VISION , MISSION AND QUALITY POLICY OF THE COLLEGE

VISION

Kovai Kalaimagal College of Arts & Science shall inspire and guide students to acquire knowledge, develop skill and a positive attitude that will enhance their personlity, providing self confidence to face the competitive world.

MISSION

1. To Strive for excellence in academics.
2. To inculcate a positive attitude and to develop skill in students ,to meet the challenges of the competitive world.
3. To develop self -confidence through adequate interaction and relevant exposure.
4. To Promote ethical and social values in the students.
5. To identify and encourage talents in academics and sports by rewarding them with scholarships.

QUALITY POLICY

" KKCAS shall provide value -based education to its students for continual improvement in their academic performance,enhancing their competency for higher education and employment".

VISION, MISSION AND OBJECTIVES OF THE DEPARTMENT

VISION

The department of Information Technology to attain a status of excellence by producing adequately knowledgable,technically strong, emotionally sound and socially responsible persons to cater to the demands of the industry and society .

MISSION

- To make the students conversant with the technical concepts.
- To provide adequate knowledge through structured Curriculum designed with the inputs of Industry, Alumni, Subject Experts and students.
- To devise suitable training programms to train the students in the technical and other skills as per expectations of the industry.
- To arrange for programmes which would instil in the minds of students human values and a sense of responsibility towards society
- To produce ethically and professionaly responsible graduates through balanced curriculum.
- To create a learning environment that motivates the students to have a thirst for knowledge through life long learning.

OBJECTIVES OF THE DEPARTMENT

- To make the students to have a thorough understanding of the basic concepts in the field of Information Technology.
- To arrange for a number of seminars and guest lectures which would enhance the knowledge of students in the recent advances in the field of Information Technology.
- To take the students to industries to make them have first hand knowledge on the application of the softwares.
- To train the students in the development of softwares for solving certain simple problems.
- To provide training for the development of softskills so as to make the students employable.

GRADUATE ATTRIBUTES

Our Graduates to posses

- Communication skills
- In-depth domain knowledge
- Technical skills
- Knowledge Inter-disciplinary in nature
- Positive attitude
- Critical thinking and problem solving skills
- Dynamism and team building skills
- Professional ethics and social values
- Self-awareness and emotional inteligence
- Entrepreneurship qualitities
- Responsibility towards Society and environment
- Thirst for knowledge through life long learning

PROGRAMME EDUCATIONAL OBJECTIVES AND PROGRAMME OUTCOME

PROGRAMME EDUCATIONAL OBJECTIVES

PEO1: Graduates would be ideal IT professionals carrying out their tasks with professionalism and professional Ethics.

PEO2: Graduates would have become entrepreneurs in their own capacity.

PEO3: Graduates would be pursuing research programmes in order to contribute to the ever changing IT industry with innovative products.

PROGRAMME OUTCOMES

After completion of three years of study, our B.Sc IT Graduates will be able to :

PO1: Exhibit proficiency in oral and written communication.

PO2: Learn the principles and applications of various languages,processess involved,and acquire adequate knowledge to write programmes using the above.

PO3: Acquire Technical skills such as developing softwares for various applications, Testing them and providing information security.

PO4: Acquiring adequate knowledge in interdisciplinary subjects such as Commerce,Mathematics and Statistics for enhanced applications of softwares developed.

PO5: Developing positive attitude by instilling confidence in the minds of students by suitable programs.

PO6: An ability to make the students think out of the box and solve complex problems arising in shop floor situation.

PO7: An ability to function effectively and pro actively and in teams ,to accomplish a common goal.

PO8: Carrying out the task assigned by the industries with professional ethics and at the same time with the consent for well being of the society.

PO9: Aware of one's own weaknesses and strengths, emotions and the way to control emotions to maintain good interpersonal relationships.

PO10: Undertake entrepreneurship as a desirable and feasible career option.

