

ABOUT THE INSTITUTION

The Kovai Kalaimagal Educational Trust established in the year 1992 with an aspiration to quench the educational thirst of the poor and the needy strata of the society particularly from rural area. It sprouted with the establishment of a school and soon extended to add Kovai Kalaimagal College of Arts and Science in the year 1996 – 1997, Coimbatore Institute of Management and Technology in 1996 – 1997, Coimbatore Institute of Engineering and Technology in 2001 – 2002 and CIET School of Architecture in 2013 – 2014. The trust is managed by the dedicated team of trustees Dr. T. Banumathi, Dr. T. Namradha, Dr. K. A. Chinnaraju, Tmt. P. Shanmugadevi, Thiru. S. Subramanian and Thiru. M. Thangavelu who fully devote their time for the development of the institutions under the trust and it is due to their tireless efforts, the colleges have carved a name for themselves in the academic circle.

The college is situated in a serene atmosphere surrounded by picturesque mountains offering a very conducive environment for the academic perseverance. It is an ISO 9001:2008 certified institution and it has also been accredited by NAAC with 'A' grade. Committed to make quality education affordable especially to economically weaker sections particularly from rural area and strengthen the areas of research, enhance the process of sensitizing the students to personal values, spiritual growth and social responsibility. The college has taken every effort to ensure sustenance and enhancement of the quality in education.

Promoting Body

The Kovai Kalaimagal Educational Trust (KKET) was started in 1992 to establish educational institutions with the motto: 'Light the Light within'. The trust has, so far, established Kovai Kalaimagal College of Arts and Science, Coimbatore Institute of Engineering and Technology, CIET School of Architecture and Coimbatore Institute of Management And Technology at Vellimalaipattinam, Narasipuram Post, Thondamuthur Via, Coimbatore - 641 109.

Environment

KKCAS is located at Vellimalaipattinam, near Narasipuram, sprawling over a land area of 10.58 acres, surrounded by green hillocks. The campus has a serene and studious atmosphere with least disturbance and distraction. The students find the environment to be very conducive for their studies. Facilities in the campus meet their needs for extra / co-curricular activities.

ISO 9001:2008

As our institution is an ISO 9001:2008 certified institution, we have a strong system which takes care of the planned activities for enhancing quality in every respect. The institution implemented the Quality Management System and registered for the ISO certification since 2002. After implementation of the Quality Management System, not a single non-conformance was noticed in any of the QMS audit.

NAAC

Our institution was accredited with “A” grade by NAAC in the year 2011 and again Re-accredited with “A” grade by NAAC from September 2016.

Centre for Research

There is a research committee constituted in KKCAS which takes care of the promotion of research activities. Majority of members of faculty of Computer Science are the research guides guiding the scholars who pursue MPhil programme. This committee motivates the eligible faculty to apply for more number of research projects sponsored by UGC in topics of current interest.

The committee reviews the progress made by the research scholars periodically and advises them accordingly. In case the progress is not satisfactory, the reason for the same is found out and a solution to progress further is provided.

The committee recommends the research scholars and faculty pursuing Ph.D to participate and present papers in seminars and conferences and also publish research articles in reputed national and international journals. Those who are yet to register for pursuing M.Phil or Ph.D programmes are advised to register immediately and necessary support is also provided for finding suitable guides. The committee also recommends cash awards to those who publish research articles in refereed journals and sanction of additional increments and promotions to those who complete the Ph.D degrees. This has created a good impact as is evidenced by the number of faculty coming forward to pursue Ph.D programme.

Placement Cell

The institution has a placement cell which is effectively functioning under a placement officer and a placement coordinator. The responsibility of the placement officer is to identify the skills that are required to be possessed by the students as per the requirements of the companies and arrange for training programs for developing such skills among the students. Thus a number of training programs are organized to develop the communication skills, mathematical and English aptitude, group discussion and technical skills by the professors and professional trainers.

It also arranges career-counselling programmes through psychometric tests. These tests bring out the students strengths, weaknesses and their personal interests and attitude towards various career options available to them. If needed, it arranges for any follow-up programmes to overcome the weaknesses. Regular seminars are organized to enhance their capability for grabbing various career options. As a results nearly 75% of students are able to get placements from reputed companies.

Hostel

Separate and comfortable accommodation for boys and girls is provided within the college campus to accommodate 650 boys and 750 girls. Facilities for playing indoor games and common reading rooms with audio visual equipments are available in all the hostels.

The institution plans for providing residential accommodation to the staff and there is a proposal for the construction of staff quarters. As there is a separate RO plant, purified and safe drinking water is provided to all the students.

Recognitions

The college has been recognized for the welfare schemes implemented for the benefit of the students and has been rewarded with “Best College Award” during 2007 – 2008 by the Bharathiar University. It has also been awarded with “Third Best College Award” for overall performances during the year 2008-2009 based on ten different criteria such as Results of University Examinations, Conducting Seminars, Workshops, Symposia and State and National Level Conferences, Self Development Programmes for Students, Number of Placements made in the Campus Interviews, Student Supporting Services, Faculty Development Programmes, Publication of Books and Research articles in Journals and Magazines, Research Activities, Social Service through NSS, YRC and RRC and achievements in Sports and Games. The institute was awarded with “A” Grade by National Assessment and Accreditation Council (NAAC). The college was granted Autonomous status by UGC, New Delhi for six years with effect from 2016-2017.

KOVAI KALAIMAGAL COLLEGE OF ARTS AND SCIENCE

(An Autonomous Institute Affiliated to Bharathiar University)

Re - accredited with “A” grade by NAAC

Regulations for Undergraduate Programmes

(Under Choice Based Credit System)

(Effective from 2017 – 2018)

1. REGULATIONS

This regulation is effective from the academic year 2017 -2018.

1.1. Eligibility for Admission

Course	Eligibility Condition
B.Sc IT	A pass in Higher Secondary Course. Preference will be given to those who have studied Mathematics as one of the subjects.

1.2. Duration and Course of Study

Three Academic years with six semesters, the duration of the first, third and fifth Semesters from June to November and the second, fourth and sixth Semesters from December to April. The duration of each semester is 90 working days.

1.3. The Medium of Instruction and Examinations

The medium of instruction and examinations shall be English.

1.4. Requirements for Attendance

- a) A candidate will be permitted to take the examination for any semester, if he/she secures not less than 75% of attendance out of the 90 working days during the semester.
- b) A candidate who has secured attendance less than 75% but 65% and above shall apply with the prescribed fee for the condonation of lack of attendance. On the recommendation of the Principal, he/she will be permitted to take up the examination.
- c) A candidate who has secured attendance less than 65% but 55% and above in any semester, will be permitted to continue the course but will not be permitted to appear for the examination in the current papers. However he/she will be permitted to appear for the examination in the papers in which he/she has arrears. He/she will have to compensate the shortage of attendance in the subsequent semester and take the examination in the papers of both the semester together .

- d) A candidate who has secured less than 55% of attendance in any semester will not be permitted to take the regular examinations and to continue the study in the subsequent semester. He/she has to re-do the course by rejoining in the semester in which the attendance is less than 55%.
- e) A candidate who has secured less than 65% of attendance in the final semester has to compensate his / her attendance shortage in a manner to be decided by the Head of the Department concerned after rejoining the course.

1.5 Restriction to take the Examinations

- a) Any candidate having arrear paper(s) shall have the option to take the examinations in any arrear paper(s) along with the subsequent regular semester papers.
- b) Candidates who fail in any of the papers shall pass the paper(s) concerned within five years from the date of admission to the said course. If they fail to do so, they shall take the examination in the revised text / syllabus, if any, prescribed for the immediate next batch of candidates. If there is no change in the text / syllabus they shall take the examination in that paper with the syllabus in vogue, until there is a change in the text or syllabus.

In the event of removal of that paper consequent to the change of regulations and / or curriculum after a five year period, the candidates shall have to take up an equivalent paper in the revised syllabus as suggested by the chairman and fulfill the requirements as per regulations/curriculum for the award of the degree.

1.6 The Evaluation System

The major objective of the institution's evaluation system is to motivate all students to excel in their performance. The students' performance is continually assessed through Continuous Assessment (CIA) and End Assessment (EAE). The CIA, EAE break up for theory papers is 25:75 and practical is 40:60.

1.6.1. Break Up of Continuous Internal Assessment (CIA) Marks Theory (Languages, English, Core, Allied and Elective)

Content	Marks Awarded
Internal Assessment Test	05
Online Test	05
Model Examination	10
Assignment (2 Numbers)	05
Total	25

Theory (Communication Skills, Mathematics for Competitive Examinations and Aptitude & Soft Skills) #

Content	Marks Awarded
Internal Assessment Test I	25*
Internal Assessment Test II	
Internal Assessment Test III	25
Total	50

*Test I and Test II will be evaluated for 25 marks each and the average of these two will be considered.

Internal Evaluation only

Practical

Content	Marks Awarded (Max Marks: 100)	Marks Awarded (Max Marks: 50)
Minimum ten Experiments / Practical Paper / Semester	20	05
Internal Assessment Test	05	05
Model Exam	10	05
Record Note Book	05	05
Total	40	20

Project Viva Voce

Content	Marks Awarded
Review and content Presentation (3 Reviews)(3*20)	60
Record	20
Total	80

1.6.2. End Assessment Examinations (EAE)

- Semester examination will be conducted at the end of each semester after completing a minimum of 90 working days.
- End Assessment Examination for the odd semester will generally be held during November and even semester during April.
- The question papers for all the courses will be set by the external examiners.
- The examinations for Language, English, Core, Allied and Elective will be conducted for a maximum of 75 marks for three hours. The passing minimum is 40% (30 out of 75 marks) and overall passing minimum putting the CIA and EAE marks together will be 40%.

e) Question Paper Pattern: (Languages, English, Core, Allied and Elective)

Part A	10 Marks	10 Questions - 1 Mark each – Objective type
Part B	25 Marks	5 Questions- 5 Marks each – either or type.
Part C	40 Marks	5 Questions- 8 Marks each – either or type.
Total	75 Marks	

f) The exam for Value Based Education & Non Major Elective will be conducted for a maximum of 50 marks for three hours. The passing minimum is 40% (20 out of 50 marks).

g) Question Paper Pattern: (Value Based Education & Non Major Elective)

Part A	50 Marks	5 Questions - either or type of question - 10 Marks each
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h) Question paper pattern : (Extra Credit Courses)

Part A	40 Marks	5 Questions- 8 Marks each – either or type.
Part B	60 Marks	5 Questions- 12 Marks each – either or type.
Total	100 Marks	

i) The marks secured in the extra credit course will get reflected in the mark sheet only if the candidate has secured 40% marks and above.

j) The students will be allowed to choose only two papers per semester under the extra credit courses from third semester onwards.

k) Practical

Content	Marks Awarded (Max Marks: 100)	Marks Awarded (Max Marks: 50)
Program - 1	20	10
Program - 2	20	10
Viva voce	10	05
Record	10	05
Total	60	30

l) Project Viva Voce

The evaluation for the end semester examination should be as per the norms given below:

Content	Marks Awarded
Viva Voce	20
Total	20

- m) The students who have opted for the languages other than Tamil in part-I should undergo Basic Tamil Course during the 2nd year of the study as a non-credit course for which there would be only Internal Evaluation.
- n) For all the Non-Credit Courses result would be indicated as “Pass” or “Re-Appearance” and not by marks or Grades secured in the Grade sheet.
- o) There will be one independent valuation for all theory papers under parts I ,II, & III by external examiner.
- p) A candidate may request for re-totalling/revaluation of his/her answer script by submitting an application addressing to the Controller of Examination through the Principal, paying the prescribed fee. This provision is available for all theory papers taken in the EAE. However there is no provision for revaluation of Practical papers.
- q) Candidates desirous of improving the marks awarded in a passed subject in their first attempt shall reappear once within a period of subsequent two semesters. The improved marks shall be considered for classification but not for ranking. When there is no improvement, there shall not be any change in the original marks already awarded.
- r) Supplementary examination will be conducted for the benefit of final year students after 15 days of the declaration of the final semester results. Candidate who has arrears in any semester subject to a maximum of three papers can appear for the supplementary exam conducted after the final semester.

1.7 Grading

The following table gives the marks, grade points, letter grades and classification to indicate the performance of the candidate.

Conversion of Marks to Grade Points and Letter Grades (Performance in a Course/Paper)

Range of Marks	Grade Points	Letter Grade	Description
90-100	9.0-10.0	O	Outstanding
80-89	8.0-8.9	D+	Excellent
75-79	7.5-7.9	D	Distinction
70-74	7.0-7.4	A+	Very Good
60-69	6.0-6.9	A	Good
50-59	5.0-5.9	B	Above Average
40-49	4.0-4.9	C	Average
00-39	0.0	U	Re - Appearance
ABSENT	0.0	AB	Absent

C_i = Credits earned for course i in any semester

G_i = Grade Point obtained for course i in any semester

n = refers to the semester in which such course were credited

For a Semester:

$$\text{GRADE POINT AVERAGE [GPA]} = \frac{\sum_i C_i G_i}{\sum_i C_i}$$

Sum of the multiplication of grade points by the credits of the courses

$$\text{GPA} = \frac{\text{-----}}{\text{-----}}$$

Sum of the credits of the courses in a semester

For the Entire Programme:

$$\text{CUMULATIVE GRADE POINT AVERAGE [CGPA]} = \frac{\sum_n \sum_i C_{ni} G_{ni}}{\sum_n \sum_i C_{ni}}$$

Sum of the multiplication of grade points by the credits of the entire programme

$$\text{CGPA} = \frac{\text{-----}}{\text{-----}}$$

Sum of the credits of the courses of the entire programme

CGPA	Grade	Classification of Final Result
9.0 and above up to 10.0	O+	First Class – Exemplary*
9.0 and above but below 9.5	O	
8.5 and above but below 9.0	D++	First Class with Distinction*
8.0 and above but below 8.5	D+	
7.5 and above but below 8.0	D	
7.0 and above but below 7.5	A++	First Class
6.5 and above but below 7.0	A+	
6.0 and above but below 6.5	A	
5.5 and above but below 6.0	B+	Second Class
5.0 and above but below 5.5	B	
4.5 and above but below 5.0	C+	Third Class
4.0 and above but below 4.5	C	
0.0 and above but below 4.0	U	Re – Appearance

Classification of Successful candidates

A candidate who passes all the examinations in Part I to Part IV securing following CGPA and Grades shall be declared as follows for each part:

CGPA	Grade	Classification of Final Result
9.5 and above up to 10.0	O+	First Class – Exemplary*
9.0 and above but below 9.5	O	
8.5 and above but below 9.0	D++	First Class with Distinction*
8.0 and above but below 8.5	D+	
7.5 and above but below 8.0	D	
7.0 and above but below 7.5	A++	First Class
6.5 and above but below 7.0	A+	
6.0 and above but below 6.5	A	
5.5 and above but below 6.0	B+	Second Class
5.0 and above but below 5.5	B	
4.5 and above but below 5.0	C+	Third Class
4.0 and above but below 4.5	C	
0.0 and above but below 4.0	U	Re-Appearence

*** The candidates who have passed in the first appearance and within the prescribed semester of the Programme (Major, Allied and Elective Course alone) are eligible.**

1.8 Course Completion

Students shall complete the programme within a period not exceeding three years for UG courses from the date of admission.

SCHEME OF EXAMINATION AND PROGRAMME STRUCTURE
B.Sc Information Technology (2016 – 2019)

Part	Sub Code	Study Components	Hrs/ week	CIA	Ext	Total	Credit
Semester-I							
I	16U1TALT01	Language 1 : Paper I	5	25	75	100	3
II	16U1ENLT01	Language 2 : English I	5	25	75	100	3
III	16U1ITCT01	Core 1: C Programming with Problem Solving Techniques	5	25	75	100	5
	16U1ITCT02	Core 2: Digital Fundamentals and Architecture	5	25	75	100	5
	16U1ITCP03	Core 3: C Programming-Practical	3	40	60	100	3
	16U1ITAT01	Allied 1: Numerical Methods and Statistics	5	25	75	100	4
IV	16U1VBET01	Value Based Education 1: Environmental Studies **	2	-	50	50	2
Total Credits							25
Semester-II							
I	16U2TALT02	Language 1 : Paper II	5	25	75	100	3
II	16U2ENLT02	Language 2 : English II	5	25	75	100	3
III	16U2ITCT04	Core 4: COBOL Programming	5	25	75	100	5
	16U2ITCT05	Core 5: Data Structures	4	25	75	100	5
	16U2ITCP06	Core 6: COBOL Programming- Practical	4	40	60	100	3
	16U2ITAT02	Allied 2: Discrete Mathematics	5	25	75	100	4
IV	16U2VBET02	Value Based Education 2: Ethics and Culture **	2	-	50	50	2
Total Credits							25
Semester-III							
III	16U3ITCT07	Core 7: Operating Systems	5	25	75	100	4
	16U3ITCT08	Core 8: OOPS with Java Programming	5	25	75	100	4
	16U3ITCT09	Core 9: Microprocessor and ALP	6	25	75	100	4
	16U3ITCP10	Core 10: Java Programming - Practical	6	40	60	100	3
	16U3ITAT03	Allied 3: Operations Research	5	25	75	100	4
IV	16U3NMET01	Non Major Elective 1: Food Science and Nutrition	2	-	50	50	2
	16U3SBST01	Skill Based Subject 1: Mathematics for Competitive Examinations -I	2	50	-	50	2
	16U3SBST02	Skill Based Subject 2: Communication Skills -I	2	50	-	50	2
	16U3BTLT01	Non Credit Course: Basic Tamil-I #	-	-	-	-	-
		Sports	2	-	-	-	-
		Library Work	1	-	-	-	-
Total Credits							25
Semester-IV							
III	16U4ITCT11	Core 11: Computer Graphics	5	25	75	100	4
	16U4ITCT12	Core 12: System Analysis and Design	6	25	75	100	4
	16U4ITCT13	Core 13: Data Communication and Computer Networks	5	25	75	100	3
	16U4ITCP14	Core 14: Computer Graphics - Practical	6	40	60	100	3
	16U4ITAT04	Allied 4: Business Accounting	5	25	75	100	4
IV	16U4NMET02	Non Major Elective 2: Floriculture	2	-	50	50	2
	16U4SBST03	Skill Based Subject 3: Mathematics for Competitive Examinations -II	2	50	-	50	2
	16U4SBST04	Skill Based Subject 4: Communication Skills -II	2	50	-	50	2
		16U4BTLT02	Non Credit Course: Basic Tamil-II #	-	-	-	-
		Sports	2	-	-	-	-
		Library Work	1	-	-	-	-
Total Credits							24

Semester-V							
III	16U5ITCT15	Core 15: ASP .Net and C#	5	25	75	100	4
	16U5ITCT16	Core 16: PHP and MySQL	5	25	75	100	4
	16U5ITCP17	Core 17: ASP. Net and C# - Practical	6	40	60	100	4
	16U5ITCP18	Core 18: PHP and MySQL - Practical	6	20	30	50	3
		Elective 1:	4	25	75	100	3
	Elective 2:	4	25	75	100	3	
IV	16U5NCCT01	Non Credit Course 1 : Aptitude and Soft Skills - I	3	-	-	-	-
		Sports	2	-	-	-	-
		Library Work	1	-	-	-	-
Total Credits							21
Semester-VI							
III	16U6ITCT19	Core 19: Software Testing	5	25	75	100	4
	16U6ITCT20	Core 20: Operations of E-Wallet and Information Security	6	25	75	100	3
	16U6ITCP21	Core 21: Software Testing -Practical	5	20	30	50	3
	16U6ITCV22	Core 22: Project and Viva Voce	6	80	20	100	4
		Elective 3:	4	25	75	100	3
		Elective 4:	4	25	75	100	3
	16U6NCCT02	Non Credit Course 2 : Aptitude and Soft Skills -II	3	-	-	-	-
		Sports	2	-	-	-	-
		Library Work	1	-	-	-	-
Total Credits							20
Total Marks						3700	140

** Answers to the questions may also be given in Tamil.

The students who have not studied Tamil in Higher Secondary Course and not opted for Tamil under Language I in the Degree programme have necessarily to study Basic Tamil for 2 hours/week during III & IV Semesters after their regular College working hours.

