Patrick Naughton and Herbert Schildt, “JAVA 2 - The Complete Reference”, Tata-McGraw-Hill, New Delhi, 1999.

Sem.V  
07UCS534

Hours/week :4  
Credit : 3

## SOFTWARE ENGINEERING

**Objectives:** To introduce the basic concepts of Software Engineering and the various phases in Software development.

### **Unit I:**

Introduction: Software crisis - Software Engineering defined -Some terminologies- Role of Management in Software Development -Software Life Cycle Models: SDLC Models- Selection of a Life Cycle Model - Software Requirements Analysis And Specifications: Requirements Engineering-Requirements Elicitation-Requirements Analysis-Requirements Documentation.

(12)

### **Unit II:**

Software Project Planning: Size Estimation-Cost Estimation Models-The Constructive Cost Model(COCOMO)-COCOMO II-The Putnam Resource Allocation Models-Software Risk Managements - Software Design: Definition-Modularity-Strategy of Designs-Function Oriented Design-IEEE Recommended Practice for Software Design Descriptions-Object Oriented Design.

(12)

### **Unit III:**

Software Metrics: Meaning -Token Count-Data Structure Metrics-Information Flow Metrics-Metrics Analysis - Software Reliability: Basic Concepts-Software Quality-Software Reliability Models-Capability Maturity Models-ISO 9000.

(12)

### **Unit IV:**

Software Testing: Testing Process-Some Technologies-Functional Testing-Structural Testing-Levels of Testing-Debugging-Testing Tools.

(12)

### **Unit V:**

Software Maintenance: Meaning-The Maintenance Process-Maintenance Models-Estimation of Maintenance Costs-Regression Testing-Reverse Engineering-Software Re-engineering-Configuration Management-Documentation.

(12)

### **Book(s) for Study**

1. K.K.Aggarwal & Yogesh Singh, "SOFTWARE ENGINEERING", New Age International Publishers, Revised Second Edition 2005.

### **Book(s) for Reference**

1. Ian Sommerville, "Software Engineering",5th Edition, Addison Wesley, 2002.
2. Richard Fairley, "Software Engineering Concepts", McGraw Hill Publishing Company Ltd.,1988

Sem.V  
07UCS535

Hours/week: 4  
Credit : 3

## DATABASE SYSTEMS

### Objectives:

- ✧ To understand the basic concepts and organization of a database and to give the basic knowledge on relational database.

### Unit – I

Introduction: Objectives - Early Information Systems - Problems with Early Information Systems - Organization of Data Base - Components of Data Base Management System-Data Models - Entity - Relationship Model - Network Data Model, Hierarchical Data Model - Semantic Data Modelling. (12)

### Unit – II

File Organization - Sequential file organization - The indexed sequential file organization - Creation and manipulating of indexed sequential file - Hashing - Key-to-address transformation.  
Relational Data Model : Introduction - Basic definition and terminology - Relational algebra (12)

### Unit – III

Relational calculus - The tuple calculus system - The domain calculus system - Structure English Query Language ( SQL) : Data Definition Language – Data Manipulation language-Data control Language. (12)

### Unit – IV

Relational Database Design : Introduction - Integrity constraints - Functional dependency - Logical implication of dependencies - Inference Axioms for functional dependencies - Covers for functional dependencies - Normal forms - Decomposition of relational schemes (12)

### Unit – V

Network and hierarchical Database System, Security : Network data model - Hierarchical database system - Introduction - Access control - Cryptosystems - Statistical database security. (12)

### Book(s) for Study

Arun K. Majumdar & Pritimoy Bhattacharyya, “Database Management Systems”, Tata McGraw-Hill, New Delhi, (fourth reprint), 1999.

### Book(s) for Reference

Date, C.J. , “An Introduction to Database Systems”, Addison-Wesley Publishing Co., New York, 1995.