PO11: Realizing the responsibilities towards the society and to protect the environment,use professional knowledge for providing better living condition to the people.

PO12: Learn continuously for updating new knowledge and technologies in the field of Information Technology.

MAPPING OF GRADUATE ATTRIBUTES WITH PROGRAMME OUTCOMES

S.No.	GRADUATES ATTRIBUTES	PROGRAM OUTCOME
1	Communication skills	Exhibit proficiency in oral and written communication.
2	In-depth domain knowledge	Learn the principles and applications of various languages, processess involved, and acquire adequate knowledge to write programmes using the above.
3	Technical skills	Acquire Technical skills such as developing softwares for various applications, Testing them and providing information security.
4	Knowledge Inter-disciplinary in nature	Acquiring adequate knowledge in interdisciplinary subjects such as Commerce,Mathematics and Statistics for enhanced applications of softwares developed.
5	Positive attitude	Developing positive attitude by instilling confidence in the minds of students by suitable programs.
6	Critical thinking and problem solving skills	An ability to make the students think out of the box and olve complex problems arising in shop floor situation.
7	Dynamism and team building skills	An ability to function effectively and pro actively and in teams ,to accomplish a common goal.
8	Professional ethics and social values	Carrying out the task assigned by the industries with professional ethics and at the same time with the consent for well being of the society.
9	Self-awareness and emotional inteligence	Aware of one's own weaknesses and strengths, emotions and the way to control emotions to maintain good interpersonal relationships.
10	Entrepreneurship qualitities	Undertake entrepreneurship as a desirable and feasible career option.
11	Responsibility towards Society and environment	Realizing the responsibilities towards the society and to protect the environment,use professional knowledge for providing better living condition to the people.
12	Thirst for knowledge through lifelong learning	Learn continuously for updating new knowledge and technologies in the field of Information Technology.

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 2019 – 2020)

1. REGULATIONS

This regulation is effective from the academic year 2019 -2020.

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.

c) 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' performances are continually assessed through Continuous Assessment (CIA) and End Assessment Examinations (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
Continuous Internal Assessment Test I	05
Continuous Internal Assessment Test II	05
Model Examination	10
Assignment (2 Numbers)	05
Total	**25**

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

Skills)#

Content	Marks Awarded
Continuous Internal Assessment Test I	25*
Continuous Internal Assessment Test II	
End Semester Assessment	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
Continuous Internal Assessment Test	05	05
Model Exam	10	05
Record Note Book	05	05
Total	**40**	**20**

Project

The guide wil give the marks for CIA as per the norms stated below:

Content	Marks Awarded
Review and content presentation(3 Reviews) (3*20)	60
Project Report	20
Total	**80**

1.6.2. End Assessment Examinations (EAE)

a) Semester examination will be conducted at the end of each semester after completing a minimum of 90 working days.

b) End Assessment Examination for the odd semester will generally be held during November and even semester during April.

c) The question papers for all the courses will be set by the external examiners.

d) The examinations for Languages, 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	20 Marks	10 Questions – 2 Marks each – Descriptive type.
Part B	25 Marks	5 Questions- 5 Marks each – either or type.
Part C	30 Marks	3 Questions-Out of five questions-- 10 Marks each.
Total	**75 Marks**	

f) The examinations for Value Based Education and 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	Questions - either or type of question - 10 Marks each

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 mark 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) Job Oriented Training Programme: Every student should complete one job oriented course of minimum 25hrs duration .The student may register in PMKVY (supported by the central government) or other external agency .They shoud submit a certificate for the sucessful completion of the training programme from the agency concerned at the end of the third semester

l) Online Course : Students have to register online courses like NPTEL /SWAYAM /MOOC / COURSERA /EDX etc and can appear for the exam in same web portal or through end Assessment Examinations in our College

m) Question paper pattern : (Self Study - Manitha vazhkaiyum Gandhiadigalum and Women Rights)

Part A	50 Marks	5 Questions -10 Marks each – either or type.