Project and Viva Voce:

Project Work carries 100 marks with 4 credits . The breakup of marks will be as follows:-

Internal assesment :80 Marks (60 Marks for 3 reviews and 20 Marks for Record) and External Assesment : 20 Marks (Viva Voce)

List of Electives		
	Sub Code	Subjects
Elective 1	16U5ITET1A	Data Mining and Warehousing
	16U5ITET1B	Internet of Things
	16U5ITET1C	Enterprise Resource Planning
Elective 2	16U5ITET2A	Web Technology and its Applications
	16U5ITET2B	Inter Networking with TCP/IP
	16U5ITET2C	Software Project Management
Elective 3	16U6ITET3A	Artificial Intelligence and Expert System
	16U6ITET3B	Software Engineering
	16U6ITET3C	Mobile and Wireless Technology
Elective 4	16U6ITET4A	Compiler Design
	16U6ITET4B	Mobile Operating System
	16U6ITET4C	Cloud Computing

Extra Credit Courses		
Sub.Code	Subjects	Credits
16UITECC01	Human Resource Management	2
16UITECC02	Principles And Practice Of Marketing Services	2
16UITECC03	Investment Management	2
16UITECC04	Consumer Marketing	2
16UITECC05	International Marketing	2
16UITECC06	Production and Operations Management	2
16UITECC07	Enterpreneurial Development	2
16UITECC08	Management Information System	2
16UITECC09	Executive Business Communication	2
16UITECC10	Brand Management	2
16UITECC11	Stress Management	2
16UITECC12	E-Commerce	2
16UITECC13	Theory of Computation	2

Curriculum Structure

S.No	Course	No of Papers	Credits
1	Language 1 : Tamil/Hindi/Malayalam/French	2	6
2	Language 2 : English	2	6
3	Core	22	84
4	Allied	4	16
5	Elective	4	12
6	Value Based Education	2	4
7	Skill Based Subject	4	8
8	Non-Major Elective	2	4
9	Non Credit Course	4	-
Total			140

SEMESTER-I**TAMIL I****Subject Code: 16U1TALT01****Total Hrs: 75****No. of Credits: 3****முதல் பருவம் (செய்யுள், சிறுகதை, இலக்கணம் , இலக்கிய வரலாறு)****நோக்கம்**

- சமூகம் பற்றிய சிந்தனைகளைத் தமிழ்ப் படைப்பிலக்கியங்கள் மூலம் ஏற்படுத்துதல்
- புதுக்கவிதைகள் , சிறுகதைகள் ஆகியவற்றைப் படிக்க வைத்தல்/எழுத வைத்தல்
- போட்டித் தேர்வுகளுக்கு மாணவர்களைத் தயார் செய்தல்

அலகு – 1 செய்யுள் திரட்டு : மரபுக் கவிதைகள் (15 மணிநேரம்)

- | | | |
|--------------------------|---|--|
| 1. பாரதியார் | - | யோகசித்தி (பாரதியார் கவிதைகள்) |
| 2. பாரதிதாசன் | - | தமிழனுக்கு வீழ்ச்சியில்லை
(பாரதிதாசன் கவிதைகள்) |
| 3. கவிமணி | - | கவிதை (மலரும் மாலையும்) |
| 4. கண்ணதாசன்
காவியம்) | - | ஆதியிலே வார்த்தை இருந்தார் (இயேசு) |

அலகு – 2 செய்யுள் திரட்டு : புதுக் கவிதைகள் (13 மணிநேரம்)

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| 1. புவியரசு | - | கதாநாயகி (ஒரு முக்கிய அறிவிப்பு) |
| 2. அப்துல் ரகுமான் | - | தவறான எண் (ஆலாபனை) |
| 3. வைரமுத்து | - | உன் ஆன்மீகத்தின் அர்த்தம் (கவிராஜன் கதை) |
| 4. சிற்பி பாலசுப்பிரமணியம் | - | கொடும்பாவி சாகாளோ (ஒரு கிராமத்து நதி) |
| 5. கலாப்பிரியா | - | உயிர்த்தெழுதல் (கலாப்பிரியா கவிதைகள்) |
| 6. இளம்பிறை | - | அசதி (முதல் மணிஷி) |

அலகு – 3 சிறுகதைத் தொகுப்பு (20 மணிநேரம்)

- | | | |
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| 1. பாரதியார் | - | காக்காய் பார்லிமெண்ட்
(மகாகவி பாரதியார் கதைகள்) |
| 2. புதுமைப்பித்தன் | - | பொன்னகரம் (புதுமைப்பித்தன் சிறுகதைகள்) |
| 3. ஆ.மாதவன் | - | சுசிலாவின் கதை (ஆ.மாதவன் கதைகள்) |
| 4. ஜெயகாந்தன் | - | தேவன் வருவாரா? (தேவன் வருவாரா?) |
| 5. அசோகமித்திரன் | - | அப்பாவின் சிநேகிதர் (அப்பாவின் சிநேகிதர்) |
| 6. வண்ணதாசன் | - | ஆலங்கட்டிமழை (வண்ணதாசன் கதைகள்) |
| 7. நாஞ்சில் நாடன் | - | சூடிய பூ சூடற்க (சூடிய பூ சூடற்க) |
| 8. எஸ்.இராமகிருஷ்ணன் | - | தெரிந்தவர்கள் (எஸ்.இராமகிருஷ்ணன் கதைகள்) |
| 9. வண்ணநிலவன் | - | இரண்டாவது சொர்க்கம் (வண்ணநிலவன் கதைகள்) |
| 10. அம்பை | - | பிளாஸ்டிக் டப்பாவில் பராசக்தி முதலியோர்
(காட்டில் ஒரு மான்) |

அலகு – 4 தமிழ் இலக்கிய வரலாறு

(15 மணிநேரம்)

தமிழ்நாடு அரசுப் பணியாளர் தேர்வாணையம் நடத்தும் போட்டித் தேர்வுக்குரிய பொதுத் தமிழ்ப் பாடத்திட்டம் - ஓர் அறிமுகம்

1. புதுக்கவிதையின் தோற்றமும் வளர்ச்சியும்
2. சிறுகதையின் தோற்றமும் வளர்ச்சியும்
3. புகழ்பெற்ற தமிழ் நூல்கள், நூலாசிரியர்கள் (சிறுகதை, புதுக்கவிதை)
(பார்வை நூல்: தமிழ் இலக்கிய வரலாறு)
4. அடைமொழியால் குறிக்கப்பெறும் நூல்கள், நூலாசிரியர்கள்
(பார்வை நூல்: தமிழ் இலக்கிய வரலாறு)
5. ஆங்கிலச் சொல்லிற்கு இணையான தமிழ்ச் சொல்
(பார்வை நூல்: நற்றமிழ் இலக்கணம்)

அலகு – 5 இலக்கணம்

(12 மணிநேரம்)

1. வேர்ச்சொல் அறிதல், அகர வரிசைப்படி சொற்களை மாற்றியமைத்தல்.
2. செய்வினை, செயப்பாட்டுவினை, உடன்பாடு, எதிர்மறை, கலவை வாக்கியங்களும் வாக்கிய வகைகளும்.
3. பெயர், வினை, இடை, உரிச்சொற்கள்.
4. லகர-ளகர-ழகர, ணகர-னகர – வேறுபாடுகள்.

பாட நூல்

1. செய்யுள் திரட்டு, சிறுகதைத் தொகுப்பு
(தமிழ்த்துறை வெளியீடு : ஜூன் - 2016)

பார்வை நூல்கள்

1. புலவர் வெற்றியழகன்(தொ.ஆ), “பாரதியார் கவிதைகள்”, ராமையா பதிப்பகம், சென்னை. முதற் பதிப்பு: ஏப்ரல் - 2008.
2. தொ.பரமசிவன்(ப.ஆ), “பாரதிதாசன் கவிதைகள்”, நியூ செஞ்சுரி புக் ஹவுஸ், சென்னை. மூன்றாம் பதிப்பு: டிசம்பர் - 1998.
3. வித்துவான் சிவ கன்னியப்பன், “மலரும் மாலையும்”, பூம்புகார் பதிப்பகம், சென்னை. முதற் பதிப்பு: செப்டம்பர் - 2002.
4. கவியரசு கண்ணதாசன், “இயேசு காவியம்”, கலைக்காவிரி பதிப்பகம், திருச்சி. ஐந்தாம் பதிப்பு: 1997.
5. புவியரசு, “ஒரு முக்கிய அறிவிப்பு”, விஜயா பதிப்பகம், கோவை. இரண்டாம் பதிப்பு: டிசம்பர் - 2005.
6. அப்துல் ரகுமான், “ஆலாபனை”, நேசனல் பப்ளிஷர்ஸ், சென்னை. நான்காம் பதிப்பு: ஏப்ரல்-2003.
7. வைரமுத்து, “கவிராஜன் கதை”, திருமகள் பதிப்பகம், சென்னை. பனிரெண்டாம் பதிப்பு: செப்டம்பர் -2007.
8. சிற்பி, “ஒரு கிராமத்து நதி”, கவிதா பதிப்பகம், சென்னை. எட்டாம் பதிப்பு: ஆகஸ்டு-2011.
9. கலாப்பிரியா, “கலாப்பிரியா கவிதைகள்”, தமிழினி பதிப்பகம், சென்னை. முதற் பதிப்பு: டிசம்பர் - 2001.
10. இளம்பிறை, “முதல் மனுஷி”, தமிழ் நெஞ்சம், மயிலாடுதுறை. முதற் பதிப்பு: டிசம்பர் -2003.

11. சி.சுப்பிரமணிய பாரதி, “மகாகவி பாரதியார் கதைகள்”, சேது அலமி பிரசுரம், சென்னை.
இரண்டாம் பதிப்பு: டிசம்பர்- 2003.
12. புதுமைப்பித்தன் கதைகள், பூம்புகார் பதிப்பகம், சென்னை. இரண்டாம் பதிப்பு: ஜூலை -2006.
13. மாதவன், “ஆ.மாதவன் கதைகள்”, தமிழினி பதிப்பகம், சென்னை. முதற்பதிப்பு: டிசம்பர்- 2001.
14. ஜெயகாந்தன், “தேவன் வருவாரா”, மீனாட்சி புத்தக நிலையம், மதுரை.
நான்காம் பதிப்பு: ஜூன் - 1996.
15. அசோகமித்திரன், “அப்பாவின் சிநேகிதர்”, நர்மதா வெளியீடு, சென்னை.
இரண்டாம் பதிப்பு: டிசம்பர் - 1996.
16. வண்ணதாசன், கனிவு, சந்தியா பதிப்பகம், சென்னை. இரண்டாம் பதிப்பு: ஏப்ரல் - 2011.
17. நாஞ்சில் நாடன், “சூடிய பூ சூடற்க”, தமிழினி பதிப்பகம், சென்னை. மூன்றாம் பதிப்பு: 2010.
18. எஸ்.ராமகிருஷ்ணன், “எஸ்.ராமகிருஷ்ணன் கதைகள்”, கிழக்கு பதிப்பகம், சென்னை.
இரண்டாம் பதிப்பு: ஏப்ரல் - 2005.
19. வண்ணநிலவன், “வண்ணநிலவன் சிறுகதைகள்”, நற்றிணை பதிப்பகம், சென்னை.
இரண்டாம் பதிப்பு: ஆகஸ்ட்டு - 2013.
20. அம்பை, “காட்டில் ஒரு மான்”, காலச்சுவடு பதிப்பகம், சென்னை. மூன்றாம் பதிப்பு:
டிசம்பர் - 2003.
21. வல்லிக்கண்ணன், “புதக்கவிதையின் தோற்றமும் வளர்ச்சியும்”, அகரம், சும்பகோணம்.
நான்காம் பதிப்பு: ஜூலை - 1999.
22. கா.கோ.வெங்கட்ராமன், “தமிழ் இலக்கிய வரலாறு”, கலையக வெளியீடு, திண்டுக்கல்.
இரண்டாம் பதிப்பு: ஜூன் - 2002.
23. மது.ச.விமலானந்தம், “தமிழ் இலக்கிய வரலாறு”, முல்லை நிலையம், சென்னை. 2014.
24. மு.பரமசிவம், “நற்றமிழ் இலக்கணம்”, சைவசித்தாந்த பதிப்பகம், திருநெல்வேலி. முதற்
பதிப்பு: 1995.

SEMESTER-I

FRENCH I

Subject Code: 16U1FRLT01

Total Hours: 75

No.of Credits: 3

Prescribed text : ALORS I
Units : 1-5
Authors : Marcella Di Giura
Jean-Claude Beacco
Available at : Goyal Publishers Pvt Ltd
86, University Block
Jawahar Nagar (Kamla Nagar)
New Delhi – 110007.
Tel : 011 – 23852986 / 9650597000

Question Paper Pattern :

(ALL QUESTIONS TO BE SET ONLY FROM THE PRESCRIBED TEXT)

Maximum Marks: 75

Time: 3 hrs.

SECTION A (10)

1. CHOISISSEZ LA MEILLEURE RÉPONSE: (10X1=10)

SECTION B (20)

2. TRADUISEZ LES TEXTES SUIVANTS EN ANGLAIS:(4/5) (4X5=20)
(Pg Nos : 26 ex-6,44 ex-3,56 ex-4,74ex-4,80.)

SECTION C (45)

3. COMPRÉHENSION (8x1=8)

4. EXERCICES DE GRAMMAIRE:(5X5=25) (EITHER/OR)

5. FAITES DES PHRASES:(6/8) (6X1=6)

6. TRADUISEZ LES EXPRESSIONS EN ANGLAIS :(6/8) (6X1=6)

SEMESTER-I

HINDI- I

Subject Code: 16U1HILT01

Total Hours: 75

No.of Credits: 3

(Prose, Non-detailed , Grammar & Translation)

1. PROSE : NUTHAN GADYA SANGRAH

Editor: Jayaprakash
(Prescribed Lessons – only 6)
Lesson 1 – Bharthiya Sanskurthi
Lesson 3 - Razia
Lesson 4 – Makreal
Lesson 5- Bahtha Pani Nirmala
Lesson 6 – Rashtrapitha Mahathma Gandhi
Lesson 9 – Ninda Ras.
Publisher: Sumitra Prakashan
Sumitravas, 16/4 Hastings Road,
Allahabad – 211 001.

2. NON DETAILED TEXT: KAHANI KUNJ.

Editor: Dr.V.P.Amithab.
(Stories 1 -6 only)
Publisher : Govind Prakashan
Sadhar Bagaar, Mathura,
Uttar Pradesh – 281 001.

3. GRAMMAR : SHABDHA VICHAR ONLY

(NOUN,PRONOUN, ADJECTIVE, VERB, TENSE,CASE ENDINGS)
Theoretical & Applied.
Book for reference : Vyakaran Pradeep by Ramdev.
Publisher : Hindi Bhavan,
36,Tagore Town
Allahabad – 211 002.

4. TRANSLATION: English- Hindi only.

ANUVADH ABHYAS – III
(1-15 lessons Only)
Publisher: DAKSHIN BHARATH HINDI PRACHAR SABHA
CHENNAI -17.

5. COMPREHENSION : 1 Passage from ANUVADH ABHYAS – III (16- 30)

DAKSHIN BHARATH HINDI PRACHAR SABHA
CHENNAI- 17.

SEMESTER-I
MALAYALAM- I

Subject Code: 16U1MLLT01

Total Hours: 75

No.of Credits: 3

(Prose, Composition & Translation)

This paper will have the following five units:

- Unit I & II - Novel
Unit III & IV - Short story
Unit V - Composition & Translation

Text books prescribed:

- Unit I & II - Naalukettu – M.T. Vasudevan Nair
(D. C. Books, Kottayam, Kerala)
Unit III & IV - Nalinakanthi – T.Padmanabhan
(D. C. Books, Kottayam, Kerala)
Unit V - Expansion of ideas, General Essay and Translation of a simple passage from
English about 100 words) to Malayalam

Reference books:

1. Kavitha Sahithya Charitram –Dr. M. Leelavathi (Kerala Sahithya Academy, Trichur)
2. Malayala Novel Sahithya Charitram – K. M.Tharakan (N.B.S. Kottayam)
3. Malayala Nataka Sahithya Charitram – G. Sankarapillai (D.C. Books, Kottayam)
4. Cherukatha Innale Innu – M. Achuyuthan (D.C. Books, Kottayam)
5. Sahithya Charitram Prasthanangalilude - Dr. K .M. George, (Chief Editor)
(D.C. Books, Kottayam)

SEMESTER -I

LANGUAGE II-ENGLISH-I

Subject Code: 16U1ENLT01

Total Hrs:75

No. of Credits: 3

Objective:

- To develop the skills of speaking and writing without flaws
- To develop an interest in the minds of the students to enjoy and appreciate the literary works in English

Unit-I: Poetry

(Hours:14)

1. On His Blindness- John Milton
2. Menelaus and Helen- Rupert Brooke
3. The Solitary Reaper- William Wordsworth

Unit-II: Prose

(Hours:16)

- 1.Sweets for Angels- R.K.Narayan
2. At Harrow and Cambridge- Jawaharlal Nehru
- 3.The Post Master- Rabindranath Tagore

Unit-III: Short Story

(Hours:15)

1. How Much Land does a Man Need?- Leo Tolstoy
2. Games at Twilight- Anitha Desai
3. The Gate Man's Gift- R.K.Narayan

Unit-IV: One Act Plays

(Hours:13)

- 1.A Meeting in a Forest – G.B.Shaw
2. Refund – Fritz Karinthy

Unit-V: Functional Grammar and Vocabulary

(Hours:17)

1. Parts of Speech
- 2.Simple Past, Perfect and Continuous
3. Articles
4. Usage of Idioms & Phrases
5. Right words- Synonyms, Antonyms, One word Substitutes

Text Books:

1. An Anthology of Popular Essays and Poems- A.G.Xavier (Macmillan)
2. Gifts to Posterity- An Anthology of Modern Short Stories- Prof. A.E.Subramanian (Chitra Publications, Chennai)
3. A Prism of Plays – Prof K.G. Seshadri Anuradha Publication, Chennai.

Reference Books:

1. Modern English- A Book of Grammar Usage and Composition- N.Krishnaswamy
2. Essential English Grammar Usage & Composition- by Prof.K.Ramappa, Re td.

SEMESTER-I

CORE 1: C PROGRAMMING WITH PROBLEM SOLVING TECHNIQUES

Subject Code: 16U1ITCT01

Total Hrs:75

No. of Credits: 5

Objectives: To enable the students

- To know about problem solving techniques and algorithm fundamentals.
- To know about the basics of C Programming and its various computation logics.
- To clearly understand decision making and branching concepts with various statements.
- To know about the concept of arrays, strings and functions with its various operations.
- To learn about the concept of structure, pointers and file management.

UNIT I

(Hours:15)

Introduction to Computer Problem Solving: Problem Solving aspects-Top down design-Implementation of Algorithms- Program verification -Efficiency-Analysis of Algorithm. Fundamental Algorithm:Exchanging the values of 2 Variables-Counting

UNIT II

(Hours:19)

Overview of C - Introduction – Structure of C - Character set - C tokens - Keyword & Identifiers - Constants - Variables - Data types - Declaration of variables - Assigning values to variables - Defining Symbolic Constants - Operators – Arithmetic Expressions: - Evaluation of expression - Type conversion in expression - operator precedence & associative.

Decision Making and Branching - Decision making with IF statement - simple IF statement - The IF ELSE Statement - Nesting of IF ..ELSE statements - The ELSE IF ladder - The switch statement – The GOTO statement -- Decision Making and Looping - The WHILE statement - The DO statement - The FOR statement – Jumps in Loop.

UNIT III

(Hours:15)

Arrays - One Dimensional - Two Dimensional - Multidimensional arrays - Character string Handling - Declaring and initializing string variables - String:Introduction- Standard Functions. Functions: User - defined Functions - Need for user Defined functions - A multi function program - Return values and their types - Calling a function . Types of Functions :No Arguments and no return values - Arguments but no return values - Arguments with return values - Handling of non-integer functions – Recursion.

UNIT IV

(Hours:13)

Structure : Structure definition - Giving values to members – Structure initialization - comparison of structure variables - Arrays of structures - Structures within structures- size of structures-Pointers to structures. Pointers – Introduction-Features of Pointers - Declaring and initializing pointers - Accessing a variable through its pointers - pointers and arrays - pointers and character strings.

UNIT V

(Hours:13)

File management in C - Defining and opening a file - closing file - I/O operations on files - Error handling during I/O operations - Random access to files - Command line arguments - The Preprocessor.

Text Books:

1. E. Balagurusamy: “Programming in ANSI C” , Tata Mc. Graw Hill, 5thEdition (reprint), 2011. (Unit II, Unit III, Unit IV, Unit V)
2. R.G.Dromey: ”How to Solve it by Computer”, Prentice Hall of India, Delhi,2000 (Unit-I)

Reference Books:

1. Byron Gottfried: “Programming with C”(Schaum's Outline Series), Tata Mc.Graw Hill,2nd Edition,1998.
2. Ashok. N. Kamathane: “Programming with ANSI and Turbo C”, Pearson Education Asia,4th Edition,2002 .
3. Yeswanth Kanethkar: “Let us C” Tata Mc. Graw Hill, 3rd Edition,1992.

SEMESTER-I

CORE 2: DIGITAL FUNDAMENTALS AND ARCHITECTURE

Subject Code: 16U1ITCT02

Total Hrs:75

No. of Credits: 5

Objectives: To enable the students

- To know about number system and binary codes
- To learn about various circuits and digital logics
- To understand the basics of combinational logic circuits and its operations
- To know about the sequential circuits and its designing architecture
- To know about the input – output and memory organization

UNIT I

(Hours: 16)

Number System and Binary Codes: Decimal, Binary, Octal, Hexadecimal – Binary addition, Multiplication, Division – Floating point representation, Complements, BCD, Excess3, Gray Code. Arithmetic Circuits: Half adder, Full adder, Parallel binary adder, BCD adder, Halfsubtractor, Full subtractor, Parallel binary subtractor - Digital Logic: the Basic Gates – NOR, NAND, XOR Gates.

UNIT II

(Hours: 14)

Combinational Logic Circuits: Boolean algebra – Karnaugh map – Canonical form 1 – Construction and properties – Implicants – Don't care combinations - Product of sum, Sum of products, simplifications.

UNIT III

(Hours: 13)

Sequential circuits: Flip-Flops: RS, D, JK, T - Multiplexers – Demultiplexers – Decoder – Encoder – Counters.

UNIT IV

(Hours: 16)

Input – Output Organization: Input – output interface – I/O Bus and Interface – I/O Bus Versus Memory Bus – Isolated Versus Memory – Mapped I/O – Example of I/O Interface. Asynchronous data transfer: Strobe Control and Handshaking – Priority Interrupt: Daisy- Chaining Priority, Parallel Priority Interrupt. Direct Memory Access: DMA Controller, DMA Transfer. Input – Output Processor: CPU-IOP Communication.

UNIT V

(Hours: 16)

Memory Organization: Memory Hierarchy – Main Memory- Associative memory: Hardware Organization, Match Logic, Read Operation, Write Operation. Cache Memory: Associative, Direct, Set-associative Mapping – Writing into Cache Initialization. Virtual Memory: Address Space and Memory Space, Address Mapping Using Pages, Associative Memory Page Table, Page Replacement.

Text Books:

1. V.K. Puri :”Digital Electronics Circuits and Systems”,Tata Mc. Graw Hill, 3rdEdition, 2012.
2. M. Morris Mano:”Computer System Architecture “,Prentice Hall of India, 3rd Edition,2008 .

Reference Books:

1. Albert Paul Malvino,Donald P Leach:”Digital principles and applications”, Tata Mc. Graw Hill, Sixth Edition,2007.
2. Carter:”Computer Architecture”,Schaums outline series,Tata Mc. Graw Hill,Indian Special Edition,2006.
3. Thomas C.Bartee:”Computer Architecture & Logic Design”,Tata Mc.Graw Hill,International Edition, 1991 .

SEMESTER-I

CORE 3: C PROGRAMMING - PRACTICAL

Subject Code: 16U1ITCP03

Total Hrs:45

No. of Credits: 3

1. Write a C program to find the Quadratic equation.
2. Write a C program to perform Matrix Multiplication Table using Arrays
3. Write a C program to perform string manipulation operations.
4. Write a C program to perform Matrix Manipulation using Arrays.
5. Write a C Program to check whether the given string is a palindrome or not using Pointers.
6. Write a C program to print Fibonacci Series using Recursive Function.
7. Write a C program to print the student's mark sheet assuming roll number, name, marks in 5 subjects in a structure. Create an array of structures and print the mark sheet in the university pattern.
8. Write a C program to print the inventory management using file manipulation.
9. Write a C program to prepare the Electric Bill using Files.
10. Write a C Program to find the Factorial of a given number.
11. Write a C program to find Binary Addition & Binary Subtraction.
12. Write a C program to find the given year is Leap year or not.

SEMESTER-I**Common to the Branches (BSc.CS/BCA/ B.Sc.,IT)****ALLIED 1: NUMERICAL METHODS AND STATISTICS****Subject Code:16U1ITAT01****Total Hrs: 75****No. of Credits: 4****Objectives:**

- To understand the different Methods of solving numerical algebraic and Transcendental Equations .
- To know Numerical differentiation using various formulae and Integration using various rules.
- To have a knowledge of finding numerical solutions of ordinary differential Equations
- To learn how to calculate various statistical constants.

UNIT- I**(Hours:12)**

The Numerical Solution of Algebraic and Transcendental Equations –The Bisection method, The method of false position , Newton – Raphson method.

UNIT -II**(Hours:18)**

Solution of Simultaneous Linear Algebraic Equations – Gauss Elimination method, Gauss Jordan method, Gauss – Jacobi method, Gauss – Seidel method. Interpolation (For Equal Intervals) Newton’s Forward interpolation, Newton’s Backward interpolation.

UNIT -III**(Hours:18)**

Numerical Differentiation – Newton’s Forward formula, Newton’s Backward Formula, Numerical Integration – Trapezoidal Rule, Simpson’s one third rule, Simpson’s three-eight’s rule. Numerical solution of Ordinary differential equations – Taylor Method (first order)– Runge-Kutta method (fourth order)

UNIT- IV**(Hours:15)**

Measure of Central Tendency – Mean, Median, Mode - Measure of Dispersion – Range, Quartile Deviation, Standard Deviation and Mean Deviation -problems.

UNIT- V**(Hours:12)**

Correlation and Regression. No derivation required.

Questions in problems and theory carry 80% and 20% marks respectively.