Sem.V  
07UCS536

Hours/week:4  
Credit : 3

## **MICROPROCESSOR**

### **Objectives**

To give basic knowledge on 8085 programming concepts

### **Unit I**

Microprocessor Architecture: Intel 8085 - Instruction Cycle - Timing diagram - Instruction Format - Addressing modes - Instructions . (12)

### **Unit-II**

Instructions : Data transfer - Arithmetic – Logic – Branching - Stacks - Subroutines – ACRO (12)

### **Unit III**

Programming: Simple examples - 8-bit addition and subtraction - 16-bit addition - 8-bit decimal subtraction - complements of 8-bit and 16-bit number - shifting bits - masking bits - finding square - finding largest of two numbers - finding largest and smallest in an array - ordering data array - sum of series of numbers - 8-bit multiplication and division – multibyte addition and subtraction - square root of a number (12)

### **Unit IV**

Interrupts : 8085 interrupts – vector interrupts – restart and software instructions – I/O : Basic concepts in serial I/O – SOD and SID (12)

### **Unit – V**

Peripheral Devices and their interfacing: Address space partitioning - Memory and I/O interfacing - Data Transfer schemes - Interrupts of Intel 8085 - Interfacing device and I/O ports - DMA Controller - Programmable Communication Interface - Programmable Counter/Interval Timer. (12)

### **Book(s) for Study**

Ramesh S. Gaonkar , “Microprocessor Architecture, Programming and Applications with the 8085/8080A”, Wiley Eastern Ltd, New Delhi, 1989.

### **Book(s) for Reference**

Ram B., “Fundamentals of Microprocessors and Microcomputers”, Dhanpat Rai & Sons, New Delhi, 1995.

Sem.V  
07UCS537

Hours/week: 3  
Credit: 2

**SOFTWARE LAB -V (JAVA)**

1. Simple programs using for, while, do-while, ternary and switch
2. Arrays and Vector
3. Inheritance and Method overriding
4. Interfaces
5. Packages
6. Multithread programming
7. Streams
8. Applets and AWT
9. JDBC
10. Network (TCP/IP and UDP)

Sem.V  
07UCS538

Hours/week:3  
Credit : 2

### **SOFTWARE LAB – VI (RDBMS)**

1. Table Creation & data insertion, deletion & updation
2. DML : Aggregate functions, set operations & nested queries
3. Creating a view : Insertion, deletion through view
4. PL/SQL - block using cursors
5. Functions & procedures
6. Package, package body & DB triggers
7. D2K : insertion, deletion & updation through forms
8. D2K : form creation with master-detail relationship - LOV, Record group & Alert
9. Calling other forms & reports.



Sem-VI  
07UCS639

Hours: 4  
Credits: 3

## COMPUTER NETWORKS

### Objectives:

- \* To give the concepts of network models, the applications of various layers in the network model, LAN architecture, Protocols and Client, Server computing.

### Unit-I

Introduction to Computer Networks and Data Communication: Need for computer networks - evolution - Data Communication - Data Transmission - Transmission media - Classification of Networks - Switching and Routing - Routing - Multiplexing and Concentration Concentrator - Terminal Handling - Components of a Computer Network. (12)

### Unit-II

Network Standards and OSI - Need for network standard - OSI reference model - Physical layer - Data link layer - Network layer - Transport layer - Session layer - Application layer. Example Networks: SNA model - Layers of SNA - Components of SNA, Digital Network Architecture: DNA phases, DNA architecture. (12)

### Unit-III

LAN: Evolution - Architecture - Advantages and Services - Characteristics - LAN Topologies - LAN access Protocols - CSMA/CD based LAN - token ring protocol - token ring network - token bus - Wireless LAN - Components - Working of wireless LAN - Transmission media - Infrared - Wireless LAN Types - Protocols - Digital Cellular radio uses - WAP and Bluetooth technology. (12)

### Unit-IV

ISDN: Features - Evolution - Channels - Services - User Interfaces - Functional groupings - Layers - B-ISDN - TCP/IP: OSI and the network layer - Transport layer - Application layer - File transfers (12)

### Unit-V

Client/server computing: Clients server - Networks - Distributed systems - Applications - Distributed processing: Three-tier architecture. (12)

### Book(s) for Study

1. R.S.Rajesh, K.S.Eswarakumar & R. Balasubramanian, 'Computer Networks - Fundamentals and Applications', Vikas Publishing House Pvt. Ltd., First Edition, 2002.