n) **Question paper pattern : (Self Study -General Awareness**

Part A	100 Marks	100 Questions -1 Marks each – objective type

o) 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**

p)Extra-Curricular Activities

The first year students can enroll themselves for NSS / RRC /YRC / Sports & Games / Clubs and earn the credit allotted. Participation in any one of these activities during the first four semesters is mandatory.A report regarding satisfactory participation in the activity issued by the faculty incharge of the activity and approved by the Head of the Department has to be submitted to the CoE at the end of the fifth semester.

q)Co-curricular Activities

Participation of the students in any one of the activities conducted by other colleges during their courses of study is compulsory for the award of degree and it should be duly certified by the Head of the Department and submitted to the Controller of Examinations with a copy of the certificate of participation.

r)Internship

The students have the option to select any organisation – Government / Private like industry, bank, Research & Development organisations, Scientific Companies, IT related service providers etc.,in consultation with the staff Co-ordinator & Head of the Department.The students are to undergo training for a period of two weeks.The students must maintain a work diary and prepare a report of the training undergone and submit the same to the HoD on a stipulated date, there will be a viva voce with internal examiners at the end of the semester V.

s)**Evaluation:**

Content	Marks Awarded
Attendance	10
Work diary	15
Report	50
Viva Voce	25
TOTAL	**100**

This course carries 3 credit.

t)Project

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

Content	Marks Awarded
Viva Voce	20
Total	**20**

u) 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 .

v) 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.

w) There will be one independent valuation for all theory papers of UG courses by external examiner except for self study subjects, Value Based subjects & Non-Major Electives.

x) 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 paper taken in the EAE. However there is no provision for revaluation of Practical papers.

y) 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.

z) 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:

GRADE POINT AVERAGE [GPA] = $\sum_i C_i G_i / \sum_i C_i$

$$GPA = \frac{\text{Sum of the multiplication of grade points by the credits of the courses}}{\text{Sum of the credits of the courses in a semester}}$$

For the Entire Programme:

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

$$CGPA = \frac{\text{Sum of the multiplication of grade points by the credits of the entire programme}}{\text{Sum of the credits of the courses of the entire programme}}$$

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-Appearance

*** 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 (2019 – 2022)

Part	Sub Code	Study Components	Hrs/week	CIA	EAE	Total	Credits
Semester-I							
I	**19U1TALT01**	**Language 1 :** Paper I Tamil I / Hindi I / French I / Malayalam I	5	25	75	100	3
II	**19U1ENLT01**	**Language 2 :** Functional English I	5	25	75	100	3
III	**19U1ITCT01**	**Core 1:** C Programming with Problem Solving Techniques	4	25	75	100	4
	19U1ITCT02	**Core 2:** Digital Fundamentals and Architecture	4	25	75	100	4
	19U1ITCP03	**Core 3:** C Programming-Practical	3	40	60	100	3
	19U1ITAT01	**Allied 1**: Numerical Methods and Statistics	5	25	75	100	4
IV	**19U1VBET01**	**Value Based Education 1:** Environmental Studies**	2	-	50	50	1
		Value Based Education 2: Yoga for Youth Empowerment**	2	-	-	-	-
	19U1SBST01	**Skill Based Subject 1:** Mathematics for Competitive Examinations -I	2	50	-	50	1
	19U1SBST02	**Skill Based Subject 2:** Communication Skills -I	2	50	-	50	1
	--	Sports	2	-	-	-	-
			Total			**750**	**24**
Semester-II							
I	**19U2TALT02**	**Language 1 :** Paper II Tamil II / Hindi II / French II / Malayalam II	5	25	75	100	3
II	**19U2ENLT02**	**Language 2 :** Functional English II	5	25	75	100	3
III	**19U2ITCT04**	**Core 4:** C++ Programming	4	25	75	100	3
	19U2ITCT05	**Core 5:** Data Structures	4	25	75	100	3
	19U2ITCP06	**Core 6:** C++ Programming- Practical	3	40	60	100	3
	19U2ITAT02	**Allied 2:** Discrete Mathematics	5	25	75	100	4
	19U2VBET02	**Value Based Education 2:** Yoga for Youth Empowerment**	2	-	50	50	4
IV	**19U2VBET03**	**Value Based Education 3:** Ethics and Culture **	2	-	50	50	1
	19U2SBST03	**Skill Based Subject 3 :** Mathematics for Competitive Examinations -II	2	50	-	50	1
	19U2SBST04	**Skill Based Subject 4 :** Communication Skills -II	2	50	-	50	1
	--	Sports	2	-	-	-	-
			Total			**800**	**26**
Semester-III							