Text Book:

1.P. Kandasamy, K.Thilagavathy, K.Gunavathi: Numerical methods, S.Chand & Company-2005

2. P.A. Navanitham :Business Mathematics and Statistics. Jai publishers- 2005 .

Unit I : Chapter 3 (3.1, 3.1.1, 3.3, 3.3.1, 3.4, 3.4.1 – 3.4.3),

Unit II : Chapter 4 (4.1, 4.2, 4.2.1, 4.8, 4.9)
Chapter 6 (6.1, 6.2, 6.3).

Unit III : Chapter 9 (9.1 – 9.3, 9.9, 9.13, 9.14),
Chapter 11 (11.5, 11.6, 11.7, 11.12, 11.13)

Unit IV : Chapter 7, Chapter 8.

Unit V : Chapter 12 and Chapter 13.

Reference Books:

1. *Dr.M.K. Venkataraman: Engineering Mathematics Volume II , National publishing company-2005*
2. *R.S.N. Pillai and V. Bhagavathi: Statistical Methods , Sultan chand and Sons company- 2005.*
3. *P.R.Vittal :Business Mathematics,Margham Publications -1999.*
4. *A.Singaravelu :Numerical Methods, Meenakshi Publications-2001*

SEMESTER - I

VALUE BASED EDUCATION 1:ENVIRONMENTAL STUDIES

Subject Code:16U1VBET01

Total Hrs: 30

No. of Credits: 2

Objectives:

- To make the students understand the various types of natural resources and their responsibility in the conservation of the same.
- To impart on various eco systems, biodiversity at various levels and their conservation
- To make the students know on various types of environmental pollution, their causes, effects, their prevention and the students role in the same.

UNIT I

(Hours:6)

The Multidisciplinary Nature of Environmental Studies - Definition, Scope and Importance; Need for public awareness, Natural resources - Forest resources, Mineral resources, Food resources, Energy resources and Land resources. Role of an individual in conservation of natural resources. Equitable use of resources for sustainable life style.

UNIT II

(Hours:6)

Ecosystems - Concept of ecosystem, Structure and Functions of an ecosystem. Producer, Consumer, Decomposers, Energy flow in ecosystem, Ecological succession, food chain, food webs and ecological pyramids. Introduction, types, characteristics, features, structure and functions of forest ecosystem, grass land, desert and Aquatic Ecosystems (ponds, streams, lakes, rivers, oceans and estuaries).

UNIT III

(Hours:6)

Biodiversity and its Conservation – Introduction - Definitions: Genetic, Species and ecosystem diversity. Biogeographical classification of India. Value of biodiversity: consumptive use, productive use, social, ethical, aesthetic and option values, Biodiversity at Global, National and local levels. India as a mega-biodiversity nation. Hot spots of biodiversity. Threats of biodiversity: habitat loss, poaching of wild life. Man wild life conflicts. Endangered and endemic species of India. Conservation of biodiversity-in-situ and Ex-situ conservation of biodiversity.

UNIT IV

(Hours:6)

Environmental Pollution - Definitions, causes, effects and control measures of Air pollution, Water pollution, Soil pollution, Noise pollution and Thermal pollution. Solid waste management: causes, effects and control measures of Urban and Industrial wastes. Role of an individual in prevention of pollution. Pollution case studies. Disaster management: Floods, Earthquake, Cyclone and Landslides.

UNIT V

(Hours:6)

Social issues and the Environment - Sustainable development, urban problems related to energy, water conservation, rain water harvesting, water shed management. Resettlement and rehabilitation of people. Environmental ethics: issues and possible solution. Climate change, global warming, ocean layer depletion, acid rain, nuclear accident and holocaust, case studies. Consumerism and waste product. Environmental protection Act. Air (prevention and control of pollution) Act. Wild life protection act. Forest conservation Act. Issues involved in enforcement of environmental legislation. Public awareness. Human population and the environment.

Text Book:

1. Prof R. Ranganathan: *Environmental Studies*. Bharathiar University Publications- Edition- 1

Reference Books:

- 1.Ritu Bir : *Environmental Studies* - Vayu Education of India, 2011.
- 2.Erach Bharucha : *Textbook for Environmental Studies* - University Press India Pvt. Ltd, 2006.
- 3.Anubha Kaushik & C.P.Kaushik:*Perspectives in Environmental Studies*- New Age International Publishers, 2006.

SEMESTER-II**TAMIL II****Subject Code: 16U2TALT02****Total Hrs: 75****No. of Credits: 3****இரண்டாம் பருவம் (செய்யுள், உரைநடை, இலக்கணம் , இலக்கிய வரலாறு)****நோக்கம்**

- சங்க இலக்கியத்தின் மாண்பு, இலக்கிய நயம், நீதி நெறிகள், பக்தியின் தன்மை, சங்ககால இலக்கண நெறிகள் ஆகியவற்றை அறிந்து கொள்ளுதல்
- வாழ்க்கையை வாழும் நெறிமுறைகள், வெற்றிக்கான உத்திகள், தமிழ் வளர்ச்சிக்கான நமது கடமைகள் ஆகியன குறித்து தெளிவு பெறுதல்

அலகு – 1 செய்யுள் திரட்டு : சங்க இலக்கியங்கள் (20 மணிநேரம்)

1. குறுந்தொகை - முதல் 5 பாடல்கள் (கடவுள் வாழ்த்து உட்பட)
2. நற்றிணை - பிரசங்கலந்த வெண்சுவைத்தீம்பால் (பா.எண்-110) ,
3. விளையாடு ஆயமோடு (பா.எண்-68)
4. கலித்தொகை - சுடர்த் தொடி கேளாய் (பா.எண்-51)
5. புறநானூறு - ஆவுமானிய பார்ப்பன மாக்களும் (பா.எண்-9),
6. காய்நெல் லறுத்துக் கவளம்கொளினே (பா.எண்-184)
7. பத்துப்பாட்டு - குறிஞ்சிப்பாட்டு முழுவதும்

அலகு – 2 செய்யுள் திரட்டு : நீதி, பக்தி இலக்கியம் (15 மணிநேரம்)

1. திருக்குறள் - அடக்கமுடைமை (அதிகாரம்-13),
புறங்கூறாமை (அதிகாரம்-19)
2. நாலடியார் - கல்வி (அதிகாரம்-14), நல்லினம் சேருதல்(அதிகாரம்-18)
3. திருவெம்பாவை - முதல் 10 பாடல்கள்
4. நாச்சியார் திருமொழி - ஆறாம் திருமொழி

அலகு – 3 உரைநடை: கட்டுரைத் தொகுப்பு (15 மணிநேரம்)

1. இறையன்பு - கல்வியும் கடவுள் தன்மையும்
(வாழ்க்கையே ஒரு வழிபாடு)
2. அகிலன் - பதினாறு பேறுகள் (வெற்றியின் ரகசியங்கள்)
3. முனைவர் பாஞ்.இராமலிங்கம் - மானிட உளவியல் (மானிட உளவியல்)
4. வ.செ.குழந்தைசாமி - தமிழ் வழிக்கல்வி-தயக்கங்கள், தடைகள்
(தமிழ் வளர்ச்சி)
5. மணவை முஸ்தபா - தமிழுக்கு அறிவியல் அன்னியமா? (அறிவியல்
நோக்கில் கம்பர்)
6. சுகி.சிவம் - வாழப்பழகுவோம் வாருங்கள்
(வாழப்பழகுவோம் வாருங்கள்)
7. அ.மங்கை - பெண்ணியம் படைப்பு, வாசிப்பு
(பெண் - அரங்கம் - தமிழ்ச்சூழல்)

அலகு - 4 இலக்கிய வரலாறு

(15 மணிநேரம்)

- 1) எட்டுத்தொகை, பத்துப்பாட்டு நூல்கள்
- 2) நீதி நூல்கள் - அறிமுகம்
- 3) நாயன்மார்கள் ஆழ்வார்கள் - அறிமுகம்
- 4) உரைநடையின் தோற்றமும் வளர்ச்சியும்

அலகு - 5 இலக்கணமும் பயன்பாட்டுத் தமிழும்

(10 மணிநேரம்)

1. அகம், புறம் - திணை, துறை விளக்கங்கள்
2. முதல், கரு, உரிப்பொருள்
3. மடல்கள், விண்ணப்பங்கள்
4. மொழிபெயர்ப்பு (அலுவலகப் பகுதி, பொதுப்பகுதி)

பாட நூல்

1. செய்யுள் திரட்டு, கட்டுரைத் தொகுப்பு
(தமிழ்த்துறை வெளியீடு : டிசம்பர் - 2016)

பார்வை நூல்கள்

1. குறுந்தொகை, கழக வெளியீடு, முதற் பதிப்பு: ஜூன் - 2000
2. புலவர் நா.இராமையாபிள்ளை(உ.ஆ), “நற்றிணை”, வர்த்தமானன் பதிப்பகம், சென்னை. முதற் பதிப்பு: 1999.
3. கலித்தொகை, கழக வெளியீடு, முதற் பதிப்பு: டிசம்பர் - 1996.
4. புறநானூறு, கழக வெளியீடு, முதற் பதிப்பு: டிசம்பர் - 1996.
5. புலவர் அ.மாணிக்கனார் (உ.ஆ), “பத்துப்பாட்டு - II ஆம் தொகுதி”, வர்த்தமானன் பதிப்பகம், சென்னை. 1999.
6. பேரா.அ.மாணிக்கம்(ப.ஆ), “நாலடியார்”, மணிவாசகர் பதிப்பகம், சென்னை. முதற் பதிப்பு: செப்டம்பர்-1995.
7. பேரா.அ.மாணிக்கம்(உ.ஆ), “பன்னிரு திருமுறைகள் (தொகுதி 11)”, வர்த்தமானன் பதிப்பகம், சென்னை. பிப்ரவரி - 2009.
8. டாக்டர் கதிர்முருகு, “நாச்சியார் திருமொழி”, சாரதா பதிப்பகம், சென்னை. முதற் பதிப்பு: ஜூன் - 2010.
9. வெ.இறையன்பு, “வாழ்க்கையே ஒரு வழிபாடு”, விஜயா பதிப்பகம், கோவை. எட்டாம் பதிப்பு: டிசம்பர் - 2013.
10. அகிலன், “வெற்றியின் ரகசியங்கள்”, தாகம் பதிப்பகம், சென்னை. பதினொன்றாம் பதிப்பு: ஜனவரி - 2001.
11. முனைவர் பாஞ்.இராமலிங்கம், “மானிட உளவியல்”, சாரதா பதிப்பகம், சென்னை. திருத்திய பதிப்பு: ஜூன்- 2007.
12. வ.செ.குழந்தைசாமி, “தமிழ் வளர்ச்சி”, பாரதி பதிப்பகம், சென்னை. இரண்டாம் பதிப்பு: ஜூலை - 2007.
13. மணவை முஸ்தபா, “அறிவியல் நோக்கில் கம்பர்”, வானதி பதிப்பகம், சென்னை. இரண்டாம்

பதிப்பு: 2003.

14. சுகி.சிவம், "வாழப்பழகுவோம் வாருங்கள்", வானதி பதிப்பகம், சென்னை. ஆறாம் பதிப்பு: நவம்பர் - 2003.
15. ஆ.மங்கை, "பெண்-அரங்கம்-தமிழ்ச்சூழல்", ஸ்நேகா பதிப்பகம், சென்னை. முதற்பதிப்பு:2005.
16. கா.கோ.வெங்கட்ராமன், "தமிழ் இலக்கிய வரலாறு", கலையக வெளியீடு, திண்டுக்கல். இரண்டாம் பதிப்பு: ஜூன் - 2002.
17. மது.ச.விமலானந்தம், "தமிழ் இலக்கிய வரலாறு", முல்லை நிலையம், சென்னை. 2014.
18. .பரமசிவம், "நற்றமிழ் இலக்கணம்", சைவசித்தாந்த பதிப்பகம், திருநெல்வேலி. முதற்பதிப்பு:1995.

SEMESTER-II

FRENCH -II

Subject code: 16U2FRLT02

Total Hours: 75

No.of Credits: 3

Prescribed text : ALORS I

Units : 6 – 10

Authors : Marcella Di Giura
Jean-Claude Beacco

Available at : Goyal Publishers Pvt Ltd
86, University Block
Jawahar Nagar (Kamla Nagar)
New Delhi – 110007.
Tel : 011 – 23852986 / 9650597000

Question Paper Pattern :

(ALL QUESTIONS TO BE SET ONLY FROM THE PRESCRIBED TEXT)

Maximum Marks: 75

Time: 3 hrs.

SECTION A (10)

1. CHOISISSEZ LA MEILLEURE RÉPONSE: (10X1=10)

SECTION B (20)

2. TRADUISEZ LES TEXTES SUIVANTS EN ANGLAIS:(4/5) (4X5=20)
(Pg Nos :86 ex-4,104 ex-3,116 ex-3a,b,134 ex-4,146 ex-2,162,163,164,165,166,167)

SECTION C (45)

3. COMPRÉHENSION (8x1=8)
4. EXERCICES DE GRAMMAIRE:(5X5=25) (EITHER/OR)
5. FAITES DES PHRASES:(6/8) (6X1=6)
6. TRADUISEZ LES EXPRESSIONS EN ANGLAIS :(6/8) (6X1=6)

SEMESTER-II

HINDI -II

Subject code: 16U2HILT02

Total Hours: 75

No.of Credits: 3

(Modern Poetry, One Act Play , Translation & Letter Writing)

- 1. MODERN POETRY** : Draupadi by Narendra Sharma
- PUBLISHER : Rajkamal Prakashan,
1B Nethaji Subash Marg,
New Delhi.
- 2. ONE ACT PLAY** : EKANKĪ SANKALAN – Lesson ‘Strike’ omitted
By Veerendra kumar mishra
- PUBLISHER : VANI PRAKASHAM
NEW DELHI – 110 002.
- 3. TRANSLATION** : HINDI – ENGLISH ONLY,
(ANUVADH ABYAS – III)
Lessons.1 – 15 only
- PUBLISHER : DAKSHIN BHARATH HINDI PRACHAR SABHA
CHENNAI – 600 017.
- 4. LETTER WRITING** : (Leave letter, Job Application, Ordering books,
Letter to Publisher, Personal letter)
- 5. CONVERSATION** : (Doctor & Patient, Teacher & Student, Storekeeper &
Buyer, Two Friends, Booking clerk & Passenger at Railway
station, Autorickshaw driver and Passenger)

Reference: Bolchal Ki Hindi Aur Sanchar by Dr. Madhu Dhavan, Vani Prakashan, New Delhi.

SEMESTER-II

MALAYALAM -II

Subject Code: 16U2MLLT02

Total Hours: 75

No.of Credits: 3

Prose : Non-fiction

This paper will have the following five units:

- Unit I & II - Biography
Unit III, IV & V - Smaranakal

Text books prescribed:

- Unit I & II - Kanneerum Kinavum- V.T.Bhatahirippad
(D.C. Books, Kottayam)
Unit III, IV & V - Balyakalasmaranakal – Madhavikkutty
(D.C. Books, Kottayam)

Reference books:

1. Jeevacharitrasahithyam – Dr. K.M. George (N.B.S. Kottayam)
2. Jeevacharitrasahithyam Malayalathil – Dr. Naduvattom Gopalakrishnan (Kerala Bhasha Institute, Trivandrum)
3. Athmakathasahithyam Malayalathil – Dr. Vijayalam Jayakumar (N.B.S. Kottayam)
4. Sancharasahithyam Malayalathil – Prof. Ramesh chandran. V, (Kerala Bhasha Institute, Trivandrum)

SEMESTER -II

LANGUAGE II-ENGLISH-II

Subject Code:16U2ENLT02

Total Hrs: 75

No. of Credits: 3

Objective:

- To develop the skills of speaking and writing without flaws
- To develop an interest in the minds of the students to enjoy and appreciate the literary works in English

Unit-I:Poetry

(Hours:14)

1. Stopping by Woods on a Snowy Evening- Robert Frost
2. Laugh and Be Merry- John Masefield
3. The Ballad of Father Gilligan- William Butler Yeats

Unit-II: Prose

(Hours:16)

1. The Selfish Giant- Oscar Wilde
2. My lost Dollar- Stephen Butler Leacock
3. The Golden Touch- Nathaniel Hawthorne

Unit-III: Short Story

(Hours:15)

1. Some Words with a Mummy- Edgar Allan Poe
- 2.The Open Window- H.H. Munro
3. The Ant and the Grasshopper- W. Somerset Maugham

Unit-IV: One Act Plays

(Hours:13)

1. The Hour of Truth – Percival Wilde
2. The Count's Revenge – J.H. Walsh

Unit-V: Functional Grammar & Composition

(Hours:17)

1. Active and Passive Voice
2. Models Auxillaries: Will, Would, Shall, Should
3. Reading Comprehension
4. Notices, Preparation of Agenda, Minutes, Telegrams
5. Hints Development

Text Books:

1. An Anthology of Popular Essays and Poems- A.G.Xavier (Macmillan)
2. Gifts to Posterity- An Anthology of Modern Short Stories- Prof. A.E.Subramanian (Chitra Publications, Chennai)
3. A Prism of Plays – Prof K.G. Seshadri Anuradha Publication, Chennai.

Reference Books:

1. Modern English- A Book of Grammar Usage and Composition- N.Krishnaswamy
2. Essential English Grammar Usage & Composition- by Prof.K.Ramappa, Re td.
3. Developing Communication Skills- KrishnaMohan, Meera Banerji

SEMESTER – II

CORE 4 : COBOL PROGRAMMING

Subject Code: 16U2ITCT04

Total Hrs:75

No. of Credits: 5

Objectives: To enable the students

- To understand COBOL programming language & its structure
- To learn about various program divisions and conditional structure statements
- To understand the files and table handling concepts.

UNIT I

(Hours:16)

Introduction to COBOL: COBOL words – Data names-and identifiers - Literals – Figurative Constants- Structure of COBOL Program - COBOL Coding Sheet -IDENTIFICATION DIVISION AND ENVIRONMENT DIVISION – DATA DIVISION: – Introduction – Level Structure – Data Description Entries : Picture and VALUE Clause – Editing.

UNIT II

(Hours: 15)

PROCEDURE DIVISION : Structure - Data Movement Verb – Arithmetic Verbs :Add, Subtract, Multiply, Divide, Compute – Input/Output Statement: Accept, Display Control Verbs: GOTO – GOTO Depending on – Stop Run – CORRESPONDING Option - ROUNDED option - ON SIZE ERROR option - Simple Programs Using Above Verbs.

UNIT III

(Hours: 15)

Conditional Statements: If Statement – Nested if statement – Sign Condition – Class Condition- Condition Name – Compound Condition- PERFORM Statements, More about DATA Division: RENAMES-REDEFINES – Simple Programs Using the above Verbs.

UNIT IV

(Hours: 14)

Files in COBOL: Sequential – Relative – Indexed Sequential – Random files – File description and Record description entries - Input/Output Verbs: Open,read, write, rewrite, Close, Delete – Sort Verb – Simple Programs using above Verbs.

UNIT V

(Hours:15)

Table Handling: Occurs Clause – Two and Multi-Dimensional Tables –Occurs. Indexed By Clause – SET Verb – START and SEARCH Verb – Random Files-Keys & Their Importance – INVALID KEY Clause – SCREEN SECTION - Simple Programs using above Verbs.

Text Books:

1. M.K. Roy & D.Ghosh Dastidar:“COBOL Programming “,Tata Mc. Graw Hill, Second Edition,1998.
- 2.Sharad Kant: “A Practical Approach to COBOL Programming”,New Age International Publisher, Second Edition,1985.

Reference Books:

1. V. Rajaraman :“COBOL programming”, Prentice Hall of India Pub,1996.
2. Shelly :“Structured COBOL Programming”,Tata McGrawhill, Second Edition,2008.

SEMESTER – II

CORE 5: DATA STRUCTURES

Subject Code: 16U2ITCT05

Total Hrs: 60

No. of Credits: 5

Objectives:To enable the students

- To know how to create programs and analyzing them using arrays and structure
- To learn about stacks and queues
- To have knowledge on dynamic storage management
- To learn about searching, sorting and file organization

UNIT I

(Hours: 12)

Introduction - Overview - How To Create Programs Analyze Them. Arrays - Structures - Ordered Lists- Representation of Arrays - Simple Applications

UNIT II

(Hours: 10)

Stacks And Queues: Fundamentals – Structure - Operations - Multiple Stacks AndQueues. Applications Evaluation of Expressions.

UNIT III

(Hours: 13)

Linked Lists : Single Linked Lists- Linked Stacks And Queues - The Storage Pool - Applications - Polynomial Addition, Sparse Matrices. Double Linked Lists- Dynamic Storage Management -Garbage Collection And Compaction.

UNIT IV

(Hours: 13)

Searching And Sorting: Binary, Sequential, And Fibonacci - Internal Sorting Insertion, Quick, Merge, Heap, Radix Sorts - External Sorting - Sorting With Disks – Kway Merging- Sorting With Tapes - Balanced Merge - Polyphase Merge. Symbol Tables -Static Tree - Dynamic Tree - Hash Tables.

UNIT V

(Hours: 12)

Files: Queries And Sequential Organizations - Index Techniques. File Organizations Sequential, Random, Linked Organizations - Inverted Files – Cellular Partitions

Text Books:

1. Ellis Horowitz & Sartaj Sahani:"Fundamentals of Data Structure",Galgotia book source,First Edition,1999.
2. Ashok N Kamthane:"Programming and Data Structures", PearsonEducation,First Edition, 2004.

Reference Books:

1. J.P. Trembley:"An Introduction to Data structure and its applications",Tata Mc. Graw Hill, Second Edition,2009.
2. Aaron M.Taenenbaum, Yedidyah Langsam:"Data Structures Using C", Prentice Hall of India,Original U.S Edition,2005.
3. ISRD group: "Data sturcutres using C",Tata Mc. Graw Hill, Second Edition,2012.

SEMESTER – II

CORE 6: COBOL PROGRAMMING - PRACTICAL

Subject Code: 16U2ITCP06

Total Hrs:60

No. of Credits: 3

- 1) Write a COBOL program to find the sum of individual digits of a 10-digit number until a single digit is produced.
- 2) Write a COBOL Program to find the given Integer is Prime Number or not.
- 3) Write a COBOL Program to find the Fibonacci Series.
- 4) Write a COBOL program to accept the inputs student Name, Marks for five subjects and declare the result as PASS, if the student gets minimum 40 in each subject otherwise declare the result as FAIL.
- 5) Write a COBOL program to accept a date (DDMMYY) and display the result in the following specified format: For eg : 030498 as 3rdAPR 1998 [Use REDEFINES Clause].
- 6) Write a COBOL program to display the given three digit number into words using OCCURS clause For eg : 342 THREE HUNDRED AND FORTY TWO
- 7) Write a COBOL Program to find the Harmonic Series.
- 8) Write a COBOL Program to find the given number is palindrome or not.
- 9) Write a COBOL program to create a student data file using the following fields: ROLL-NO, NAME, AGE, SEX, YEAR-IN-COLLEGE, MARKS for five subjects.
- 10) Write a COBOL program to create the following two files using the student data file Created by program 5).
FILE 1: List of male student who are studying third year of the College.
FILE 2: List of female students who are studying first year of the College. [Use MOVE.....CORRESPONDING Option]
- 11) Write a COBOL program to sort the student data file (created by program-5) in the ascending order of the fields SEX, Year-in-college and ROLL-NO. [Use SORT Verb].
- 12) Write a COBOL program to create an Employee file for the employees of an organization using the following fields : EMP-NO , NAME , DOB, SEX, BASIC-PAY, DESIGNATION
- 13) Write a COBOL program to update the new BASIC-PAY of each employee in the Employee data file (created in program 8) by incrementing 25% of BASIC -PAY.
- 14) Write a COBOL program to create an inventory data file by using the following fields :
ITEM-CODE, DESCRIPTION, OPEN-STOCK, PURCHASES, SALES, SAFETY-LEVEL,
CLOSE-STOCK.