### Book(s) for Reference

1. Andrew S Tanenbaum, "Computer Networks", Prentice Hall of India, New Delhi, 1999.
2. Vijay Ahuja, "Design and Analysis of Computer Communication Networks", McGraw Hill, New York, 1985.

Sem-VI  
07UCS640

Hours:4  
Credits: 3

## OPERATING SYSTEMS

### Objectives

- ✧ To present fundamental aspects of various managements in an operating system and also the basic concepts of the UNIX operating system.

### Unit-I

Computer Science overview-Basic elements-interrupts-cache memory-I/O communication techniques-evolution-developments leading to modern OS. (12)

### Unit – II

Process description and control-process-process states-process- control-Uniprocessor scheduling- types-scheduling algorithms (12)

### Unit-III

Mutual exclusion and synchronization-concurrency-semaphores-monitors-message passing-readers and writers problem. Deadlock and starvation-principles-prevention-avoidance-detection-dining philosopher's problem (12)

### Unit IV

Memory Management - requirements - partitioning - paging - segmentation - virtual memory -hardware and control structures-operating system software (12)

### Unit – V

I/O management and disk scheduling-I/O devices-I/O buffering -disk scheduling. File management-organization and access-File directories-file sharing-record blocking-secondary storage management. (12)

### Book(s) for Study

William Stallings, "Operating systems Internal and design principles", 5<sup>th</sup> edition, Pearson education Inc., Low price edition, 2006.

### Book(s) for Reference

1. Harvey M. Deitel, "An Introduction to Operating System", Addison Wesley Publishing Company, California, 1984.
2. Andrew S. Tanenbaum, " Modern Operating Systems", Prentice Hall of India Private Ltd, New Delhi, 1997

Sem–VI  
07UCS641

Hours:4  
Credits: 3

## COMPUTER GRAPHICS

### Objectives:

- \* To offer concepts on basic graphical techniques, raster graphics, two dimensional graphics and basic concepts of multimedia.

### Unit I

Introduction – Point plotting techniques – Line drawing displays – Two dimensional displays – Clipping and Windowing. (12)

### Unit II

Graphics package – segmented display files – display file compilation – geometric models – Picture structure (12)

### Unit III

Graphical input units – graphical input techniques – event handling – input functions. (12)

### Unit IV

Raster graphics fundamentals – solid area scan conversion – interactive raster graphics – Raster graphics systems – raster display hardware. (12)

### Unit V

Realism in three dimensional graphics – display processors – device independent graphics systems – user interface design. (12)

### Book(s) for Study

William M. Newman, Robert F. Sproull, “ Principles of Interactive Graphics Systems”, McGraw Hill Publications, 2nd edition, 1986.

### Book(s) for Reference

1. S. Harrington, “Computer Graphics”, McGraw Hill , 1988.
2. Dennis Harris, “Computer Graphics and Applications”, Chapman and Hall, London, 1984.

Sem-VI  
07UCS642

Hours:4  
Credits: 3

## OPERATIONS RESEARCH

### Objectives

- ✧ To give an overall idea about various Optimization techniques and their usage.

### UNIT-I

Linear Programming – General formulation of the LP Model and its Graphical solution. The Simplex Method – Computational Procedure. Artificial Variable Techniques - The M Technique and the Two Phase Technique – Special cases in Simplex Method. (12)

### UNIT –II

Duality in Linear Programming – The Dual Problems – Primal Dual Relationships, Primal – Dual Computations – Dual Simplex Method. (12)

### UNIT-III

Transportation Problems – Transportation Model – Determining the starting solution of Transportation Model, North – West Corner Rule, Least – Cost Method and Vogel’s Approximation Method. Determining the optimum solution of Transportation Problems – Assignment Problems and its solution by Hungarian method. (12)

### UNIT-IV

Project Scheduling by PERT-CPM – Network diagram representations – Critical path calculations – Probability considerations in Project Scheduling – Cost consideration. (12)

### UNIT-V

Inventory Management: Inventory Control – ABC analysis – Economic Lot size problems – EOQ with uniform demand and shortages – Limitations of Inventories – Buffer stock – Determination of Buffer stocks. (12)

(Note: Stress may be on the working of numerical problems)

### Book(s) for Study

Units I, II, III, IV

1. Hamdy A Taha , “Operations Research”, The Macmillan Publishing Company, Fourth Edition, 1987.  
Chapters: 2.1, 2.2, 3.1 to 3.3, 4.1 to 4.4, 8.1 to 8.4, 11.4 to 11.4.4.