III	**19U3ITCT07**	**Core 7:** Operating Systems	5	25	75	100	4
	19U3ITCT08	**Core 8:** Java Programming	5	25	75	100	4
	19U3ITCT09	**Core 9:** Microprocessor and ALP	6	25	75	100	3
	19U3ITCP10	**Core 10:** Java Programming - Practical	6	40	60	100	3
	19U3ITAT03	**Allied 3:** Operations Research	5	25	75	100	4
IV	**19U3SBST05**	**Skill Based Subject 5:** Mathematics for Competitive Examinations -III	2	50	-	50	1
	19U3SBST06	**Skill Based Subject 6:** Communication Skills -III	2	50	-	50	1
	19U3NMET01	**Non Major Elective 1:** Food Science and Nutrition	2	-	50	50	2
	19U3BTLT01 **19U3ATLT01**	**Non Credit Course:1** **Basic Tamil-I #/Advanced Tamil #**	-	-	-	-	-
		Job Oriented Courses*	-	-	-	-	1
	19U3SSCT01	**Self Study Course 1:** Manitha vazhkayum Gandhiyadigalum**	-	-	50	50	1
		Sports	2	-	-	-	-
		Library Work	1	-	-	-	-
					Total	**700**	**24**

Semester-IV

III	**19U4ITCT11**	**Core 11:** Computer Graphics	5	25	75	100	3
	19U4ITCT12	**Core 12:** System Analysis and Design	5	25	75	100	4
	19U4ITCT13	**Core 13**: Data Communication and Computer Networks	5	25	75	100	3
	19U4ITCP14	**Core 14**: Computer Graphics - Practical	6	40	60	100	3
	19U4ITAT04	**Allied 4:** Business Accounting	6	25	75	100	4
IV	**19U4SBST07**	**Skill Based Subject 7:** Mathematics for Competitive Examinations -IV	2	50	-	50	1
	19U4SBST08	**Skill Based Subject 8:** Communication Skills -IV	2	50	-	50	1
	19U4NMET02	**Non Major Elective 2:** Floriculture	2	-	50	50	2
	19U4NCCT02	Basic Tamil-II #/Advanced Tamil #	-	-	-	-	-
	19U4SWCT01	Online Courses (SWAYAM/NPTEL)*	-	-	-	-	1
	19U4SSCT02	**Self Study Course 2:**Women Rights**	-	-	50	50	1
		Sports	2	-	-	-	-
		Library Work	1	-	-	-	-
					Total	**700**	**23**

Semester-V

III	**19U5ITCT15**	**Core 15:** ASP .Net and C#	5	25	75	100	3
	19U5ITCT16	**Core 16:** PHP and MySQL	5	25	75	100	3
	19U5ITCP17	**Core 17:** ASP. Net and C# - Practical	6	40	60	100	3
	19U5ITCP18	**Core 18:** PHP and MySQL - Practical	6	20	30	50	3
	19U5ITET1A **19U5ITET1B** **19U5ITET1C**	**Elective 1:** Data Mining and Warehousing Software Engineering Cyber Security	4	25	75	100	3
	19U5ITET2A	**Elective 2:**	4	25	75	100	3