SEMESTER -II

Common to the Branches (BSc.CS/BCA/ B.Sc.,IT)

ALLIED 2 : DISCRETE MATHEMATICS

Subject Code:16U2ITAT02

Total Hrs: 75

No. of Credits: 4

Objectives:

- To understand the concept of set theory, Logic and Relations
- To learn the concept of languages and Grammars
- To know the concept of Graph theory and its applications

UNIT- I

(Hours:12)

Set Theory - Types of sets - Venn - Euler Diagrams - Set operations & Laws of set theory - Fundamental Products - Partitions of Sets – Minsets - Algebra of sets and Duality - Inclusion and Exclusion Principle.

UNIT- II

(Hours:15)

Mathematical Logic – Introduction - Propositional Calculus – Basic logical Operations - Tautologies – Contradiction – Argument - Predicate Calculus.

UNIT- III

(Hours:18)

Relations – Binary Relations – Set operation on relations - Types of Relations – Partial order relation – Equivalence relation – Functions – Types of functions – Invertible functions.

UNIT IV

(Hours:18)

Languages – Operations on Languages – Grammar – Types of Grammars – Finite State Machine – Finite State Automata.

UNIT V

(Hours:12)

Graph Theory – Basic terminology – Paths, Cycle & Connectivity – Sub graphs – Types of Graphs – Representation of Graphs in Computer Memory - Trees – Properties of Trees – Binary trees- Traversing Binary Tree.

Text Book:

J.K. Sharma : Discrete Mathematics ,Macmillan India Ltd – 2007

Unit I : Chapter 1 Section - 1.1, 1.4, 1.5, 1.6, 1.7, 1.9, 1.10, 1.12, 1.13, 1.14

Unit II : Chapter 12 Section - 12.1, 12.2, 12.3, 12.8, 12.9, 12.11, 12.14

Unit III: Chapter 3 Section - 3.3, 3.4, 3.5, 3.6, 3.7.

Chapter 4 Section - 4.3, 4.4.

Unit IV : Chapter 15 Section - 15.3, 15.3.1, 15.5, 15.5.2, 15.6, 15.7

Unit V : Chapter 9 Section - 9.2, 9.3, 9.4, 9.5, 9.8

Chapter 10 Section - 10.2, 10.3, 10.6, 10.8

Reference Books:

1. J. P Tremblay R Manohar: *Discrete Mathematics Structures with Applications to Computer Science* Mc Graw Hill International Publications. –Edition 2006.
2. Dr.M.K.Venketaramen,Dr.N.Sridharan,N.Chandarasekaran:*DiscreteMathematics, The National publishing Company - 2006.*
3. V.Sundaresan : *Discrete Mathematics ,A.R.Publications - 2001*
4. M.K.Chandborthy: *Introduction to Discrete Mathematics, Books and Allied Pvt.Ltd.- 2005*

SEMESTER - II

மதிப்பீட்டுக் கல்வி - அறவியலும் பண்பாடும்

VALUE EDUCATION -II Ethics and Culture

(மனிதவள மாண்பு - தனிமனித விழுமியங்கள், சமுதாய விழுமியங்கள்)

Subject Code: 16U2VBET02

Total Hrs: 2

No. of Credits: 2

நோக்கம்

- ஒவ்வொருவரும் தன்னை உயர்த்திக் கொண்டு, சமுதாய மக்களுடன் இணக்கமாக வாழ்ந்து சமுதாயத்தையும் உயர்த்த வேண்டும். உன்னத இலட்சியத்திற்காக வாழ்ந்து நமது வாழ்க்கையை அர்த்தமுள்ளதாக ஆக்கிக் கொள்ள வேண்டும்.
- குவலைக்கு ஆதாரமான ஆசை மற்றும் சினம் ஆகியவற்றைத் தவிர்ப்பதன் மூலம் கவலையை ஒழிப்பதற்கான பயிற்சி பெறுதல்
- கல்வி, அரசியல், பொருளாதாரம் மற்றும் விஞ்ஞானம் ஆகியவற்றுக்கும் சமுதாயத்திற்கும் உள்ள தொடர்பினை அறிந்து கொள்ளுதல்

அலகு - 1

(5 மணிநேரம்)

மனிதவள மாண்பின் அவசியம் - குறிக்கோள் , மதிப்புகள் - வாழ்வின் நோக்கமும் தத்துவமும் - வாழ்க்கைத் தேவைகள் , காப்புகள் - அறநெறிகள் , அறிவின் நிலைப்பாடுகள்.

அலகு - 2

(5 மணிநேரம்)

எண்ணம் ஆராய்தல் - எண்ணம் எழக்காரணங்கள் - எண்ணம் ஆராய்தல் பயிற்சி - ஆசை சீரமைத்தல் - ஆசை சீரமைத்தல் பயிற்சி.

அலகு - 3

(5 மணிநேரம்)

சினம் தவிர்த்தல் - சினத்தின் விளைவுகள் - சினம் தவிர்த்தல் பயிற்சி - கவலை ஒழித்தல் - கவலையின் வகைகளும் விளைவுகளும் - கவலை ஒழித்தலுக்கான பயிற்சி.

அலகு - 4

(8 மணிநேரம்)

மனிதனின் பரிணாமம் - பிரபஞ்ச தன்மாற்றம் - உயிரினத் தன்மாற்றம் - ஆறாம் அறிவின் மேம்பாடு - மனித வேறுபாட்டிற்கான காரணங்கள் - ஏழு சம்பத்துகள் - பதினாறு காரணங்கள் - மனத் தூய்மை தரும் சமுதாய நலன்.

அலகு - 5

(7 மணிநேரம்)

கல்வியும் சமுதாயமும் - கல்வியின் சமுதாய நோக்கங்கள் - கல்வியின் சமுதாயப் பணிகள் - அரசியலும் சமுதாயமும் - பொருளாதாரமும் சமுதாயமும் - விஞ்ஞானமும் சமுதாயமும்.

பாட நூல்கள்:

1. தனிமனித விழுமியங்கள், மனிதவள மாண்புக் கல்விக்கான தனி வெளியீடு, என்.ஜி.எம். கல்லூரி, பொள்ளாச்சி. 2015.
2. சமுதாய விழுமியங்கள், மனிதவள மாண்புக் கல்விக்கான தனி வெளியீடு, என்.ஜி.எம். கல்லூரி, பொள்ளாச்சி. 2014.

பார்வை நூல்கள்:

1. வாழ்வியல் விழுமியங்கள், வேதாத்திரி பதிப்பகம் , ஈரோடு. பதினொன்றாம் பதிப்பு: 2013
2. மனவளக்கலை யோகா, உலக சமுதாய சேவா சங்கம் , வேதாத்திரி பதிப்பகம் , பொள்ளாச்சி. பதினொன்றாம் பதிப்பு: ஜூலை – 2015.

SEMESTER – III

CORE 7: OPERATING SYSTEMS

Subject Code: 16U3ITCT07

Total Hrs:75

No. of Credits: 4

Objectives:

- To gain knowledge on OS concepts and functioning of modern OS.
- To understand the structure of OS , process and Interprocess Communications
- To understand the deadlock & Memory management concepts

UNIT I

(Hours : 12)

Introduction: What is OS -History of OS -Computer Hardware Review- OS Concepts: Processes-Deadlocks-Memory Management-I/O-Files-Security-The Shell-Recycling Concepts.

UNIT II

(Hours : 16)

OS Structure:Monolithic Systems- Layered Systems- Virtual Machines- Exo Kernels-Client Server Models.Processes: The Process Model-Process Creation-Process Termination-Process States. Threads: The Thread Model-Thread Usage-Implementing Threads In User Space & Kernel Space-Hybrid Implementations-Scheduler Activations-Pop-Up Threads-Making Single-Threaded Code Multithreaded.

UNIT III

(Hours : 15)

Interprocess Communication: Race Condition-Critical Regions-Mutual Exclusion With Busy Waiting-Sleep & Wakeup-Semaphores-Message Passing- Mutexes-Monitors-Barriers.Classical IPC Problems:The Dining Philosophers Problem-The Readers and ritors Problems-The Sleeping Barber Problem.Scheduling:Introduction to Scheduling-Scheduling Batch Systems-Scheduling in Interactive Systems—Scheduling in Real-Time Systems-Policy versus Mechanism-Thread Scheduling.

UNIT IV

(Hours : 16)

Deadlocks: Introduction, Deadlock Detection And Recovery: Deadlock Detection With One Resource of Each Type- Deadlock Detection With Multiple Resources of Each Type-Recovery From Deadlock. Deadlock Avoidance: Bankers Algorithm for Single Resource, Bankers Algorithm for Multiple Resources. Dead Prevention:Attacking the Mutual Exclusion Condition- Attacking the Hold and ait Condition- Attacking the No Preemption Condition-Attacking the Circular Wait Condition.

UNIT V

(Hours : 16)

Memory Management: Virtual Memory-Paging-Page Tables-Page Replacement Algorithm: The Optimal Page Replacement Algorithm-The Not Recently Used Page Replacement Algorithm-The First In First Out-The Second Chance Page Replacement Algorithm-The Clock Page Replacement Algorithm-The Least Recently Used.

File Systems: Files: File Naming- File Structure-File Types—File Attributes-File Operation.
Directories: Single Level Directory Systems-Two Level Directory Systems-Hierarchical Directory Systems.

Text Book:

1. Andrew S. Tanenbaum: “Modern Operating Systems”, Prentice Hall of India Pvt. Ltd, 2003.

Reference Books:

1. Harvey M. Deitel: “Operating Systems”, Second Edition, Pearson Education Pvt. Ltd, 2002.
2. Abraham Silberschatz, Peter Baer Galvin and Greg Gagne: “Operating System Concepts”, sixth Edition, John Wiley & Sons (ASIA) Pvt. Ltd, 2003.

SEMESTER – III

CORE 8: OOPS WITH JAVA PROGRAMMING

Subject Code: 16U3ITCT08

Total Hrs: 75

No. of Credits: 4

Objectives :

- Understand fundamentals of object – oriented programming in Java, including defining classes,invoking methods,using class libraries,etc.
- To be able to use the Java SDK enviroment to create, debug and run simple Java programs.
- To understand the Java Programming concepts so as to enable the students of Applications and Applets using Java

UNIT I

(Hours:14)

Introduction to Object-Oriented Programming : Fundamentals – Object oriented Paradigm – Elements of the OOP – Abstraction – Encapsulation – Modularity – Hierarchy –Concurrency Persistence – Inheritance – Polymorphism – Benefits of OOP – Applications of OOP.

UNIT II

(Hours:14)

Java Evolution : History – Features – Difference between Java,C,C++ - Java and Internet – Java and WWW – Web Browsers . Overview : Simple Java Program - Structure – Java Tokens-Statements -JVM - Constants – Variables – Data types – Operators and Expresions.

UNIT III

(Hours:15)

Decision Making and Branching :if,if...else, nested if, switch – Decesion making and looping : while,do,for – Jumps in Loops – Labeled loops – Classes, Objects and Methods.

Arrays, Strings and vectors - Interfaces :Multiple Inheritance – Packages : Putting classes together – Multithreaded programming – Thread exceptions – Life cycle of Thread - Thread priority – Synchronization.

UNIT IV

(Hours:14)

Managing Errors and Exceptions – Types of Errors – Exceptions – Applet Programming – Applet life cycle – Graphics Programming.

UNIT V

(Hours:15)

Managing Input / Output Files in Java: Concepts of Streams – Stream classes – Byte stream classes – Character stream classes - Using streams – I/O classes – File classes - I/O Exceptions – Creation of files – Reading / Writing characters, Byte - Handling Primitive data types – Random Access Files

Text Books:

1. Grady Booch: “Object Oriented Analysis & Design with Applications”, Second Edition, 2000 Pearson Education.
2. E.BalaGurusamy: “Programming with Java”, Third edition, 2011 Tata McGraw Hill Pvt Ltd.

Reference Books:

1. Patrick Naughton & Hebert Schildt: “The Complete Reference Java 2”, Third edition, 2000, Tata McGraw Hill Pvt Ltd.
2. Programming with Java – John R.Hubbard, Second Edition, 1999, Tata McGraw.

SEMESTER – III

CORE 9 : MICROPROCESSOR AND ALP

Subject Code: 16U3ITCT09

Total Hrs: 90

No. of Credits: 4

Objectives:

- To make the students to have basic Knowledge and understanding of fundamental microprocessor architecture, and operating models.
- To make the students to have a clear understanding on RISC and CISC based microprocessors.

UNIT I

(Hours:18)

Introduction Evolution-Single chip micro computer – Embedded microprocessors – Bit slice processors – Microprogramming – RISC and CISC processors – Vector processing – Array Processors – Digital Signal Processors Transputers – Microprocessor with MMX Technology - von Neumann Architecture - Harvard Architecture – Data Flow Architecture.

UNIT II

(Hours:18)

16-Bit Intel Microprocessors : Intel 8086 – Pin Description of Intel 8086 - Pin description of Minimum mode – Pin description of Maximum mode –Bus interface and execution units(BIU and EU)- Register organization of 8086 – Interrupts – Addressing modes of 8086 – Intel 80186 – Intel 80286.

UNIT III

(Hours : 18)

Instruction Set – 8086 Instruction Groups – Addressing mode byte – Segment Register Selection – Segment override. – 8086 Instructions.Assembly Language Programs for 8086:Arrange numbers in Ascending and Decending order-Block Move using REP instruction.Debug and Assembler:DEBUG-DEBUG Commands-Assembler-I/O Procesor-Co-Processor.

UNIT IV

(Hours:18)

Input and Output devices- Input devices – Output devices – Memory and I/O Addressing – 8086 Qaddressing and address decoding – Programmable I/O ports – DMA data transfer – Programmable counter. Cache Controller – Memory Controllers – Floppy Disk controller – Hard Disk Interface – Intel 440FX PCI set – Intel 82430FX PCI set.

UNIT V

(Hours:18)

Multiprocessor Configurations:Coprocessor Configurations-Closely Coupled Configurations-Loosely Coupled Configurations-Scheme of establishing priority:Daisy chaining,polling and Independent requesting -8087 numeric data processor architecture-The 8089 I/O procesor architecture-Communication between CPU and IOP.

Text Books:

1. Badri Ram : “Advanced Microprocessors and Interfacing”, Tata McGraw Hill Pvt Ltd
2. Yu-Cheng Liu & Glann A.Gibson:”Microcomputer Systems:the 8086/8088 Family architecture,programming and design “Second Edition PHI Private Ltd.

Reference Books:

1. Douglas Hall: “Microprocessor and Interfacing”, Tata McGraw Hill Pvt Ltd.
2. Daniel Tabak: “Advanced Microprocessor”, Tata McGraw Hill Pvt Ltd.

SEMESTER – III

CORE 10: JAVA PROGRAMMING -PRACTICAL

Subject Code: 16U3ITCP10

Total Hrs: 90

No. of Credits: 3

Objective: To enable the students to gain knowledge in developing Java Programs for certain specified problems.

1. Write a Java Program to define a class, describe its constructor, overload the Constructors and instantiate its object
2. Write a Java Program to define a class, define instance methods for setting and Retrieving values of instance variables and instantiate its object
3. Write a Java Program to define a class, define instance methods and overload them and use them for dynamic method invocation
4. Write a Java program that illustrates the simple inheritance.
5. Write a Java program that illustrates the multilevel inheritance.
6. Write a Java program that describes the user defined exception.
7. Write a Java program that illustrates the creation of threads by using runnable class
8. Write a Java program that gives an example for this operator and the use of this keyword.
9. Write a Java program that gives an example for super keyword.
10. Write a Java program that gives demonstration of static variables and methods
11. Write a Java program to add two given matrices.
12. Write a Java program to multiply two given matrices.
13. Write a Java program for sorting a given list of names.
14. Write a Java program that checks whether a given string is a palindrome or not.
15. Write a Java program that illustrates the example for abstract class

SEMESTER - III

Common to the Branches (BSc.CS/BCA/ B.Sc.,IT)

ALLIED 3 : OPERATIONS RESEARCH

Subject Code:16U3ITAT03

Total Hrs: 75

No. of Credits: 4

Objectives:

- To Know Operation Research and LPP, solving LPP
- To solve transportation and assignment problems
- To acquire knowledge of queueing theory, PERT and CPM

UNIT I

(Hours:15)

Linear Programming-Mathematical Model assumption of Linear programming-Graphical Method-Simplex method- Big-m Method-Problems

UNIT II

(Hours:15)

The Transportation Problems- Initial Basic Feasible Solution by North West Corner rule- Least Cost Method-Vogel's Approximation Method-The Assignment Problems-Assignment Algorithm-Optimum Solution-Unbalanced Assignment problem-Travelling Salesman Problem.

UNIT III

(Hours:15)

Game Theory-Concept of pure and Mixed Strategies-Solving 2x2 matrix with and without saddle point- nx2-2xm games-Dominance Property.

UNIT IV

(Hours:15)

(Derivations Not included) Queueing Theory- definition of waiting line model- Queue discipline-Traffic Intensity- Poison Arrival- Birth Death process- Problems from single server: finite population model- Problems from multi server: finite population model.

UNIT V

(Hours:15)

PERT and CPM- Network representation- Backward pass- forward pass- Computation- PERT network.

Text Book:

1. Resource Management Techniques- Prof. V. Sundaresan, K.S. Ganapathy Subramanian, K. Ganesan, Sixth Edition, A.R. Publications, Chennai.

Reference Books:

1. Operation Research- Kanti Swarup, P.K. Gupta and Man Mohan, Sultan Chand & sons, 13th Edition, New Delhi.

2. Operation Research- Prem Kumar Gupta D.S, Hira S, Chand & Company Ltd, Ram Nagar, New Delhi.

3. Problems in Operation Research- P.K. Gupta and Man Mohan-11th Edition, Sultan Chand & Sons, New Delhi.

Unit I : Chapter 2: Section: 2.1-2.5, Chapter 3: Section: 3.1.1-3.1.4, 3.2, 3.2.1

Unit II : Chapter 7: Section: 7.1
Chapter 8: Section: 8.1-8.9

Unit III : Chapter 16: Section: 16.1-16.7

Unit IV : Chapter 13: Section: 13.1- 13.6, 13.8

Unit V : Chapter 15: Section: 15.1-15.7

SEMESTER – III**NON MAJOR ELECTIVE 1 : FOOD SCIENCE AND NUTRITION****Subject Code: 16U3NMET01****Total Hrs: 30****No. of Credits: 2****Objectives**

- To understand the importance of Nutrition and the role of food in health.
- To know about the functions, deficiency and toxicity of nutrients.
- To understand Malnutrition and its prevention
- To know about various adulterants in food and the methods of detecting them.
- To have an awareness on the prevailing food laws, hygiene and sanitation of foods.

UNIT I**(Hours: 6)**

Introduction to Nutrition: Terms used in Nutrition and Health. Definitions - Health, Nutrition, Nutrients, Foods, Diet, R.D.A., Balanced diet, Malnutrition, Under nutrition, Over nutrition, Optimum nutrition. Five Food Groups and Food guide, relationship between food and nutrition, functions of food, classification of nutrients, factors affecting food consumption and food acceptance. Elementary idea of probiotics, prebiotics and organic food.

UNIT II**(Hours: 6)**

Basic Nutrition: WATER- Functions, sources, requirements, water balance, dehydration (ORS) and toxicity. CARBOHYDRATE - Composition and classification, source, functions, requirements. LIPIDS- composition, sources, functions, requirements, deficiency and excess; fatty acids- essential and non-essential, SFA, USFA, MUFA, PUFA, significance of fatty acids, Rancidity. PROTEINS- composition, classification sources, functions, requirements, deficiency. ENERGY- unit of energy, food as a source of energy, definition of calorie and joules, energy requirement and factors affecting it- BMR, RMR, SDA.

UNIT III**(Hours:6)**

VITAMINS- classification, sources, functions, requirements, deficiency and excess of the following: Vitamin A, D, E, K, C, Thiamin, Riboflavin, Niacin and B Complex. MINERALS - distribution in body, functions and sources, requirement, deficiency and excess of the following. Calcium, Phosphorus, Iron and Iodine. FIBRE- definition, types, sources, functions, importance in disease prevention.

UNIT IV**(Hours:6)**

Ecology of malnutrition- Definition, causes and consequences of malnutrition Ecological factors leading to malnutrition such as income, family size, dietary pattern, occupation, customs, food fads, fallacies and other factors. Measures to overcome malnutrition (only introduction)- Increased agricultural production through food technology, food fortification and enrichment, Nutrition education, Nutrition intervention programme genesis, objectives and operation of school lunch programme and ICDS, Organizations that combat malnutrition- International organization – FAO, WHO, UNICEF National Organizations – ICMR, NIN, CFTRI, DFRL, ICAR

UNIT V**(Hours:6)**

Food Adulteration and Food Laws- Definition, Types, Common adulterants and home scale methods of detecting adulterants; Food Laws (only introduction) – PFA, BIS, AGMARK, FPO, HACCP. Food toxicants- Naturally occurring toxicants in canned foods, Alcoholic and non alcoholic beverages Sugars, preservatives, mushrooms Carcinogens in heated foods.

Text Book:

1. Healthy Vittles and Bits- Dr.A.Indhuleka

Reference Books:

1. Guthrie Helen (1986) Introductory Nutrition. Times Mirror/ Mosby College Publishing.

2. Mudambi, S.R., Rajgopal, M.V.(1990) Fundamentals of Foods and Nutrition, NewAge International Pvt. Ltd.

SEMESTER -III

Common to all the Branches of UG

SKILL BASED SUBJECT 1: MATHEMATICS FOR COMPETITIVE EXAMINATIONS -I

Subject Code: 16U3SBST01

Total Hrs: 30

No. of Credits: 2

Objectives:

- To understand the fundamental arithmetic skills and problem solving.
- To solve problem related to Ages and Calander and Clocks.
- To develop the ability in solving Permutation , Combinations and Bankers Discount

UNIT I (Hours:6)

Numbers – H.C.F and L.C.M of Numbers – Decimal Fractions – Simplification-Square Roots and Cube Roots – Average - Problems on Numbers

UNIT II (Hours:6)

Problems on Ages - Surds and Indices-Percentage-Races and games of skill – Calendar

UNIT III (Hours:6)

Clocks – Stocks and shares - Profit and Loss – Ratio and Proportion

UNIT IV (Hours:6)

Partnership – Chain Rule - Tme and Distance – Time and work

UNIT V (Hours:6)

Permutation & Combinations - True Discount- Bankers Discount

(Simple Problems Only)

Text Book:

1.R. S. Agarwal : Quantitative Aptitude (for Competitive Examinations), S. Chand and Company Limited, 7th Revised Edition -2007.

Unit I	: Chapters 1 -7
Unit II	: Chapter 8- 10, 26 and 27
Unit III	: Chapters 28 and 29, 11 and 12
Unit IV	: Chapter 13 and 14 , 15 and 17
Unit V	: Chapter 30 - 33

Reference Books:

1. Hand Book On Mental Ability And Logical Reasoning prescribed by Bharathiar University.
2. R.V.Praveen: Quantitative Aptitude and Resoning, PHI Learning pvt. Ltd-2012.
3. Abhijit Guha : Quantitative Aptitude for Competitive Examinations, Tata Mc-Graw Hill Publishing Company, 7th reprint-2003.