Unit V

1. Kanti Swarup, P K Guptha & Manmohan, “Operations Research”, Sultan Chand & Sons, New Delhi, 1984. Chapters: 17.1 to 17.9

### Book(s) for Reference

1. Billy E Gillet, “Introduction to Operations Research”, Tata McGraw Hill, New Delhi, 1976.

Sem–VI  
07UCS643

Hours:3  
Credits: 2

**SOFTWARE LAB VII (VB.NET)**

1. Simulate a Business / Scientific Calculator
2. Develop an Image viewer application.
3. Simulate a Paintbrush application.
4. Develop a Notepad editor using Dialog and Without using dialog
5. Develop a simple student information system using files.
6. Develop a CIA Mark System using Data control.
7. Develop an Inventory control system using ADO.Net.
8. Develop an Employee payroll system using Dynaset and snapshot.
9. Develop a College admission Web-application form
10. Develop a Semester Exam results IDE

Sem. V & VI  
07UCS644

Hours/week: 3  
Credits: 4

**HARDWARE LAB  
(ELECTRONICS)**

**Experiments with Digital IC's**

1. Study of Universal IC gates - NAND & NOR.
2. Use of logic gates for arithmetic operations - Half adder, full adder, Half subtractor & Full subtractor.
3. 4-bit binary adder & BCD adder.
4. Flip-Flops using NAND/NOR gates.
5. RS, JK, D & T flip-flops - IC 74279, 7476, 7474.
6. Shift registers - IC 7495.
7. Counters - Modulo 'n' counters.
8. Encoders & Decoders - using diodes & IC's.
9. Multiplexers & Demultiplexers - IC 74153, 74154.
10. Arithmetic Logic Unit.
11. Experiments with memory devices.

**Experiments with Microprocessors:**

1. To write and execute simple programs in assembly language for an Intel 8085 microprocessor kit : i) 8-bit addition, ii) separating out a hexadecimal digit, iii) disassembly of a word, iv) sum of series of data, v) data transfer vi) maximum value, vii) multi-precision arithmetic, viii) decimal arithmetic.
2. To develop and execute programs for display and for solving problems using subroutines on a 8085 processor: i) display of names, ii) table of squares, iii) length of a string, iv) converting ASCII to decimal, v) ASCII to decimal using subroutines, vi) multiple precision addition subroutine, vii) maximum value subroutine, viii) pattern comparison.
3. Applications of Microprocessor:
  - i) Matrix display using 8255, ii) D/A & A/D converters using discrete component modules, iii) Serial transmission using 8251, iv) key pad interface, v) Traffic signal, vi) Experiment with Timer, vii) Stepper Motor

07UCS645

**PROJECT LAB**

**Hours :3  
Credit :2**

Sem. V & VI  
07UCS646

Hours/week: 1  
Credits: 2

### SOFT SKILLS

#### Objectives:

- ✧ Imparting effective communication skills(Spoken and written)
- ✧ Developing effective presentation skills
- ✧ Becoming a self confident person through a mastery of interpersonal skills, team management skills and leadership skills
- ✧ Developing a broad career plan matching the job requirements
- ✧ Achieving a mature outlook and becoming industry ready

#### Unit I

Techniques of reading, eye techniques, reading different types of materials. (6)

#### Unit II

Learning techniques: Learning styles, study habits, time management, taking notes, Memorizing (6)

#### Unit III

Elements of speech: Structuring talks, use of body, communicating, extempore, arguing, debating (6)

#### Unit IV

Listening: Listening skills-preparing to face an interview, knowledge of the organization, job, industry undergoing the interview, appraising. (6)

#### Unit V

Writing skills: Initiation practice, letter writing, Use of language, writing for version purposes. (6)

#### Book(s) for Study

1. E.H.McGrath S.J, "Basic managerial skills for all", Sixth edition, Prentice Hall, India, New Delhi, 2004.
2. Mohan, Krishna and Meera Banerji – Developing communication Skills, Delhi-Macmillan –1990.
3. H.M.Prasad, "Group discussion and Interview", Tata McGraw Hill Publishing Company Limited, New Delhi, 2001.
4. Hemant Goswami, "How to be successful in Interviews and get a job "Chandrika Press Ltd, Chandigarh, 2001.