SEMESTER-III

SKILL BASED SUBJECT 2: COMMUNICATION SKILLS- I

Subject Code: 16U3SBST02

Total Hrs: 30

No. of Credits: 2

Objectives:

- To enhance Listening, Speaking, Reading and Writing Skills among students.
- To familiarise the students with the Sounds and Symbols used in English Language.
- To emphasize the importance of Communication in the Global Scenario.

Unit –I- Communication

1. Verbal and Non-Verbal Communication
2. Barriers to Communication

Unit- II- Listening Skills

1. Types of Listening
2. Tips for Effective Listening
3. Traits of Good Listening

Unit- III- Speaking

1. Role Play
2. Group Discussion
3. Speaking at Different Types of Interviews
4. Making Effective Telephone Calls
5. Telephone Etiquette

Text Books:

1. Communication Skills by Meenakshi Raman (Oxford University Press)
2. Essential Communication Skills by Shalini Aggarwal (Ane Books Pvt.Ltd. New Delhi)

Reference Books:

1. Communication Skills a multi- skill course by Course team, Bharathiyar University(Macmillan)
2. Developing Communication Skills by Krishna Mohan(Macmillan)
3. Technical English – II by Joyce Pereire(Vijay Nicole Imprints Pvt.Ltd.)

SEMESTER-III**அடிப்படைத் தமிழ்**

பகுதி - IV : தமிழ்த்தாள் - 1 - மூன்றாம் பருவம்

(12-ம் வகுப்பு வரை தமிழ் மொழிப்பாடம் பயிலாதவர்களுக்கு)

Total Hrs: 20**16U3BTLT01****அகமதிப்பீட்டுத் தேர்வு மட்டும்**

•தமிழ் மொழியின் அடிப்படைக் கூறுகள்.

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- எழுத்துக்கள் : முதலெழுத்துக்கள் (உயிர் எழுத்து, மெய் எழுத்து, உயிர்மெய் எழுத்து)
- சொற்கள் : வகைகள் (பெயர்ச்சொல், வினைச்சொல், இடைச்சொல், உரிச்சொல்)
- தொடர் : தொடரமைப்பு (எழுவாய், செயப்படுபொருள், பயனிலை)
- குறிப்பு எழுதுதல் : பத்துப் பதினைந்து தொடர்களில் குறிப்பு வரைதல்
பிழைநீக்கி எழுதுதல் : (ஒற்றுப்பிழை, எழுத்துப்பிழை)

	அக மதிப்பீட்டுத் தேர்வு மதிப்பெண் வழங்கும் முறை	மதிப்பெண்கள்
1	வகுப்புத்தேர்வு - 1	10
2	வகுப்புத்தேர்வு - 2	10
3	மாதிரித்தேர்வு	10
4	பயிற்சிக் கட்டுரை	10
5	வாய்மொழித் தேர்வு	10
	மொத்த மதிப்பெண்கள்	50

குறிப்பு : வாய்மொழித் தேர்வில் தமிழ்ச் செம்மொழி வரலாறு தொடர்பான வினாக்கள் மட்டுமே கேட்கப்பட வேண்டும்.

SEMESTER – IV

CORE 11 : COMPUTER GRAPHICS

Subject Code: 16U4ITCT11

Total Hrs: 75

No. of Credits: 4

Objectives:

- To study how graphic objects are represented in computer.
- To learn the overview of graphic systems.
- To learn about the 2D Transformations.
- To learn about the 3D Transformations.
- To provide the programmers perspective of working of computer graphics.

UNIT I

(Hours: 14)

Overview of Graphics System - Bresenham technique - Line Drawing and Circle Drawing Algorithms- DDA - Line Clipping - Text Clipping.

UNIT II

(Hours: 16)

2Dimensional: 2D Geometric Transformations: Basic Transformations –Matrix Representations –Composite Transformations. 2D Viewing: The Viewing Pipeline –Viewing Co-ordinate Reference Frame –Window-to-Viewport Co-ordinate Transformation -2D Viewing Functions –Clipping Operations.

UNIT III

(Hours: 16)

3Dimensional: 3D Display methods :Parallel Projection - Perspective Projection . 3D Graphics: Bezier Curves and Surfaces. 3D Viewing : The Viewing Pipeline- Coordinates- 3D Viewing Functions. Visible Surface Detection Methods.

UNIT IV

(Hours: 14)

Surface – Rendering methods :Polygon rendering methods- Adding surface details - Color models – XYZ-RGB-YIQ- CMY-HSV Models. - Computer Animation.

UNIT V

(Hours: 15)

Multimedia hardware & software: Components of multimedia - Text, Image - Graphics – Audio -Video - Animation – Authoring. Multimedia communication systems - Data base systems - Synchronization Issues – Presentation requirements - Applications - Video conferencing - - Interactive video - video on demand.

Text Books:

1. Donald Hearn and M. Pauline Baker, “Computer Graphics” , Prentice Hall of India,2007, 2nd Edition.
2. Ralf Steinmetz, Klara Steinmetz, "Multimedia Computing, Communications and Applications", Pearson Education, 2004

Reference Books :

1. Steven Harrington, “Computer Graphics Programming Approach “, McGraw Hill, 2nd Edition.
2. W.M.Newman and Sproull. “Principles of interactive Computer Graphics” ,TMH

SEMESTER – IV

CORE 12 : SYSTEMS ANALYSIS AND DESIGN

Subject Code: 16U4ITCT12

Total Hrs: 90

No. of Credits: 4

Objectives :

- To understand inter compatibility and unity of purpose of sub-systems.
- To offer the means to create understanding of the complex structures.
- To understand and compare the functional impacts of sub-systems to the total system.

UNIT I

(Hours : 18)

INTRODUCTION :The Systems Concept – Characteristics of a system – Elements of a system – Types of system – Physical or Abstract systems – Open or closed systems – Man made Information systems-A Dynamic Personnel Information System model. The System development life cycle- Considerations for candidate systems - Prototyping – Multifaceted role of the analyst – The Analyst/User Interface – The place of the Analyst in the MIS organization

UNIT II

(Hours : 18)

SYSTEM ANALYSIS : Bases for planning in systems analysis – Initial Investigation – Information gathering – Kind of information – Information gathering tools – types of interviews and Questionnaires.Structured Analysis – Tools- DFD-Data Dictionary-Decision tree and tables – Feasibility Study – Feasibility considerations – Steps in feasibility Analysis-Feasibility report – Cost and benefit Analysis-Procedure

UNIT III

(Hours : 18)

SYSTEM DESIGN : Process of Design – Design methodologies – Input/output and forms design – Input Design – Output Design – Forms – Types of forms – Layout considerations File Structure – File organization – Database Design – The Role of the Database Administrator

UNIT IV

(Hours : 18)

SYSTEM IMPLEMENTATION: System Testing and Quality Assurance- why System testing – What do we test for – The Test plan – Types of system tests – Quality Assurance : QA goals in the systems life cycle – Levels of QA – Trends in Testing. Implementation : Conversion -Activity network for conversion -Review Plan -Software Maintenance

UNIT V

(Hours : 18)

HARDWARE SOFTWARE SELECTION AND PROJECT SCHEDULING:The Computer Industry – The Software Industry – Procedure for selection- Project Management – Crisis elimination through planning – Project Organization. System Security – Threats to security – Control Measures - Disaster/Recovery planning.

Text Book:

1. Elias M.Awad: “Systems Analysis and Design”, Second Edition, Galgotia Publications, 2001.

Reference Books :

1. Jeffrey A. Hoffer: “Modern System Analysis and Design”, Third Edition, Pearson Education, 2002.
2. Charles S.Wasson: “System Analysis, Design, and Development: Concepts, Principles, and Practices”,

SEMESTER –IV

CORE 13 : DATA COMMUNICATIONS AND COMPUTER NETWORKS

Subject Code: 16U4ITCT13

Total Hrs: 75

No. of Credits: 3

Objectives:

- To understand the concepts of data communication and modulation techniques.
- To comprehend the use of different types of transmission media and network devices.
- To understand the concepts of flow control, error control and LAN protocols.
- To understand the functions performed by Network Management System.

UNIT I

(Hours:14)

INTRODUCTION -Data communications – Networks – Network Types – Internet History – Standards and Administration – Network models : Protocol layering – TCP/IP Protocol Suite – OSI model.

UNIT II

(Hours : 16)

PHYSICAL LAYER -Data and Signals – Periodic analog signals – Digital signals – Transmission Impairment – Data rate limits – Performance – Digital transmission : Digital to Digital Conversion – Analog to Digital conversion - Transmission modes - Analog transmission : Digital to analog conversion – Analog to Analog conversion

UNIT III

(Hours : 15)

DATA LINK LAYER-Error detection and correction : Block coding – Cyclic coding – Checksum – Forward error correction - Data Link Control (DLC) : DLC services – data link layer protocols – HDLC – Point to point Protocol(PPP) – Media Access Control(MAC) : Random Access – Controlled Access – Channelization

UNIT IV

(Hours : 15)

NETWORK LAYER-Network Layer services - Packet switching – Network layer performance – IPV Address – Forwarding of IP packets – Network layer protocols : Internet protocol (IP) – ICMPv4 – Mobile IP – Next generation IP : IPv6 Addressing – The IPv6 Protocol – The ICMPv6 Protocol – Transition from IPv4 to IPv6

UNIT V

(Hours : 15)

TRANSPORT LAYER and APPLICATION LAYER-Transport layer protocols - User Datagram Protocol – Transmission Control Protocol – SCTP – Application Layer : Standard client server protocols : WWW and HTTP – FTP _ Electronic mail – Telnet – Secure Shell – Domain Name System – SNMP – ASN.1

Text Book :

1. Behrouz A. Forouzan: “Data Communications and Networking”, Fifth Edition, McGraw Hill Education pvt ltd.

Reference Books:

1. Achyut S Godbole: “Data Communications and Networks”, Tata McGraw Hill Education pvt ltd
2. Uyless d. Black: “Data Communications and Networks”, Tata McGraw Hill Education pvt ltd

SEMESTER – IV

CORE 14 : COMPUTER GRAPHICS PRACTICAL

Subject Code: 16U4ITCP14

Total Hrs: 90

No. of Credits: 3

Objective: To enable the students to gain knowledge in developing C Programs for certain specified problems.

1. Write a C program with Fundamental Graphics Function
2. Write a program with menu option to input the line coordinates from the user to generate a line using DDA algorithm.
3. Develop a program to generate a complete circle based on Bresenham's circle algorithm
4. Write a C program for Clipping Algorithm using Line Clipping.
5. Implement the DDA algorithm for drawing line(programmer is expected to shift the origin to the center of the screen and divide the screen into required quadrants)
6. Write a program to draw the Indian Flag by using the primitives lines and circle.
7. Write a program to draw a Cycle using the graphics primitives lines and circles
8. Write a program to implement a stretch band effect. (A user will click on the screen and drag the mouse / arrow keys over the screen coordinates. The line should be updated like rubber-band and on the right-click gets fixed).
9. Write a simple program to illustrate the translation of a point and then a line.
10. Write program to perform the following 2D and 3D transformations on the given input figure
 - a) Reflection b) Scaling c) Translation
11. Write a program to implement polygon filling.
12. Modify the program no.7 of a cycle to convert the wheels into the rotating wheels (movement).
13. Write a program to design a human face using the graphics primitives circle, ellipse(s) and line segments .
14. Write a program to demonstrate 2D animation such as clock simulation or rising sun.
15. Write a program to implement the bouncing ball inside a defined rectangular window.

SEMESTER-IV

ALLIED 4: BUSINESS ACCOUNTING

Subject code:16U4ITAT04

Total Hours: 75

No of credits:4

Objectives:

- To make the students understand the basic accounting concept and conventions.
- To enlighten the students on the importance of cost ascertainment reduction and control.
- To enable the students to understand the preparation of budgets in the business organizations.

UNIT I

(15 Hours)

Introduction – Accounting Principles – Branches of accounting – accounting rules - Journalising – Ledger – Subsidiary book including cash books – Trial balance

UNIT II

(15 Hours)

Preparation of Final accounts: Trading, Profit and Loss Account and Balance sheet with simple adjustments – Outstanding Expenses and Income, Prepaid expenses, Pre received Income, Depreciation – Provision for bad debts

UNIT III

(15 Hours)

Cost Accounting: Meaning and elements of cost – Preparation of cost sheet with simple adjustments

UNIT IV

(15 Hours)

Cost Accounting: Meaning and Importance - Stores Ledger: FIFO – LIFO – Weighted average and Simple average method. Management Accounting: Its meaning and objectives – Difference between management accounting, financial accounting and cost accounting.

UNIT V

(15 Hours)

Budget and Budgetary control – Preparation of various budgets: Flexible budget – Production budget – Cash budget – Sales budget.

(Questions on problems and theory carry 80% and 20% of marks respectively)

Text Books:

1. T. S. Reddy & A. Murthy : Financial Accounting - Margham Publication, Chennai , 2016.
2. K.L. Nagarajan, N. Vinayakam, P.L. Nagarajan: Principles of Accountancy - S. Chand & Sons Company Limited, Reprint 2010.
3. N.P.Srinivasan & Sakthivel Murugan : Accounting for management - S. Chand & Company Limited, Reprint 2010.
4. T.S.Reddy & Y Hari Prasad Reddy : Cost Accounting – Margham publications, Reprint 2012
5. S.Reddy & Y Hari Prasad Reddy : Management Accounting– Margham publications, Reprint 2012

SEMESTER – IV

NON MAJOR ELECTIVE 2 : FLORICULTURE

Subject Code: 16U4NMET02

Total Hrs: 30

No. of Credits: 2

Objectives:

- To learn about the cultivation of flowers and ornamental crops from the time of planting to the time of harvesting.
- To focus on the promotional and awareness aspects by motivating them to grow traditional as well as non-traditional floral crops and houseplants for commercial purpose.
- To learn the basics of growing and fertilizing plants and flowers.
- To learn design techniques and work on dried and live bouquets, arrangements, corsages and boutonnières.

UNIT I

(Hours:6)

Floriculture – Definition, Introduction and Scope of Floriculture. Status of floriculture in India. Development of Floriculture

UNIT II

(Hours: 6)

Cut Flowers- Types of cut flowers, Arranging bouquets, Using floral design tools. Loose Flowers- Scope of loose flower trade, Significance in the domestic market/export,

UNIT III

(Hours:6)

Design- Types of design Flower choice for design, Corsages/Boutonnières, Vase design, Basket/mug design.

UNIT IV

(Hours:6)

Propagation-Types of propagation, Annuals & Perennials, Varieties, Growing seasons, Potting techniques.

UNIT V

(Hours:6)

Careers in Floriculture. Export/Import and marketing in floriculture. Government Incentives and Schemes. The role of supporting agencies.

Text Book:

1. Introduction to Floriculture – Dr.S.N.Suresh

Reference Books:

1. Know your Garden Plants – Jacob Varghese Kunthara
2. Production Technology of Ornamental Crops and Landscape Gardening – Dr. B. Hemlanaik

SEMESTER -IV

(Common to all the Branches of UG)

SKILL BASED SUBJECT 3 :MATHEMATICS FOR COMPETITIVE EXAMINATIONS -II

Subject Code: 16U4SBST03

Total Hrs: 30

No. of Credits: 2

Objectives:

- To make the students to know the concept of Probability and Problem on Trains.
- To solve problem related to Problems on Boats and Streams and Venn Diagram.
- To develop the skills in solving problems in Mental Ability and Logical reasoning.

UNIT I

(Hours:6)

Pipes and cistern – Probability - Problems on trains

UNIT II

(Hours:6)

Problems on Boats and Streams - Alligation or mixture

UNIT III

(Hours:6)

Heights & Distance- Odd Man Out & Series - Simple Interest-Compound Interest -Logical Venn Diagram

UNIT IV

(Hours:6)

Logarithms – Sequence and series - Area-Volume and Surface areas

UNIT V

(Hours:6)

Tabulation-Bar Graphs-Puzzles - Pie Charts-line Graphs- Mental Ability and Logical reasoning

(Simple Problems Only)

Text Book:

1.R. S. Agarwal : *Quantitative Aptitude (for Competitive Examinations)*, S. Chand and Company Limited, 7th Revised Edition -2007.

Unit I : Chapter 16 ,18 and 31

Unit II : Chapter 19,20

Unit III : Chapter 34 and 35, 21 and 22

Unit IV : Chapter 23 - 25

Unit V : Chapter 36 – 39

Reference Books:

1. *Hand Book On Mental Ability And Logical Reasoning* prescribed by Bharathiar University.
2.R.V.Praveen: *Quantitative Aptitude and Reasoning*, PHI Learning pvt. Ltd-2012. 3. Abhijit Guha : *Quantitative Aptitude for Competitive Examinations*, Tata Mc-Graw Hill Publishing Company, 7th reprint-2003.

SEMESTER-IV

SKILL BASED SUBJECT 4: COMMUNICATION SKILLS- II

Subject Code:16U4SBST04

Total Hrs: 30

No. of Credits: 2

Objectives:

- To enhance Listening, Speaking, Reading and Writing Skills among Students.
- To familiarise the students with the Sounds and Symbols used in English Language.
- To emphasize the importance of Communication in the Global Scenario.

Unit-I : Reading & Writing

1. Reading Techniques (Skimming and Scanning)
2. Types of Reading - Intensive Reading and Extensive Reading
3. Brain Storming
4. Resume Preparation
5. Report Writing
6. Minutes of a Meeting
7. Data Representation and Interpretation
8. Memos

Unit- II : Sounds & Symbols

1. Vowels
2. Consonants
3. Diphthongs
4. Stress and Intonation

Text Books:

1. Communication Skills by Meenakshi Raman (Oxford University Press)
2. Essential Communication Skills by Shalini Aggarwal (Ane Books Pvt.Ltd. New Delhi)

Reference Books:

1. Communication Skills a multi- skill course by Course team, Bharathiyar University(Macmillan)
2. Developing Communication Skills by Krishna Mohan(Macmillan)
3. Technical English – II by Joyce Pereire(Vijay Nicole Imprints Pvt.Ltd.)

SEMESTER-IV**அடிப்படைத் தமிழ்**

பகுதி - IV : தமிழ்த்தாள் - 2 - நான்காம் பருவம்

(12-ம் வகுப்பு வரை தமிழ் மொழிப்பாடம் பயிலாதவர்களுக்கு)

Total Hrs: 20**16U4BTLT02****அகமதிப்பீட்டுத் தேர்வு மட்டும்**

- நீதி நூல்கள் : ஆத்திச்சூடி (முதல் 12) “அறம் செய விரும்பு”, முதல் “ஓளவியம் பேசேல்”வரை.

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கொன்றை வேந்தன் - “அன்னையும் பிதாவும் முன்னறி தெய்வம்” முதல் “எண்ணும் எழுத்தும் கண்ணெனத்தகும்” வரை (7)

திருக்குறள் (5)

1. அகர முதல... (1)
2. செயற்கரிய... (26)
3. மனத்துக் கண்... (34)
4. கற்க கசடறக்... (391)
 - எப்பொருள் யார் யார்... (423)

எளிய நீதிக் கதைகள் - (தெனாலிராமன் கதைகள், பீர்பால் கதைகள், கிராமியக் கதைகள், ஈசாப் கதைகள்)

- 1)தமிழ் இலக்கியங்கள் : வரலாறு - குறிப்பு - அறிமுகம்
எடுத்துக்காட்டு : குறள் பற்றி எளிய தொடர்களில் அறிமுகம்
தமிழகம் - உணவுமுறை, விழாக்கள், கலைகள் பற்றியக் குறிப்புகள்

	அக மதிப்பீட்டுத் தேர்வு மதிப்பெண் வழங்கும் முறை	மதிப்பெண்கள்
1	வகுப்புத்தேர்வு - 1	10
2	வகுப்புத்தேர்வு - 2	10
3	மாதிரித்தேர்வு	10
4	பயிற்சிக் கட்டுரை	10
5	வாய்மொழித் தேர்வு	10
	மொத்த மதிப்பெண்கள்	50

குறிப்பு : வாய்மொழித் தேர்வில் தமிழ்ச் செம்மொழி வரலாறு தொடர்பான வினாக்கள் மட்டுமே கேட்கப்பட வேண்டும்.

SEMESTER – V

CORE 15: ASP .NET AND C#

Subject Code: 16U5ITCT15

Total Hours: 75

No.Of Credits: 4

Objectives: To enable the students

- To learn about the basic concepts of ASP .NET.
- To learn about the ASP .NET object model and its architecture.
- To learn about the C# and its functions.

UNIT I

(Hours: 15)

Getting set up: ASP .NET? Setting up, environment, overview. Programming basics: basics, program flow, coding techniques, designing applications, dynamic website application, processing ASP .NET applications, visual basic .NET.

UNIT II

(Hours: 14)

Programming ASP .NET with Visual Basic .NET Web Forms and ASP .NET: web forms. ASP .NET configuration, Scope and State: Configuration, state, Application object, ASP Sessions, Session object and sample project.

UNIT III

(Hours: 16)

ASP .NET objects and components: scripting object model, components and controls, project example, more active components. Web services and ASP .NET: web service development, WSDL and SOAP, web services background. ASP .NET and SQL Server: using SQL server, using databases in ASP .NET, ActiveX data objects, ADO .NET object model, Coding SQL and Project.

UNIT IV

(Hours: 15)

Understanding .NET: C# framework - .Net strategy, origins, framework, CLR, base classes, Visual Studio .Net, languages, benefits. Overview of C#: simple program, namespaces, main returning value, passing string objects, command line arguments, mathematical functions, compile time errors, structure. Literals, Variables and Data types.

UNIT V

(Hours: 15)

Operators and Expressions, Decision making and branching, Decision making and looping, Handling Arrays.

Text Books:

- 1.Dave Marcer :”ASP .NET – A Beginner’s Guide”, Third Edition, 2002, McGraw Hill Education India Private Limited
- 2.E. Balagurusamy :”Programming in C# - A Primer”, Third Edition, 2010, Tata McGraw Hill Pvt Ltd.

Reference Books:

1. “Visual Basic .net programming Black book”, Para Glyph Press, Third edition, 2009.
2. “Asp.Net Black Book”, Dream Tech Press, Third edition, 2009.
3. Karli Watson, Christian Nagel, Jacob Hammer Pedersen, Jon Reid, and Morgan Skinner: “BEGINNING VISUAL C# 2010” by, Wiley Publishing, Inc.
4. Stephen C. Perry: “Core C# and .NET”, Pearson Education

SEMESTER – V

CORE 16: PHP AND MYSQL

Subject Code: 16U5ITCT16

Total Hours: 75

No.Of Credits: 4

Objectives:

- To present the introduction to open source tools.
- To enable the students to learn concepts of PHP AND MYSQL.
- To have knowledge on DBMS and RDBMS.
- To enhance their on SQL, DDL, DML, DCL Statements, Select,group by & having clause String & set operations, Aggregate Functions, Nested Sub Queries.
- To develop the skills of Embedded & Dynamic SQL.

UNIT I

(Hours:15)

What is PHP? Why use PHP? Embedding PHP with HTML, Enhancing further, PHP Language Basics: Using variable in PHP, understanding Data types, operator and expressions.Making decisions:simple decision with if statements, switch,ternary operator, do..while loop, for statement, break, loop skip iteration, nested loop, Function: calling functions, working with variable functions, own functions references, recursive functions.

UNIT II

(Hours:15)

Arrays: creating and accessing array elements, looping through arrays, multidimensional array, manipulating arrayStrings:creating and accessing strings, searching strings, replacing text within strings and formatting strings. Handling HTML forms with PHP: HTML forms work, capture form data with PHP, multi value fields, web forms with PHP.

UNIT III

(Hours:14)

Database Concepts: A Relational approach: Database –Relationships –DBMS –Relational Data Model –Integrity Rules –Theoretical Relational Languages. Database Design: Data Modelling and Normalization: Data Modelling –Dependency –Database Design –Normal forms –Dependency Diagrams–De -normalization –Another Example of Normalization.

UNIT IV

(Hours:17)

Working with Table: Data Management and Retrieval: DML –adding a new Row/Record – Customized Prompts Updating and Deleting an Existing Rows/Records –retrieving Data from Table –Arithmetic Operations –restricting Data with WHERE clause –Sorting –Revisiting Substitution Variables –DEFINE command –CASE structure.

Functions and Grouping: Built-in functions –Grouping Data. Multiple Tables: Joins and Set operations: Join –Set operations.

UNIT V

(Hours:14)

Introducing Database and SQL: Deciding how to store data, quick play with MYSQL, connecting to MYSQL from PHP, retrieving data from MYSQL with PHP. Manipulating MYSQL data with PHP insert, update, delete records.

Text Books:

1. Matt Doyle: “Beginning PHP 5.3”,Wunley India Edition, 2012 .
- 2..Nilesh Shah: “Database Systems using Oracle”, Second Edition, PHI,2004.

Reference Books:

1. VikramVaswani: “PHP: A Beginners guide”,TataMcgraw Hill,2009.
2. Lawpoint: “Guide to PHP”, LP Computer series, 2007.
3. Larry Ullman: “PHP 6 and MySQL 5”,Pearson Education,2008.
4. Gerald V. Post: “Database Management Systems”, Third edition, Tata McGraw Hill Pvt Ltd.

SEMESTER- V

CORE 17 :ASP .NET AND C# - PRACTICAL

Subject Code: 16U5ITCP17

Total Hours: 90

No ofCredits: 4

Objectives: To enable the students to gain knowledge in developing ASP .Net and C# Programs for certain specified problems.

1. Write a ASP .NET program to display date and time.
2. Write a ASP .NET program to perform arithmetic operation.
3. Write a ASP .NET program to convert decimal number to binary, octal and hexadecimal.
4. Write a ASP .NET program to develop a simple calculator.
5. Write a ASP .NET program to demonstrate the text control.
6. Write a ASP .NET program to demonstrate the checkbox control.
7. Write a ASP .NET program to design simple registration form using asp .net objects.
8. Write a C# program to allocate dynamic arrays.
9. Write a C# program for converting numbers into words.
10. Write a C# program for arithmetic operations – addition, subtraction, multiplication and division using Switch case statement.
11. Write a C# program to check whether given string is a palindrome or not.
12. Write a C# program to read number and check ODD or EVEN.
13. Write a C# program that prints out Fibonacci Series.
14. Write a C# program to convert from Fahrenheit to Celsius and Celsius to Fahrenheit.
15. Write a C# program to check whether the given year is a leap year or not.

SEMESTER -V**CORE 18 : PHP and MySQL-PRACTICAL****Subject Code: 16U5ITCP18****Total Hrs: 90****No. of Credits: 3**

Objectives: To enable the students to gain knowledge in developing PHP and MySQL Programs for certain specified problems.

1. Write a program to create different variables.
2. Develop a PHP program using controls and functions
3. Write a program to send an HTML formatted Email in PHP.
4. Write a program to do different types of Sorting in PHP.
5. Write a program to do String Manipulation in PHP.
6. Write a PHP program to get color code from the user which displays the color name.
7. Write a PHP program to do calculator functions
8. Write a program to upload a file in PHP.
9. Write a program to demonstrate how a web page can communicate with a web server while a user type characters in an input field
10. To create the database “Exams” with the following tables
 - a) Students–fields: Stud_Id (int), Name (varchar), Surname (varchar),Gender(char), Date_of_Birth (datetime), Group_Id(int).
 - b) Groups–fields: Gr_Id (int), Gr_name (varchar),Year_of_Study (int),Comments (varchar)
 - c) Teachers–fields: Teacher_Id (int), Name (varchar), Surname (varchar),Date_of_Birth (datetime), degree (varchar)
 - d) Disciplines–fields: Discipline_Id (int), Disc_name (varchar) ,Discipline_Type (varchar– hardware or software)
 - e) Marks–fields: Student_Id (int), Teacher_Id (int), Disc_ Id (int), Mar(int), Date_of_Exam (datetime).

Modify (alter) the structure(design) of the Students table by adding a new field,“Has_scholarship”, that can take the values “yes” or “no”

- 11.Using the Exams database and the SELECT statement:
 - a) **(Inner) Join operator:**Name, surname and group for students who sustained the exam with the teacher named ‘x’.
 - b) **Select In Select:**Find those students whose marks at Databases are greater than PopescuIon’s Mark at the same discipline.
 - c) **Order By, Top:**Find the first three students (name, surname and group) with the highestmarks at Computer Programming.
 - d) **Group By, Aggregate Functions**
Name, surname and average mark (for all the exams sustained) foreachstudent from group 3021 (use Group By, AVG function).
Name, description and number of students for each group (Group Byclause, COUNT function).
 - e) **Outer Join, Aggregate functions:**
Students’ name, surname and number of exams sustained. For students that didn’t sustain any exam, the 0 value should appear.

f)In/Not In Operator;Select In Select:Find the teachers that teach both Databases and ComputerProgramming (clue-those teachers that appear both in the following result sets:teachers that teach Databases and teachers that teach Computer Programming)

Name, surname and group for students who didn't sustain the exam atDatabases.

(clue:those students do not appear in the Exams table; the Student_idfrom the Students table doesn't appear in the Exams table)

12. Write a program for login authentication using PHP and MySQL

13. Create a Pay slip for an employee using PHP and MySQL

14. Develop a PHP program to design a college application form using MYSQL table.

15. Develop a PHP program to display student information using MYSQL table.

SEMESTER-V

NON CREDIT COURSE 1 :APTITUDE AND SOFT SKILLS- I

Subject Code: 16U5NCCT01

Total Hrs: 45

Objectives:

- To develop Positive attitude among students by mastering Soft Skills.
- To enable the students to face the personal Interviews Successfully.

Unit I: Soft Skills

1. Empathy
2. Intrapersonal Skills
3. Interpersonal Intelligence
4. Problem Solving Skills
5. Critical Thinking
6. Aptitude and Assessment Test

Unit II: Aptitude

1. Numerical Reasoning
2. Mental Ability
3. Logical Reasoning

Text Books:

1. Technical English – I by Prof .N. Lakshmana Perumal (Sri Krishna Hitech Publishing Company Pvt. Ltd.)
2. Quantitative Aptitude for Competitive Examinations, Revised 2017 EDITION by R. S. Aggarwal (English, Paperback).

Reference Book:

1. Technical English – II by Joyce Pereire(Vijay Nicole Imprints Pvt.Ltd.)

SEMESTER-VI

CORE 19: SOFTWARE TESTING

Subject Code: 16U6ITCT19

Total Hrs: 75

No. of Credits: 4

Objective:

- To make the students to understand Software Testing principles.
- To discuss the distinctions between types of testing.
- To understand the essential characteristics of tool used for test automation.

UNIT I

(Hours: 15)

Principles of Testing: Context of Testing in Producing Software, A Test in Time, Automation Syndrome, Putting it All Together -Software Development Life Cycle Models: Phases of software project-Quality, Quality Assurance and Quality Control -Testing, verification and validation – Process model to represent different phases-Life cycle models.

UNIT II

(Hours: 14)

White Box Testing: What is White box testing, Static testing, Structural testing; Challenges –Black Box Testing: What is? Why? When? and How to do? Black Box Testing –Integration Testing: What is Integration Testing?, Types, Phases, Scenario Testing, Defect Bash.

UNIT III

(Hours: 16)

System and Acceptance Testing: Overview-Why is system testing done?, Functional vs. Non-Functional Testing, Functional system testing, Non-Functional testing, Acceptance testing – Performance Testing: Factors Governing, Methodology, Tools and Process for Performance Testing.

UNIT IV

(Hours: 15)

Regression Testing: What is Regression testing? , Types of Regression testing, when to do Regression testing? and how to do Regression testing?–Testing –Ad hoc Testing: Overview, Buddy, Pair Testing, Exploratory Testing, Iterative Testing, Agile and Extreme Testing, Defect Seeding.

UNIT V

(Hours: 15)

Test Planning, Management, Execution and Reporting: Test Planning, Test Management, Test Process, and Test Reporting –Software Test Automation: What to? and Scope of Automation, Design and Architecture of Automation, Requirements for Test Tool/Framework, Process Model, and Steps for Tool Selection and Deployment, Challenges in Automation –Test Metrics and Measurement: Types of Metrics

Text Book:

1. Srinivasan Desikan, Gopalsamy Ramesh: “Software Testing Principles and Practices”, Pearson Education, Sixth Impression, 2008.

SEMESTER -VI

CORE 20 : OPERATIONS OF E-WALLET AND INFORMATION SECURITY

Subject Code: 16U6ITCT20

Total Hrs:90

No. of Credits: 3

Objectives:

- To learn about the basic operations of E-Wallet and Information Security.
- To Acquire knowledge in Risk Management and Planning.
- To understand the concepts of Logical and Physical Design.
- To enhance the key concepts of Security Technology.

UNIT I

(Hours:16)

Introduction to E-Wallet Operation:What is an e-wallet-benefits of Wallet-risks-types of e-wallet:paytm,MobiKwik,oxigenWallet,CitrusWallet,ItsCash,FreeCharge,AirtelMoney,Jiomoney,mRupee,SBI Buddy,Vodaphone M-Pesa.Advantages and disadvantages of digital Wallet.Introduction to Information Security- History -What is Security- Critical Characteristics of Information:Availability-Accuracy-Authenticity-Confidentiality-Integrity-Utility-Possession: NSTISSC

UNIT II

(Hours:18)

Security Model- Components of an Information system: Software-Hardware-Data-People-Procedures-Networks.The Need For Security: Introduction-Business Needs:Protecting the functionality of Organization-Enabling the Safe Operation of Applications; Threats: Acts of Human Error or Failure-Compromises to Intellectual Property-Deliberate Acts of Espionage or Trespass; Attacks: Malicious Code-Hoaxes-Back Doors-Password Crack-Spam-Mail Bombing-Sniffers-Social Engineering.

UNIT III

(Hours:20)

Legal, Ethical, and Professional Issues in Information Security: Introduction-Laws and Ethics in Information Security-Types of Law-International Laws and Legal Bodies: European Council Cyber-Crime Convention-Digital Millennium Copyright Act- United Nation Charter; Ethics and Information Security: Ethical Difference Across Cultures-Software licence Infringement-Illicit Use-Misuse of Corporate Resources-Ethics and Education; Codes of Ethics and Professional Organizations: Major Professional Organizations for IT-Other Security Organization.

UNIT IV

(Hours:18)

Risk Management: Introduction-An overview of Risk Management; Risk Identification: Asset Identification and valuation-Automated Risk Management Rules-Information Asset Classification-Information Asset Valuation-Listing Assets in Order of Importance-Data Classification and Management; Risk Assessment: Introduction to Risk Assessment-Likelihood Valuation of Information Asset-Risk Determination; Risk Control Strategies: Avoidance-Implementing Avoidance-Transference-Mitigation; Risk Management Discussion Points: Risk Appetite-Residual Risk.

UNIT V

(Hours:18)

Planning for Security: Introduction-Information Security policy, Standard, and Practice: Definition-Enterprise Information Security Policy-Issue Specific Security Policy-System Specific Policy-Policy Management; The Information Security Blueprints: ISO 17799/BS7799-NIST Security Models-IETF Security Architecture-VISA International Security Model; Security Education, Training and Awareness Program; Continuity Strategies: Business Impact Analysis-Incident Response Planning-Disaster Recovery Planning-Business Continuity Planning

Text Book:

1. Principles of Information Security, E.Michel Whitman, CISSP and Herbert, J. Mattord, CISSP , Thomson Course Technology, Second Indian Reprint, 2007.

Unit 1: Chapter 1: page No:1-16

Unit 2: Chapter 2: Page No:35-37, 38-43, 60-62, 65-66

Unit 3: Chapter 3: Page No: 75-77, 85-88, 89-94, 96-99

Unit 4: Chapter 4: Page NO: 109-112, 114-121, 132-134, 138-142, 161-162

Unit 5: Chapter 5: Page No: 171-183, 186-195, 203-205, 206-228

Reference Websites :

Unit-1: Introduction to E-Wallet

1. http://odocmms.nic.in/OCMMS/SPCB_DOCUMENTS/eWallet_User_Guide.pdf
2. https://en.wikipedia.org/wiki/Digital_wallet
3. <http://www.financialexpress.com/industry/banking-finance/e-wallets-money-on-the-move/28571/>
4. [http://arthapedia.in/index.php?title=Digital / Electronic Wallet \(e-wallet](http://arthapedia.in/index.php?title=Digital / Electronic Wallet (e-wallet)
5. <http://digitalwallet.weebly.com/advantages--disadvantages.html>

Reference Book:

- 1.The Complete Reference: Information Security, Mark Rhodes-Ousley, McGraw Hill Education Private Limited, Indian Edition 2013.

SEMESTER -VI

CORE 21 : SOFTWARE TESTING -PRACTICAL

Subject Code: 16U6ITCP21

Total Hrs:75

No. of Credits: 3

Objectives: To enable the students to gain knowledge in developing Java Programs for certain specified problems.

1. Performing a test in the Apache JMeter Testing Tool to implement the factorial concepts.
2. Performing a test in the Apache JMeter Testing Tool to analyze the suitable problem and displaying the results.
3. Performing a test in the Apache JMeter Testing Tool to find the fibonaaci series.
4. Creating test cases and testing the functionality of calculator.
5. Creating test cases and testing the Java Program which generates sum of a individual digit of a 5-digit number until a single digit is produced.
6. Testing the Java program: Sort and store the elements two arrays of integers into the third list.
7. Testing the Java program: multiple inheritance.
8. Testing the Java Program: Palindrome string checking program.
9. Testing the Java Program: String Manipulation.
10. Testing the Java Program: Employee details using constructors.

SEMESTER-VI

CORE 22 :PROJECT VIVA-VOCE

Subject Code: 16U6ITCV22

Total Hours: 90

No.ofCredits: 4

Objectives: To enable the students to apply practically in a specific area using any specific domain knowledge he/she possesses and get the results.

GUIDELINES FOR PROJECT WORK

1. The aim of the project work is to acquire practical knowledge on the implementation of the programming concepts studied.
2. Each student should carry out individually one project work and it may be a work using the software packages that they have learned or the implementation of concepts from the papers studied or implementation of any innovative idea focusing on application oriented concepts.
3. The project work should be compulsorily done in the college only under the supervision of the department staff concerned.

FINAL VIVA-VOCE

- Project work carries 100 marks with 4 credits.
- Internal Assessment: 80 marks (60 marks for 3 reviews and 20 marks for record)
- External Assessment : 20 marks (Viva-Voce).
- For awarding a pass, a candidate should have obtained 40% of the total 100 Marks.
- The evaluation would be done jointly by both the examiners(Internal and External). Students who fail in the project work and viva-voce examination or who are absent for the project viva-voce who fail to submit the project report before the due date will have to re-submit the project work and appear for the viva-voce examination during the subsequent year.

PROJECT WORK

TITLE OF THE DISSERTATION

Bonafide Work Done by

STUDENT NAME

REG. NO.

Dissertation submitted in partial fulfillment of the requirements
for the award of Bachelor of Information Technology Of
Bharathiar university, Coimbatore-46

College emblem

GUIDE

HOD

Submitted for the Viva-Vice Examination held on _____

Internal Examiner

External Examiner

MONTH – YEAR

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1.2 SYSTEM SPECIFICATION

1.2.1 HARDWARE CONFIGURATION

1.2.2 SOFTWARE SPECIFICATION

2. SYSTEM STUDY

2.1 EXISTING SYSTEM

2.1.1 DRAWBACKS

2.2 PROPOSED SYSTEM

2.2.1 FEATURES

3. SYSTEM DESIGN AND DEVELOPMENT

3.1 FILE DESIGN

3.2 INPUT DESIGN

3.3 OUTPUT DESIGN

3.4 DATABASE DESIGN

3.5 SYSTEM DEVELOPMENT

3.5.1 DESCRIPTION OF MODULES

(Detailed explanation about the project work)

4. TESTING AND IMPLEMENTATION

5. CONCLUSION

BIBLIOGRAPHY

APPENDICES

A. DATA FLOW DIAGRAM

B. TABLE STRUCTURE

C. SAMPLE CODING

D. SAMPLE INPUT

E. SAMPLE OUTPUT

SEMESTER-VI

NON CREDIT COURSE 2: APTITUDE AND SOFT SKILLS - II

Subject Code: 16U6NCCT02

Total Hrs: 45

Objectives:

- To develop Positive attitude among students by mastering Soft Skills.
- To enable the students to face the personal Interviews Successfully.

Unit I: E- Materials

1. Interactive Exercises for Grammar and Vocabulary
2. Audio/Video Excerpts of different Accents
3. Interpreting Posters

Unit II: Aptitude

1. Numerical Reasoning
2. Mental Ability
3. Logical Reasoning

Text Books:

1. Technical English – I by Prof .N. Lakshmana Perumal (Sri Krishna Hitech Publishing Company Pvt. Ltd.)
2. Quantitative Aptitude for Competitive Examinations, Revised 2017 EDITION by R. S. Aggarwal (English, Paperback).

Reference Book:

1. Technical English – II by Joyce Pereire(Vijay Nicole Imprints Pvt.Ltd.)

SEMESTER-V

ELECTIVE 1: DATA MINING AND WAREHOUSING

Subject Code:16U5ITET1A

Total Hrs:60

No. of Credits: 3

Objectives:To enable the students

- To know the basics of data mining and warehousing.
- To Understand various techniques in data mining.
- To learn about architecture of data warehouse and its applications

UNIT I

(Hours: 12)

Introduction – Data mining – Data mining functionalities – kinds of patterns can be mined – classification – major issues. Data warehouse – A multidimensional data model – Data warehouse architecture – Data warehouse implementation – From data warehouse to data mining.

UNIT II

(Hours: 11)

Data pre-processing – Data cleaning – Data Integration and Transformation – Data Reduction – Discretization and concept hierarchy generation – Data mining primitives – Data mining Task.

UNIT III

(Hours: 13)

Association Rule Mining – Mining single dimensional Boolean association rules from transactional databases –. Classification and prediction – Issues regarding classification and prediction – Bayesian classification- Classification by Back propagation – classification based on concepts from association rule mining.

UNIT IV

(Hours: 12)

Cluster Analysis – A categorization of Major clustering methods - Partitioning methods- Hierarchical methods – Grid based methods -Model based clustering methods – Density – based methods.

UNIT V

(Hours: 12)

Applications and Trends in Data Mining – Data mining system products and Research prototypes – Additional themes on Data mining – Social Impacts of Data Mining – Trends in Data mining-Mining Spatial Databases – Mining Time - series and sequence data – Mining the World wide web.

Text Books:

1. Jiwei Han, Michelen Kamber: “Data Mining Concepts and Techniques”, Morgan Kaufmann Publishers an Imprint of Elsevier, Latest Edition, 2003.
2. Arun K.Pujari: “Data Mining Techniques”, Universities Press (India) Limited

Reference Books:

1. George M. Marakas: “Modern Data warehousing, Mining and Visualization: Core Concepts”, Printice Hall, First Edition, 2002.
2. Pang-Ning Tan, Michael Steinbach, Vipin Kumar: “Introduction to Data Mining”, Pearson, 2008.
3. Soman K. P, Shyam Diwakar, V. Ajay: “Data Mining”, Printice Hall, 2008.

SEMESTER-V

ELECTIVE 1 :INTERNET OF THINGS

Subject Code: 16U5ITET1B

Total Hours: 60

No.of Credits: 3

Objectives:

- To get the vision and introduction to IoT .
- To understand IoT Market perspective, Data and Knowledge Management and use of Devices in IoT Technology.
- To understand state of the art IoT architecture,real world IoT deisgn constraints,industrial automation and commercial building automation in IoT.

UNIT I

(Hours:10)

Introduction- Concepts behind the Internet of Things- The IoT Paradigm- Smart Objects- Creative Thinking Techniques – Modifications- Combination Scenarios- Breaking Assumptions- Solving Problems.

UNIT II

(Hours:11)

M2M to IoT – A Market Perspective– Introduction, Some Definitions, M2M Value Chains, IoT Value Chains, An emerging industrial structure for IoT, The international driven global value chain and global information monopolies.

UNIT III

(Hours:13)

M2M and IoT Technology Fundamentals- Devices and gateways, Local and wide area networking, Data management, Business processes in IoT, Everything as a Service(XaaS), M2M and IoT Analytics, Knowledge Management Introduction, Technical Design constraints-hardware is popular again.

UNIT IV

(Hours:13)

Introduction, State of the art, Architecture Reference Model- Introduction, Reference Model and architecture, IoT reference ModelIoT Reference Architecture- Introduction, Functional View, Information View, Deployment and Operational View, Other Relevant architectural views. Real-World Design Constraints.

UNIT V

(Hours:13)

Service-oriented architecture-based device integration, SOCRADES: realizing the enterprise integrated Web of Things, IMC-AESOP: from the Web of Things to the Cloud of Things, Commercial Building Automation- Introduction, Case study: phase one-commercial building automation today.

Text Book:

1. Jan Holler, Vlasios Tsiatsis, Catherine Mulligan, Stefan Avesand, Stamatis Karnouskos, David Boyle: “From Machine-to-Machine to the Internet of Things: Introduction to a New Age of Intelligence”, First Edition, Academic Press, 2014.

Reference Books:

1. Vijay Madiseti and Arshdeep Bahga: “Internet of Things (A Hands-on-Approach)”, First Edition, VPT, 2014.
2. Francis daCosta: “Rethinking the Internet of Things: A Scalable Approach to Connecting Everything”, First Edition, Apress Publications, 2013.
- 3.Hakima chaouchi, ”The Internet Of Things Connecting Objects,2010.

SEMESTER- V

ELECTIVE 1 :ENTERPRISE RESOURCE PLANNING

Subject Code: 16U5ITET1C

Total Hrs: 60

No. of Credits: 3

Objectives:

- To develop the capability to streamline the different organizational process and work flows in ERP.
- To understand the ways of improving efficiency, performance and productivity levels of ERP projects.

UNIT I

(Hours:12)

ERP AND TECHNOLOGY-Introduction – Related Technologies – Business Intelligence – E-Commerce and E-Business – Business Process Reengineering – Data Warehousing – Data Mining – OLAP – Product life Cycle management – SCM – CRM.

UNIT II

(Hours:12)

ERP IMPLEMENTATION-Implementation Challenges – Strategies – Life Cycle – Pre-implementation Tasks –Requirements Definition – Methodologies – Package selection – Project Teams – Process Definitions – Vendors and Consultants – Data Migration – Project management – Post Implementation Activities.