**ELECTIVES OFFERED BY VARIOUS DEPARTMENTS FOR  
UG COURSES**

<b>Sem</b>	<b>Code No.</b>	<b>Title of the Paper</b>	<b>Hours</b>	<b>Credits</b>
<b>Department of Business Administration</b>				
IV	07UBU481	Soft Skills Development	4	3
V	07UBU582	Advertisement and Sales Promotion	4	3
VI	07UBU683	Personal Growth Programme	4	3
<b>Department of Chemistry</b>				
IV	07UCH481	Food and Nutrition	4	3
V	07UCH582	Everyday Chemistry	4	3
VI	07UCH683	Soil Testing	4	3
<b>Department of Commerce</b>				
IV	07UCO481	Elements of Business Process Outsourcing (BPO)	4	3
	07UCO482	Accounts for Executives	4	3
V	07UCO583	Soft Skills Development	4	3
	07UCO584	Fundamentals of Investment Management	4	3
VI	07UCO685	Small Scale Business Development	4	3
	07UCO686	Hotel Management	4	3
<b>Department of Computer Science</b>				
IV	07UCS481	Office Automation	4	3
	07UCS482	Internet Concepts	4	3
V	07UCS583	Fundamentals of Computer Networks	4	3
	07UCS584	Information Technology	4	3
VI	07UCS685	E-Commerce	4	3
	07UCS686	Foundations of Computer Science	4	3
<b>Department of Computer Application (BCA) (SFS)</b>				
IV	07UCA481	Personal Soft Skills	4	3
<b>Department of Economics</b>				
IV	07UEC481	Indian Economy	4	3
V	07UEC582	Tamil Nadu Economy	4	3
VI	07UEC683	Economics of Social Issues	4	3
<b>Department of Electronics</b>				
IV	07UEL481	Computer Electronics	4	3
V	07UEL582	Radio and Television	4	3
VI	07UEL683	DVD Player Assembling and Troubleshooting	4	3



**Department of English**

IV	07UEN481	English for Competitive Exams	4	3
	07UEN482	Film Studies	4	3
V	07UEN583	English for Communication	4	3
	07UEN584	Public Speaking in English	4	3
VI	07UEN685	English of Literature	4	3
	07UEN686	English for Empowerment	4	3

**Department of History**

IV	07UHS481	Tourism and Travel Agency	4	3
V	07UHS582	Tourism and Automation	4	3
VI	07UHS683	Indian History for Competitive Examinations	4	3

**Department of Mathematics**

IV	07UMA481	Mathematics for Competitive Examinations	4	3
V	07UMA582	Graph Theory	4	3
VI	07UMA683	Operations Research	4	3

**Department of Physics**

IV	07UPH481	Everyday Physics	4	3
V	07UPH582	Photography	4	3
VI	07UPH683	Cell Phone Servicing	4	3
VI	07UPH684	Electrical Wiring	4	3

**Department of Plant Biology & Plant Biotechnology**

IV	07UBO481	Mushroom Culture	4	3
V	07UBO582	Everyday Biology	4	3
VI	07UBO683	Remote Sensing	4	3

**Department of Statistics**

IV	07UST481	Statistics for Management	4	3
V	07UST582	Data Analysis for Competitive Examination	4	3
VI	07UST683	Actuarial Statistics	4	3

**Department of Tamil**

IV	07UTA481	மைய அரசுப்பணித்தேர்வுத் தமிழ்	4	3
V	07UTA582	தமிழ் இலக்கியத்தில் மனித உரிமைகள்	4	3
VI	07UTA683	சித்த மருத்துவம்	4	3
VI	07UTA684	மக்கள் தகவல் தொடர்பியல்	4	3