UNIT III

(Hours:12)

ERP IN ACTION & BUSINESS MODULES-Operation and Maintenance – Performance – Maximizing the ERP System – Business Modules – Finance – Manufacturing – Human Resources – Plant maintenance – Materials Management – Quality management – Marketing – Sales, Distribution and service.

UNIT IV

(Hours:12)

ERP MARKET- Marketplace – Dynamics – SAP AG – Oracle – PeopleSoft – JD Edwards – QAD Inc – SSA Global – Lawson Software – Epicor – Intuitive.

UNIT V

(Hours:12)

Enterprise Application Integration – ERP and E-Business – ERP II – Total quality management – Future Directions – Trends in ERP.

Text Books:

1. Alexis Leon: “ERP DEMYSTIFIED”, Tata McGraw Hill, Second Edition, 2008.
2. Mary Sumner: “Enterprise Resource Planning”, Pearson Education, 2007.

Reference Books:

1. Jim Mazzullo:”SAP R/3 for Everyone”, Pearson,2007.
2. Jose Antonio Fernandez: “ The SAP R /3 Handbook”, Tata McGraw Hill, 1998.

SEMESTER -V

ELECTIVE 2 :WEB TECHNOLOGY AND ITS APPLICATIONS

Subject Code: 16U5ITET2A

Total Hrs: 60

No. of Credits: 3

Objectives: To enable the students

- To learn about the basic concepts of various networking model and its layers.
- To learn about the concepts of protocol and its architecture.
- To learn about the Java Scripts and XML.

UNIT I

(Hours: 10)

Networking Protocols and OSI Model: OSI Model, Layer functions. Internetworking concepts, devices, internet basics: why internetworking, problems, virtual network, repeaters, bridges, routers, gateways, history of internet, growth.

UNIT II

(Hours: 12)

TCP/IP Part I: basics, addressing, IP addressing, logical addresses, concept of IP address, ARP, RARP, BOOTP, DHCP, ICMP. TCP / IP Part II: TCP, UDP – basics, features, relationship, ports and sockets, connections, TCP segment format, UDP, differences.

UNIT III

(Hours: 12)

DNS, Email, FTP, TFTP – DNS, Email, FTP, TFTP. TCP / IP Part IV : WWW, HTTP, TELNET – history, basics, HTML, common gateway interface, remote login (TELNET).

UNIT IV

(Hours: 13)

Java Script and AJAX. PHP / MySQL – scripting language, client side vs Server side, Features of PHP, reference, MySQL basics, using MySQL with PHP.ASP.NET: overview of .NET framework, Details, Server controls and web controls, validation controls.

UNIT V

(Hours: 13)

Java Web Technologies – Java servlets and JSP, Creating and testing, servlet, session management, introduction to JSP, JSP and JDBC, EJB, architecture, overview, types of EJB, session beans. Web Security: principles, cryptography, plain text and cipher text, digital certificates, signatures, secure socket layer. XML – what is XML? XML versus HTML, EDI, Terminology, Document-Type Declaration, Element-Type declarations.

Text Book:

1. Achyut Godbole and Atul Kahate :”Web Technologies – TCP / IP, Web / Java Programming and Cloud Computing”, Third Edition, McGraw Hill Education India Private Limited.

Reference Books:

1. Behrouz A. Forouzan : “TCP / IP – Protocol Suite”, McGraw Higher Education, Sixth Edition.
2. Paul Deitel, Harvey Dietel and Abbey Dietel: “Internet & World Wide Web – How to Program”, Fifth Edition, Tata McGraw Hill.

SEMESTER -V

ELECTIVE 2 :INTERNETWORKING WITH TCP / IP

Subject Code: 16U5ITET2B

Total Hours: 60

No. of Credits: 3

Objectives: To enable the students

- To learn about the basic concepts of Internetworking and its various protocols.
- To learn about the concepts of protocol addressing.
- To learn about the Email transactions and its protocol.

UNIT I

(Hours: 11)

Introduction and Overview : TCP/IP internet, History, Scope, IAB, Internet RFC, Relationship between IPv4 and IPv6, Underlying network technologies : WAN, LAN, Ethernet, WIFI, ZigBee, Point-to-point Networks, VLAN technology, Bridging, Internetworking Concept and Architectural Model : Application Level interconnection, Network level interconnection, Properties of the internet.

UNIT II

(Hours: 13)

Protocol Layering : Introduction, Need for multiple protocols, ISO layer Reference model, X.25, TCP / IP Layer model, Protocol layer principle, mesh networks, cross-layer optimizations, multiplexing and demultiplexing. Internet Addressing : Host identifiers, IPv4 – scheme, subnet addressing, Fixed length IPv4, Fixed length, variable length, subnet mask, classless IPv4, IPv6 addressing scheme, Colon Hexadecimal notation, space assignment, unicast addresses, interface identifiers and MAC addresses, weakness of Internet addressing.

UNIT III

(Hours: 12)

Mapping Internet Addresses to Physical Addresses: Address resolution problem, hardware addresses, ARP cache, timeout, refinements, implementation, encapsulation, message format, caches in layer 3 switches, proxy ARP. IP Connectionless Datagram Delivery : Virtual network, IP datagram, type of service, encapsulation, size, reassembly, header files, time to live, fragmentation, network byte order.

UNIT IV

(Hours:13)

ICMP : introduction, error, conceptual layering, message format, testing, echo request and reply message format, checksum, reports of unreachable destinations, ICMP error, detecting circular. User Datagram Protocol: UDP protocol, message format, Interpretation, checksum, pseudo header format, encapsulation, UDP multiplexing, demultiplexing and protocol ports. Domain Name System: names of computers, flat namespace, hierarchy, delegation, subset authority, top level domains, Name syntax, Domain Name resolution, DNS system message format, compressed name format, abbreviation of domain names.

UNIT V

(Hours:11)

Electronic Mail: Email, mailbox names, SMTP, MIME, mail retrieval. World Wide Web: importance, architectural, URL, HTTP, GET request, Error messages, data length and program output, encoding and headers, conditional requests, proxy servers, caching. Voice and Voice Over IP: digitizing and encoding, audio, video transmission, jitter, RTP, encapsulation, RTCP, operation, IP Telephony, QoS, Intserv, DiffServ, Traffic scheduling.

Text Book:

1. Douglas E.Comer: “Internetworking with TCP/IP – Principles, Protocol and Architecture”, Volume I, Sixth Edition, Pearson Education.

Reference Books:

1. Achuyut S Godbole and Atul Kahate: “Data Communications and Networks”, Tata McGraw Hill Education Pvt Ltd., Second edition.
2. Behrouz A. Forouzan: “TCP / IP – Protocol Suite”, McGraw Higher Education, Sixth Edition.

SEMESTER- V

ELECTIVE 2 : SOFTWARE PROJECT MANAGEMENT

Subject Code: 16U5ITET2C

Total Hrs: 60

No. of Credits: 3

Objectives:

- To get knowledge on how to handle project development activities.
- To understand the threats and opportunities in Project Managements.
- To study various project cost, time estimation models.
- To study on how to make quality software products.
- To appreciate management issues like team structure and group dynamics.

UNIT I

(Hours : 10)

SOFTWARE PROJECT MANAGEMENT :Introduction, Need for Software Project Management – Software Project versus other projects – Overview of Project planning.

UNIT II

(Hours:10)

PROJECT EVALUATION :Introduction, Strategic assessment, Technical Assessment, Cost benefit Analysis, Cash flow forecasting, Cost benefit Evaluation Techniques Risk Evaluation – Selection of appropriate project planning.

UNIT III

(Hours:14)

ACTIVITY PLANNING :Objectives of activity planning, Project schedules, Projects and activities, Sequencing and scheduling activities, Network Planning models –Formulating network models, Using dummy activities, Identifying critical path, identifying critical activities. Risk Analysis and Management: Nature of risk, Managing risk, Risk identification, Risk analysis, reducing the risks, evaluating the risks.

UNIT IV

(Hours:14)

SOFTWARE EFFORT ESTIMATION: Problems with over and under estimate, the basis for software estimation, software estimation Techniques. Expert judgments, Estimating by analogy, Function point analysis. Resource Allocation: Identifying resource requirements, Scheduling resources, Monitoring and control, Managing people and organization teams.

UNIT V

(Hours:12)

PROJECT MANAGEMENT :Project Management in the Testing phase – Introduction, test scheduling, test types, issues, management structures for testing, metrics for testing phase, Project Management in the Management phase – Introduction, activities, management issues, configuration management, estimating size, effort and people resources, advantages, metrics.

Text Books:

1. Bob Hughes and Mike Cotterell: “Software Project Management”, Fifth Edition, Tata McGraw Hill
2. Gopalaswamy Ramesh: “Managing Global Software Projects”, 2001, TMH.

Reference Books:

1. Walker Royce: “Software Project Management”, 1998, Addison Wesley
2. Stellman & Greener: “Applied software project management”, SPD.

SEMESTER- VI

ELECTIVE 3 : ARTIFICIAL INTELLIGENT AND EXPERT SYSTEM

Subject Code: 16U6ITET3A

Total Hrs: 60

No. Of Credits: 3

Objectives:

- To understand the expert-level knowledge about a particular domain and to know how to use its knowledge to respond properly.
- To understand the area of domain within which the task is being performed.
- To understand the source of knowledge may come from a human expert and/or from books, magazines and internet.
- To understand the functioning of expert systems and knowledge-based systems.

UNIT I

(Hours:12)

Artificial Intelligence : Intelligence, AI Concepts, Various definitions of AI, Knowledge, Knowledge Pyramid, People and Computers: What computers can do better than people, what people can do better than computers; Characteristics of AI Problems, Problem Representation in AI, Components of AI, AI Evolution, Application Areas of AI, History of AI, The Turing Test, The Revised Turing Test.

UNIT II

(Hours:12)

Expert System: Components of Expert System: Knowledge Base, Inference Engine, User Interface, Features of Expert System, Expert System Life Cycle, Categories of Expert System, Rule Based vs. Model Based Expert Systems, Advantages/Limitations of Expert System.

UNIT III

(Hours:12)

Developing an Expert System: Identification, Conceptualization, Formalization, Implementation, Testing, Using an Expert System, Application Areas of Expert System.

UNIT IV

(Hours:12)

AI and Search Process: Brute Force Search –Depth First/Breadth First Search, Heuristic Search: Hill Climbing, Constraint Satisfaction, Mean End Analysis, Best First Search, A* Algorithm, AO* Algorithm, Beam Search.

UNIT V

(Hours:12)

Natural Language Processing: Introduction, Need, Goal, Fundamental Problems in Natural Language Understanding, How People overcome Natural Language Problems. Speech Recognition: Introduction, Advantages and Approaches, Introduction to Robotics: Parts of a Robot, Controlling a Robot, Intelligent Robots, Mobile Robots.

Text Book:

1. Henry C. Mishkoff: "Understanding Artificial Intelligence" V S Janakiraman, "Foundation of Artificial Intelligence and Expert Systems", 2004.

Reference Books:

1. Vinod Chandra S.S and Anand Hareendran .S: "Artificial Intelligence and Machine Learning", PHI Learning, First Edition, 2014.
2. Elaine Rich, Kevin Knight, Shivashankar B.Nair: "Artificial Intelligence" , Third Edition 2012.

SEMESTER- VI

ELECTIVE 3 : SOFTWARE ENGINEERING

Subject Code: 16U6ITET3B

Total Hrs:60

No. of Credits: 3

Objectives: To enable the students

- To provide knowledge on Software engineering concepts
- To understand various techniques of cost estimation of software , software design and software Requirements.
- To understand various issues in implementation of software , verification , validation and maintenance of software to give a roadmap to design a new software project.

UNIT I

(Hours:12)

Introduction to Software Engineering : Introduction-Basic definitions- Distribution of effort-Project Size Categories – Managerial Issues -Quality and Productivity Factors – Software Cost Factors. Planning a Software Project: Introduction – Software life Cycle Models – Waterfall Model – Work Products and Reviews – Prototype Model – Spiral Model.

UNIT II

(Hours:12)

Software Cost Estimation : Introduction- Software Cost Estimation Techniques – Staffing Level Estimation – Software Maintenance Cost Estimation. Software Requirements Analysis: Software Requirements Analysis – Facilitated Application Specification Technique – Quality Function Deployment – Elements of Requirements Analysis- Classical Analysis Methods.

UNIT III

(Hours:12)

Software requirements Definition: Software Requirements Specification- Formal Specification Techniques – Languages and Processors for SRS. Software Design: Introduction – Types of Design – Design Strategies – Fundamental Design Concepts – Modules and Modularization Criteria – Design Notations – Design Techniques – Distributed and Real Time System Design.

UNIT IV

(Hours:12)

Source Code Development : Introduction – Structured Programming Techniques – Coding Style – Documentation Guidelines. Verification and Validation : Introduction – Software Quality – Verification and Validation Methods – Software Quality Assurance – Formal Technical review- Structured Walkthrough – Inspection – Audit – Testing – Testing Strategies – Debugging.

UNIT V

(Hours:12)

Software Testing Methods: Flowgraph and Graph Matrix- Software Testing Methods – White box testing – White Box Testing Techniques – Black box Testing - Black box Testing Techniques – Characteristics of testable software. Software maintenance: Introduction: Managerial Aspects of software maintenance – Enhancing Maintainability during development.

Text Book:

1.A.K.R.S. Anusha: “ Software Engineering”, Charulatha Publications, December 2016.

Reference Book:

1. Pressman: “Software Engineering: A Practitioner's Approach”(India) Paperback-Import, 1 Jun 2004.

SEMESTER- VI

ELECTIVE 3: MOBILE AND WIRELESS TECHNOLOGY

Subject Code: 16U6ITET3C

Total Hrs:60

No. of Credits: 3

Objectives :

- To learn the wireless communication on digital mobile communication system.
- To learn the integration of services and applications from fixed networks into networks supporting mobility of end user and wireless access.
- To learn the technology and standards of mobile communication including classical data transmission technologies and extension of today's Internet applications onto mobile and wireless devices.

UNIT I

(Hours:14)

Introduction: Applications – A Simplified Reference Mode. Wireless Transmission: Cellular System. Medium Access Control : Motivation for a Specialized MAC : Hidden and exposed terminals – Near and far terminals – SDMA – FDMA – TDMA : Fixed TDM –Classical Aloha – Slotted Aloha – Carrier Sense Multiple Access – Demand assigned Multiple Access – PRMA Packet Reservation Multiple Access – Reservation TDMA – Multiple Access With Collision Avoidance – Polling – Inhibit Sense Multiple Access. CDMA: Spread Aloha multiple access.

UNIT II

(Hours:10)

Telecommunication Systems: GSM: Mobile Services – System Architecture – Radio Interface – Protocols - Localization And Calling – Handover – Security – New Data Services. DECT: System Architecture – Protocol Architecture – TETRA.

Unit III

(Hours:12)

UMTS and IMT 2000: UMTS Releases and Standardization – UMTS System Architecture -UMTS Radio Interface – UTRAN – Core Network – Handover. Satellite System: History – Applications – Basics: GEO – LEO – MEO . Routing – Localization – Handover.Broadcast Systems: Overview – Cyclical Repetition Of Data – Digital Audio Broadcasting –Digital Video Broadcasting – Convergence of Broadcasting and Mobile Communication.

UNIT IV

(Hours:12)

Wireless LAN: Infra Red Vs Radio Transmission – Infrastructure and Ad-Hoc Network – IEEE 802.11: System Architecture – Protocol Architecture – Physical Layer – Medium Access Control Layer – MAC Management – HIPERLAN: HIPERLAN1 -WATM – BRAN– HiperLAN2. Bluetooth: User scenarios – Architecture – Radio layer – Base band layer –Link manager protocol.

UNIT V

(Hours:12)

Mobile Network Layer: Mobile IP – Dynamic Host Configuration Protocol – Mobile Ad-Hoc Networks. Mobile Transport Layer: Traditional TCP-Classical TCP Improvement-TCP Over 2.5/3G Wireless Networks – Performance Enhancing Proxies.

Text Books:

1. Asoke K Talukder and Roopa R Yavagal: ” *Mobile Computing*” , Tata McGraw-Hill, Eleventh Reprint 2009. (UNIT I Chapter 1 & 2, UNIT II Chapter 3 & 4, UNIT III Chapter 5 & 6, UNIT IV Chapters 7 & 8, UNIT V Chapter 9 & 18.)
2. John Schiller: “Mobile communication”, (2 nd Edition) (Pearson Edition)

Reference Books:

1. William C.Y.Lee: “Mobile Communication Design Fundamentals, John Wiley, 1993.
2. Raj kamal: “Mobile communication”
3. Ivan Stojmenoric: “Wireless network & Mobile communication”, First Edition

SEMESTER – VI

ELECTIVE 4: COMPILER DESIGN

Subject Code: 16U6ITET4A

Total Hrs:60

No. of Credits: 3

Objectives:To enable the students

- To learn the fundamentals of Compiler Designes
- To gain knowledge on High level Programming languages
- To gain an insight into the lexical Analysis components viz. the algorithms for implementation of finite automata
- To know the components and management aspects of parsing tables, types of Error and the methods Detection and Recovery

UNIT I

(Hours:12)

Introduction to Compilers: Compilers and Translators – The Structure of a Compiler Lexical Analysis – Syntax analysis – Intermediate Code generation – Optimization – Code generation- Book keeping – Error handling – Compiler writing tools. Programming languages: High level Programming languages- Definitions – lexical and Syntactic structure of a language – data elements data structures – operators – assignment – statements.

UNIT II

(Hours:12)

Finite Automata and lexical Analysis: The role of the lexical analyzer – simple approach – regular expressions -finite automata – from regular expressions to finite automata – minimizing the number of states – implementation of lexical analyzer.The Syntactic Specifications of programming languages : Context free Grammers – Derivations and Parse Trees – Capabilities of Context free Grammers.

UNIT III

(Hours:12)

Basic Parsing Techniques: Parsers – Shift – reduce parsing – operator- precedence parsing – Top down parsing – Predictive parsers. Automatic Constuction of Effective parsers : LR parsers – Canonical Collection of LR (0) items - Constructing SLR parsing tables – Constructing Canonical LR paqrsing tables – Constructing LALR parsing tables.

UNIT IV

(Hours:12)

Symbol tables : the Contents of a symbol tables – data structures – Representing scope information.Error Detection and Recovery : Errors – Lexical phase errors – Syntactic phase errors – Semantic errors.

UNIT V

(Hours:12)

Introduction to Code Optimization :The principal sources of optimization – Loop Optimization – DAG representation of basic blocks – Value numbers and algebraic laws- global data flow analysis.Loop Optimization:Dominators – Reducible Flow graphs – depth first search – Loop invariant computations – Induction variable elimination – Some other loop optimizations.

Text Book:

1.Principles of Compiler Design,Alfred V. Aho, Jeffrey D.Ullman,Narosa publishing house.

Reference Book:

1.Compilers : Principles, Techniques and Tools (2nd Edition) by Alfred V.Aho and Monica S.Lam, Sep 10 , 2006.

SEMESTER -VI

ELECTIVE 4: MOBILE OPERATING SYSTEM

Subject Code: 16U6ITET4B

Total Hrs: 60

No. of Credits: 3

Objectives:

- To understand the process of developing software for the mobile.
- To create mobile applications on the Android Platform.
- To create mobile applications involving data storage in SQLite database.

UNIT I

(Hours:12)

Introduction to ANDROID: Android System Architecture, Creating and Running Android Applications, Types of Android Applications, Building blocks. Android OS Concepts: Mobile technology : Overview of Android - An Open Platform for Mobile development Open Handset Alliance. Use Android for mobile app development- Android Marketplaces - Android Development Environment setup.

UNIT II

(Hours:12)

Android development Framework -Android-SDK, Eclipse Emulators /Android AVD. Creating & setting up custom Android emulator .Android Project Framework and its applications- Application Manifest, Application Life Cycle, Application Priority and Process States, Creating and Using Resources, The Activity Life Cycle.

UNIT III

(Hours:8)

Android Architecture : Linux Kernel –Libraries- Android Runtime- Application Framework –Applications. Android Startup and Zygote. Android Debug bridge.Android Permission model -Android Manifest File.

UNIT IV

(Hours:14)

Using Bluetooth and Managing Networks in ANDROID: Using Bluetooth -Introducing the Bluetooth Service, Controlling the Local Bluetooth Device, Discovering and Bonding with Bluetooth Devices, Managing Bluetooth Connections, Communication with Bluetooth. Managing Networks - Monitoring and Managing Your Internet Connectivity, Managing Active Connections, Managing Your Wi-Fi .

UNIT V

(Hours:14)

Event driven Programming in Android- Creating a splash screen- Introduction to threads in Android- Develop application with menus and dialog boxes- Menu: Custom Vs. System Menus - Creating and Using Handset menu Button (Hardware)- Android Themes, Dialog, create an Alter Dialog- SQLite: Open Helper and create with database- Open and close a database.

Text Books:

1. Reto Meier: “Professional Android 2 Application Development”, Second Edition, 2010
2. Ed Burnette: ”Hello, Android”, Fourth Edition, 2015
3. Rick Rogers, John Lombardo: “Android Application Development” - 2009.

Reference Books:

1. Mark L Murphy: “Beginning Android” Wiley India Pvt Ltd, 2009, First Edition
2. Sayed Y Hashimi and Satya Komatineni: “Professional Android”, Wiley India Pvt Ltd.
4. Marko Garaenta: “ Learning Android”, Second Edition (O'ReillyPublication).
5. Android Developers Tools essentials” (O'ReillyPublication).

SEMESTER-VI

ELECTIVE 4: CLOUD COMPUTING

Subject Code: 16U6ITET4C

Total Hrs:60No. of Credits: 3

Objectives:To enable the students

- To learn the basics of cloud computing .
- To Understand the Cloud computing architectures, applications and challenges
- To learn about various cloud storages.

UNIT I

(Hours:12)

INTRODUCTION: Cloud Computing Introduction, From, Collaboration to cloud, Working of cloud computing, pros and cons, benefits, developing cloud computing services, Cloud service development, discovering cloud services.

UNIT II

(Hours:12)

CLOUD COMPUTING FOR EVERYONE: Centralizing email communications, cloud computing for community, collaborating on schedules, collaborating on group projects and events, cloud computing for corporation, mapping schedules managing projects, presenting on road.

UNIT III

(Hours:12)

USING CLOUD SERVICES : Collaborating on calendars, Schedules and task management, exploring on line scheduling and planning, collaborating on event management, collaborating on contact management, collaborating on project management, collaborating on word processing, spreadsheets, and databases.

UNIT IV

(Hours:12)

OUTSIDE THE CLOUD : Evaluating web mail services, Evaluating instant messaging, Evaluating web conference tools, creating groups on social networks, Evaluating on line groupware, collaborating via blogs and wikis

UNIT V

(Hours:12)

STORING AND SHARING:Understanding cloud storage, evaluating on line file storage, exploring on line book marking services, exploring on line photo editing applications, exploring photo sharing communities, controlling it with web based desktops.

Text Books:

1. Michael Miller, "Cloud Computing", Pearson Education, New Delhi, 2009.
2. Anthony T. Velte, Cloud Computing A Practical Approach First Edition, Tata Mcgraw Hill Education Private Limited (2009).

Reference Book:

1. Arshdeep Bahga : "Cloud Computing: A Hands-On Approach", Paperback-Import, 9 Dec 2013.

EXTRA CREDIT COURSE : HUMAN RESOURCE MANAGEMENT

Subject Code : 16UITECC01

No. of Credits: 2

Objectives:

- To understand the nature of human resources and its significance to the organization
- To familiarise students with the various techniques in HRM that contribute to the overall effectiveness of an organization.
- To bring the attention of the students on the latest trends in managing human resources in an organization.

UNIT I

Human Resource Management: Definition – Objectives – Functions - Evolution And Growth Of HRM– Qualities Of A Good HR Manager – Changing Roles of a HR Manager– Problems And Challenges of a HR Manager.

UNIT II

Planning The Human Resources : definitions Of Human Resource Planning – Objectives – Steps In Human Resources Planning – Dealing With Surplus And Deficient Man Power - Job Analysis – Job Description – Job Specification.

UNIT III

Recruitment & Selection : Recruitment And Selection – Objectives of Recruitment – sources – Internal And External Recruitment – Application Blank – Testing – Interviews.

UNIT IV

Training & Development : Training and development – Principles of Training – Assessment Of Training Needs – on the Job Training methods - off the Job Training Methods – Evaluation of Effectiveness of Training Programmes.

UNIT V

Performance Appraisal : Performance Appraisal– process – Methods of Performance Appraisal – Appraisal Counseling – Motivation process – Theories of motivation – Managing Grievances and Discipline.

Text Books:

1. Tripathi: “Personnel Management”, Sultan Chand & Sons, New Delhi, 2000.
2. L M Prasad: “Human Resource Management”, Sultan Chand & Sons, New Delhi, 2005.

References Books:

1. Aswathappa: “Human Resource Management”, Tata Mc Graw Hill Publishing Company, New Delhi, 1999.
2. Davis and Werther: “Human Resource Management”, Tata Mc Graw Hill Publishing Company, New Delhi, 2000

EXTRA CREDIT COURSE : PRINCIPLES AND PRACTICE OF MARKETING SERVICES

Subject Code: 16UITECC02

No. of Credits: 2

Objectives:

- To enable the students to gain knowledge on marketing of various services.
- To enlighten the students' knowledge on marketing services.
- To make the students understand about practice of marketing services.

UNIT I

Meaning of Services Marketing – Definitions – Its importance – characteristics of services – Growth of Services Marketing – Types of services – Comparative analysis between services and products.

UNIT II

Concept of services marketing – Societal concept – Buyer behaviour concept – Factors influencing buyer behaviour – Decision making process of buyer.

UNIT III

Services Marketing Mix – Product Strategy – Product Life Cycle concept – Strategic during the P.L.C. – Product Planning Strategy – Development of new products – its simplification – Diversification and elimination.

UNIT IV

Services Marketing – I : Bank Marketing – Insurance Marketing – Transport Marketing.

UNIT V

Services Marketing – II: Tourism and Hotel Marketing - Education Marketing – Communication Services Marketing.

Reference Books:

1. S.M.Jha, : “Services Marketing”, Himalaya Publication House, Mumbai, Sixth Edition, 2003.
2. Christopher love lock: “Services Marketing”, Person Education Chennai, Sixth Edition, 2010.
3. Philip Kotler: “Marketing Management”, Person Education Chennai, Sixth Edition, 2013
4. S.Sherlekar: “Marketing Management”, Himalaya Publication House, Mumbai, Sixth Edition, 1997.

EXTRA CREDIT COURSE : INVESTMENT MANAGEMENT

Subject Code: 16UITECC03

No. of Credits: 2

Objectives:

- To provide knowledge on Investment Analysis
- To enable the students to understand the various types of fundamental techniques
- To familiarize the students with the Portfolio Analysis and Management

UNIT I

Investment Analysis: Nature – Scope - Elements of Investment Risk and Return - Objectives Investment - Investment Approaches - Investment analysis. Securities - Types - Features.

UNIT II

Investment Alternatives and Strategies: Financial investment - Non financial investment - Inbound and outbound investments – Sources of Investment Information - Valuation of fixed income securities and variable income securities (excluding Derivatives).

UNIT III

Fundamental Analysis: Economic Analysis – Industry Analysis - Company Analysis – Sources of information for analysis.

UNIT IV

Technical Analysis – Types of Charts – Dow Theory - Elliott Wave Theory - Odd-lot Theory - Breadth of Market - Relative Strength Analysis – Moving Average Analysis - Efficient Market Hypothesis.

UNIT V

Portfolio Analysis and Management: Portfolio Risk and Return – Diversification - Markowitz Model – Sharpe Model: Single Index Model – CAPM – Arbitrage Pricing Theory.

Reference Books:

- 1) Preeti Singh: “Investment Management”, Himalaya Publishing House, Mumbai, First Edition, 2005.
- 2) Bhalla and Tuteja: “Investment Management”, S.Chand and Sons Publisher, New Delhi, First Edition, 1997.
- 3) V.A.Avadhani: “Investment Management”, Himalaya Publishing House, Mumbai, First Edition, 1997.
- 4) Punithavathy Pandian: “Security Analysis and Portfolio Management”, Vikas Publishing House Pvt Ltd, New Delhi, First Edition, 1997.

EXTRA CREDIT COURSE: CONSUMER MARKETING

Subject code: 16UITECC04

No. of Credits: 2

Objectives:

- To make the students to understand the concepts of consumer marketing and the motivation theories.
- To understand the customer value chain and their demography.
- To understand market segmentation and their uses.

UNIT I

Introduction- Definition of Consumer Marketing- Need and importance- Scope- Consumer Needs- Theories of Motivation and their application- Process Theories-- Content theories- Personality and Self Concept- Theries of Personality – Trait Theory

UNIT II

Building Customer Value and Satisfaction- Delivering Customer Value- Value Chain – Value Delivery Network- Attracting and Retaining Customer Retention- Relationship Marketing- Customer Demand- Demography- Market Segmentation- Benefits- Criteria for Market Segmentation.

UNIT III

Learning Theories and their application- Brand Loyalty- Brand Extension- Conditioning Theories- Cognitive Learning Theory- Attitude and Attribute theory- Cognitive Dissonance- Self Concept- Development of Self- Fashion – Cosmetics- and Conspicuous Consumption

UNIT IV

Perception- Thershold of perception- Sublineial of Perception- Perception- Perceptual Process- Dynamics- Positioning Methods- and Measurement- Perceptual Mapping- Multidimensional Scaling- Consumer Imaginaries

UNIT V

Advertising- Role in Marketing Process- Legal and Ethical Process- Social Aspects- Function and Types of Advertising- Integrated Marketing Communication- Brand Management- Brand Equity- Image in Brand Equity Buiding- Ethics in Advertisement

Text Books:

1. Schiffman L.G and Kanuk L: “Relationship Marketing”, Tata MC Graw Hill, Twelfth Edition 2009.
2. R.S.N Pillai and Bhavathi : “Modern Marketing Principles and Practices”, S.Chand & Co., Ltd., New Delhi, Seventh Edition, 2011.
3. Paul green Berg: “Customer Relationship Management”, Tata MC Graw Hill, Seventh Edition, 2009.

Reference books:

1. Philip Kotler and Gray Armstrong: “Principles of Marketing”, Pearson Education Pvt Ltd., Seventh Edition, Reprinted 2011.
2. Dr.Rajan Nair: ”Marketing Management”, Sulthan Chand & Sons, Eleventh Edition, NewDelhi

EXTRA CREDIT COURSE:INTERNATIONAL MARKETING

Subject Code: 16UITECC05

No. of Credits: 2

Objectives:

- To enable the students understand the principles and concepts in International Marketing
- To provide knowledge about marketing management in the International Perspective
- To familiarise the students with marketing strategies for the dynamic International Markets.

UNIT I

The importance and scope of marketing - Evolution of marketing: From transaction-based to relationship marketing- Marketing research and Decision support systems - Market Segmentation - Targeting and Positioning.

UNIT II

Product Mix - Product Management Decisions, Product Life Cycle strategies - New Product Development - Pricing considerations and approaches - Pricing strategies.

UNIT III

Distribution channels and physical distribution.- Marketing Communication and Promotion mix Strategies - Nature of International Marketing: Meaning - Framework for International Marketing - Barriers for International Marketing

UNIT IV

International Marketing Decisions: Product Planning - Designing Development for International Markets - Pricing Decisions: Pricing Strategies and Price setting for International Markets.

UNIT V

Distribution: Channel Management and Physical Distribution - Management in International Marketing Promotion: International Advertising Programs - Sales Management and Sales Promotion for Foreign Markets.

Text Books:

1. P. SubbaRao: "International Business", Himalaya Publication House, Second Edition 2010.
2. Saxena: "Marketing Management", Himalaya Publication, Thirteenth Edition, 2010.

Reference Books:

1. Warren J Keegan: "Global Marketing", Pearson Education, Seventh Edition, 2002.
2. Franis Cherunilan: "International trade and Export Management", Himalaya Publication House, First Edition, 2012.
3. Paras Ram: "International Business", Anupam publication, 21st Edition, 2012.

EXTRA CREDIT COURSE : PRODUCTION AND OPERATIONS

MANAGEMENT

Sub Code: 16UITECC06

No. of Credits: 2

Objectives: On successful completion of the course, the students should have understood.

- The key areas of production and layout.
- The concept of Materials management and Supply Chain Management.
- The concept of Total quality management.

UNIT I

Production Management - Functions - Scope - Plant location - Factors - Site location - Plant layout - Principles - Process - Product layout. Production planning and control - Principles - Meaning - Routing - Scheduling - Dispatching - Control.

UNIT II

Materials Handling - Importance - Principles - Criteria for selection of material handling equipments. Maintenance - Types - Breakdown - Preventive - Routine - Methods study - Time study - Motion study.

UNIT III

Organization of Materials Management - Fundamental Principles - Structure - Integrated materials management. Purchasing – procedure - principles - import substitution and import purchase procedure. Vendor rating - Vendor development.

UNIT IV

Function of Inventory - Importance - Tools - ABC, VED, FSN Analysis - EOQ - Reorder point - Safety Stock - Lead time Analysis. Store keeping - Objectives - Functions - Store keeper - Duties – Responsibilities, Location of store - Stores Ledger - Bin card.

UNIT V

Quality control - Types of Inspection - Centralised and Decentralised. TQM: Meaning - Objectives - elements – Benefits. Bench marking: Meaning - objectives – advantages. ISO: Features - Advantages - Procedure for obtaining ISO.

Text Book:

1. S.K.Sarangi: "Production and Materials Management", Asian Books Publications - Edition 2012.

Reference Books:

1. Sudhir Kausik: "Production and Materials Management", Anmol Publications , Edition 2014.
2. Stan C. Mc Donald: "Materials Management – An executive supply chain", Wilsey publishers , Edition 2009.
3. John W.Toomey: "Inventory Management – Principles, concepts and Techniques", Springer Publications, First Edition, 2012.
4. Neeti Gupta & Anuj Gupta: "Production and Materials Management", Kalyani Publishers - Edition 2015

EXTRA CREDIT COURSE: ENTREPRENEURIAL DEVELOPMENT

Subject code: 16UITECC07

No. of Credits: 2

Objectives:

- To enable the students to learn the concept of entrepreneur.
- To enable the students to know the fundamentals of being a good entrepreneur
- To make the students to understand the concepts relating to incentives and subsidies.

UNIT I

Concept of Entrepreneurship: Definition, Nature and characteristics of entrepreneurship – functions and type of entrepreneurship, phases of EDP, Development of women entrepreneur & rural entrepreneur including self employment of women council scheme

UNIT II

The start up process, project identification – selection of the product – project formulation-evaluation – feasibility analysis, project report

UNIT III

Institutional service to entrepreneur – DIC, SIDO, NSIC, SISI, SSIC, SIDCO – OTCOT, IIC, KUIC and commercial bank.

UNIT IV

Institutional finance to entrepreneur – IFCI,SFC,IDBI,ICICI,TIIC,SIDCS,LIC and GIC,UTI,SIPCOT – SIDBI commercial bank venture capital

UNIT V

Incentives and subsidies – subsidized services – subsidy for market, Transport – seed capital assistance – Taxation benefits to SSI, Role of Entrepreneur in export promotion and import substitution.

Text books:

1. C.B.Gupta and N.P.Srinivasan: “Entrepreneurial Development”, Sultan Chand & Sons, Fifth Edition, 2008.
2. Renu Arora & S.KI.Sood: “Fundamentals of Entrepreneurship and Small Business”, Kalyani Publishers, First Revised, 2014 Rept. 2014.

Reference Books:

1. S.S.Khanka, “Entrepreneurial Development”, S.Chand and Company Limited, New Delhi, Edition, 2001.
2. P.Saravanavel,”Entrepreneurial Development”, Ess Pee Kay Publishing House, Chennai Edition, 1997.

EXTRA CREDIT COURSE: MANAGEMENT INFORMATION SYSTEM

Sub Code: 16UITECC08

No. of Credits: 2

Objectives:

- To familiarise the students with Business Information through Computers.
- To enable the students aware of utilization of business information for decision making.
- To bestow knowledge about Database Management System

UNIT I

Management information system: meaning – features – requisites of effective MIS – MIS Model – components – subsystems of an MIS – role and importance – corporate planning for MIS – growth of MIS in an organization – centralization vs decentralization of MIS - Support – Limitations of MIS.

UNIT II

System concepts – elements of system – characteristics of a system – types of system – categories of information system – system development life cycle – system enhancement.

UNIT III

Information systems in business and management: Transaction processing system: Information repeating and executive information system.

UNIT IV

Database management systems – conceptual presentation – client server architectures networks.

UNIT V

Functional management information system: Financial – accounting – marketing – production – Human resource – business process outsourcing.

Text Books:

1. Gordon B.Davis and Margrethe H.Olson: “Management Information System”, Tata McGraw Hill Publication, New Delhi, 1st Edition, 2005.
2. Aman Jindal: “Management Information system”, Kalyani Publishers, New Delhi, First Edition, 2004.

Reference Books:

1. Kenneth C. Laudon: “Management Information System”, Pearson Education, New Delhi, First Edition, 2004.
2. Stephen Haag: “Management Information System”, Tata McGraw Hill Publication, New Delhi, First Edition, 2008.

EXTRA CREDIT COURSE : EXECUTIVE BUSINESS COMMUNICATION

Sub Code: 16UITECC09

No. of Credits: 2

Objectives:

- To develop the written and oral Communication skill.
- To nurture the communication skills relating to business.
- To enable the students to prepare a good business report.

UNIT I

Business Communication: Meaning – Importance of Effective Business Communication- Modern Communication Methods – Business Letters : Need – Functions - Kinds - Essentials of Effective Business Letters - Layout.

UNIT II

Trade Enquiries - Orders and their Execution - Credit and Status Enquiries – Complaints and Adjustments - Collection Letters – Sales Letters – Circular Letters.

UNIT III

Banking Correspondence-Insurance Correspondence -Agency Correspondence.

UNIT IV

Company Secretarial Correspondence (Includes Agenda, Minutes and Report Writing)

UNIT V

Application Letters – Preparation of Resume - Interview: Meaning – Objectives and Techniques of various types of Interviews – Public Speech – Characteristics of a good speech – Business Report Presentations.

Text Books:

1. Rajendra Pal and J.S.Korlahalli: “Essentials of Business Communication”, Sultan Chand and Sons, New Delhi, 2014.
2. M.S.Ramesh and C. C Pattanshetti, “Business Communication”, R.Chand and Co, New Delhi, 2003.

Reference Books:

1. C.B.Gupta: “Business Communication and Customer Relations, Sultan Chand and Co, 2000
2. M.V. Rodriquez: “Effective Business Communication Concept”, Vikas Publishing Company, 2003.

EXTRA CREDIT COURSE : BRAND MANAGEMENT

Sub Code: 16UITECC10

No. of Credits:

Objectives:

- To understand the methods of managing brands and strategies for brand management.
- To successfully establish and sustain brands and lead to extensions

UNIT I

Basics Understanding of Brands – Definitions - Branding Concepts – Functions of Brand - Significance of Brands – Different Types of Brands – Co branding – Store brands.

UNIT II

Strategic Brand Management process – Building a strong brand – Brand positioning – Establishing Brand values – Brand vision – Brand Elements – Branding for Global Markets – Competing with foreign brands.

UNIT III

Brand image Building – Brand Loyalty programmes – Brand Promotion Methods – Role of Brand ambassadors, celebrities – On line Brand Promotions.

UNIT IV

Brand Adoption Practices – Different type of brand extension – Factors influencing Decision for extension – Re-branding and re-launching.

UNIT V

Measuring Brand Performance – Brand Equity Management - Global Branding strategies - Brand Audit – Brand Equity Measurement – Brand Leverage -Role of Brand Managers– Branding challenges & opportunities.

Text Book:

1. Keller/Parameswaran & Jacob: “Strategic Brand Management: Building, Measuring, and Managing Brand Equity”, Pearson Education India; Fourth Edition 2015.

Reference Books:

1. Y.L.R. Moorthi: “Brand Management”, Vikas Publishing House, First Edition 2003.
2. Sagar Mahim, D. P. Agrawal : “Brand Management”, ANE Books Edition 2009.
3. Kirti Dutta: “Brand Management: Principles and Practices”, Oxford University Press, Edition 2012.
4. Ranjeet Verma: “Brand Management”, Laxmi Publications, First Edition 2009.

EXTRA CREDIT COURSES : STRESS MANAGEMENT

Sub Code: 16UITECC11

No. of Credits: 2

Objectives:

- To provide a broad physical, social and psychological understanding of stress.
- To understand the management of work related stress
- To develop and implement effective strategies to prevent and manage stress at work.

UNIT I

Meaning – Symptoms – Works Related Stress – Individual Stress – Reducing Stress – Burnout.

UNIT II

Time Management – Techniques – Importance of planning the day – Time management schedule – Developing concentration – Organizing the Work Area – Prioritizing – Beginning at the start – Techniques for conquering procrastination – Sensible delegation – Taking the right breaks – Learning to say ‘No’.

UNIT III

Implications – People issues – Environmental issues – Psychological fall outs – Learning to keep calm – Preventing interruptions – Controlling crisis – Importance of good communication – Taking advantage of crisis – Pushing new ideas – Empowerment.

UNIT IV

Developing a sense of Humour – Learning to laugh – Role of group cohesion and team spirit – Using humour at work – Reducing conflicts with humour.

UNIT V

Improving Personality – Leading with Integrity – Enhancing Creativity – Effective decision Making – Sensible Communication – The Listening Game – Managing Self – Meditation for peace – Yoga for Life.

Text Book:

1. D M Pestonjee, Stress and Work: “Perspectives on Understanding and Managing Stress”, SAGE Response, First Edition 2013.

Reference Books:

1. Kamlesh Jani, Ratish Kakkad, Stress Management, Pothi Publishers, Edition 2008.
2. Aarti Gurav , Time Management , Buzzing stock Publishing House, First Edition 2014.
3. Sanjay Kumar, Pushp Lata, Communication Skills, Oxford University Press, Second Edition 2015.
4. Barun Mitra, Personality Development and Soft Skills, Oxford University Press, Second Edition 2017.

EXTRA CREDIT COURSE: E-COMMERCE

Sub Code: 16UITECC12

No. of Credits: 2

Objectives:

- To provide knowledge about Electronic Commerce.
- To enable the students understand the technology of e-Commerce for Business Application.
- To make the student aware of the Techniques in the Application of e-Commerce.

UNIT I

E-commerce – framework – classification of electronic commerce – Anatomy of E-Commerce Applications – components of the I way –network access equipment – internet terminology.

UNIT II

Electronic Data Interchange – Benefits – EDI Legal, Security & privacy issues – DEI software implementation – value added networks – internal information systems – work flow atomization and coordination – customization and internal commerce.

UNIT III

Network security and firewalls – client server network security – emerging client server security threats – firewalls and network security – data and message security – encrypted documents and electronic mail – hypertext publishing – technology behind the web – security and the web.

UNIT IV

Consumer oriented electronic commerce: consumer oriented applications – mercantile process models – mercantile models from the consumer’s perspective – mercantile models from the merchant’s perspective.

UNIT V

Electronic payment systems – types – digital token based electronic payment system – smart cards & credit card electronic payment systems – risk designing electronic payment.

Text Books:

1. Ravi Kalakota and Andrew B.Whinston: “Frontiers of Electronic Commerce”, Pearson Education, First Edition, 2006.
2. Elias M Awand: “Electronic Commerce”, Phi Learning Pvt Ltd, Third Edition, 2007.

Reference Books:

- 1.Daniel Minoli and Emma Minoli: “Web Commerce Technology Handbook”, Tata McGraw Hill Publishing, New Delhi, First Edition, 2006.
2. Efrain Turban and David King: “Electronic Commerce”, Pearson Education, First Edition 2009.
3. Pete Loshin: “Electronic Commerce”, Firewall Media, Fourth Edition, 2005.

EXTRA CREDIT COURSE: THEORY OF COMPUTATION

Sub Code: 16UITECC13

No. of Credits: 2

Objectives:

- To learn about the basic of theory of computing
- To understand the concept of finite automata and push down automata
- To acquire knowledge in formal language
- To enhance the concept of conversion of deterministic automata to non deterministic automata.

UNIT I

Introduction to theory of Computing – Why Study the theory of Computing- What is Computation- Set theory-Alphabets-Strings and Languages-Relations-Functions-Graphs and Trees.

UNIT II

Finite Automata: Introduction-Finite state Machines -Deterministics Finite Automata(DFA)- Finite Automata with and without Epsilon Transitions-Language of Deterministic Finite Automata-Acceptability of a String by a Deterministic Finite Automata-Processing of Strings by Deterministic Finite Automata;Non-Deterministic Finite Automata(NFA)- Language of Non- Deterministic Finite Automata-Equivalence between DFA and NFA-Non Deterministic Automata with or without Epsilon Transitions.

UNIT III

Formal Language: Introduction-Theory of Formal Language-Kleene and positive Closure-Defining Language-Recursive Definition of Language-Arithmetic Expression-Grammar-Classification of Grammar and Language-Language and their Relation-Operations On Language-Chomsky Hierrachy.

UNIT IV

Regular Language: Introduction-Regular Language and Expression-Operations of Regular Expression-Identity Rules-Algebraic Laws for Regular Expression-Finite Automata and Regular Expression- Kleene's Theorem-Problems-Context Free Grammar and Context Free Language: Introduction-Derivation Tree-Parse Tree-Right Most and Left most Derivation -Ambiguity-Problems

UNIT V

Push Down Automata: Description and Definition-Language of PDA-Graphical Notation of PDA-Acceptance by Final State and Empty Stock, From Empty Stock to Final State and Vice versa-Deterministic Pushdown Automata and Non deterministic Pushdown Automata-Language-Problems.

Text Book:

1. Theory of Computing-A Gentle Introduction, Efim Kinber, Carl Smith, published by Pearson Education.(UNIT 1)
2. Theory of Automata, Language & Computation, Rajendra Kumar, Tata McGraw Hill Education Private Limited, New Delhi. (UNIT 1to 5)

Reference Book:

1. A Textbook Automata Theory, S.F.B.Nasir, P.K.Srimani, Published by Cambridge University Press India Pvt, Ltd, New Delhi.

UNIT 1: Chapter 1: Section 1.1, 1.2 (Text Book 1)

Chapter 1: Section 1.1-1.6 (Text Book 2)

UNIT 2: Chapter 2: Section 2.1-2.11

UNIT 3: Chapter 3: Section 3.1-3.10

UNIT 4: Chapter 4: Section 4.1-4.5, 4.6, 4.6.1, 4.6.2

Chapter 6: Section 6.1-6.10

UNIT 5: Chapter 7: Section 7.1-7.10