	19U5ITET2B **19U5ITET2C**	Web Technology and its Applications Inter Networking with TCP/IP Software Project Management					
IV	**19U5NCCT03**	**Non Credit Course 3 :** Aptitude and Soft Skills - I	3	-	-	-	-
	19U5SSCT03	**Self Study Course 3**: General Awareness	-	-	100	100	1
		Internship :(15 days)	-	-	-	-	3
		Co-Curricular Activities: Participation in Seminars/ Conferences/ Workshops/Symposia	-	-	-	-	1
		Sports	2	-	-	-	-
		Library Work	1	-	-	-	-
					Total	**650**	**23**
Semester-VI							
III	**19U6ITCT19**	**Core 19:** Software Testing	5	25	75	100	3
	19U6ITCT20	**Core 20:** Operations of E-Wallet and Information Security	6	25	75	100	3
	19U6ITCP21	**Core 21:** Software Testing -Practical	6	20	30	50	3
	19U6ITCV22	**Core 22:** Project and Viva Voce	5	80	20	100	4
	19U6ITET3A **19U6ITET3B** **19U6ITET3C**	**Elective 3:** Artificial Intelligence and Expert System Big Data Analytics Mobile and Wireless Technology	4	25	75	100	3
	19U6ITET4A **19U6ITET4B** **19U6ITET4C**	**Elective 4:** Compiler Design Mobile Operating System Cloud Computing	4	25	75	100	3
IV	**19U6NCCT04**	**Non Credit Course 4 :** Aptitude and Soft Skills -II	3	-	-	-	-
		Extra Curricular Activities : **NSS/RRC/YRC/Sports & Games/Clubs**	-	-	-	-	1
		Sports	2	-	-	-	-
		Library Work	1	-	-	-	-
					Total	**550**	**20**
					Total	**3800**	**140**

* It will not be considered for the calculation of CGPA

*** *** 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 l Assesment : 20 Marks (Viva Voce)**.**

CURRICULUM STRUCTURE

S.No	Course	No of Papers	Credits
1	Language 1 : Tamil/Hindi/Malayalam/French	02	06
2	Language 2 : English	02	06
3	Core	22	72
4	Allied	04	16
5	Elective	04	12
6	Value Based Education	03	06
7	Skill Based Subject	08	08
8	Non-Major Elective	02	04
9	Non Credit Course	02	-
10	Job Oriented Course	01	01
11	Online Course	01	01
12	Self Study Course	03	03
13	Internship (15 days)	01	03
14	Co Curricular Activities	01	01
15	Extra Curricular Activities	01	01
16	Basic Tamil /Advance Tamil	02	-
Total Credits			**140 Credits**

EXTRA CREDIT COURSES		
Course Code	**Subjects**	**Credits**
2019ECC001	சுற்றுலா வளர்ச்சி	2
2019ECC002	இதழியல் கலை	2
2019ECC003	நாட்டுப்புறவியல்	2
2019ECC004	கணிப்பொறியில் தமிழ்	2
2019ECC005	தமிழக வரலாறும் மக்கள் பண்பாடும்	2
2019ECC006	தமிழ் இலக்கிய வரலாறு	2
2019ECC007	New Media	2
2019ECC008	Proofreading And Copyediting	2
2019ECC009	Personality Development	2
2019ECC010	Technical Writing	2
2019ECC011	An Introduction To Psychology	2
2019ECC012	Astronomy	2
2019ECC013	Fuzzy Mathematics	2
2019ECC014	Operation Research	2
2019ECC015	Mathematics For Professional Courses	2
2019ECC016	Multimedia And Its Applications	2
2019ECC017	Management Information System	2
2019ECC018	Theory Of Computation	2
2019ECC019	Oops With Java Programming	2
2019ECC020	Programming In C	2
2019ECC021	Internet Of Things	2
2019ECC022	Web Technology And Its Applications	2
2019ECC023	Network Security	2
2019ECC024	Mobile And Wireless Technology	2
2019ECC025	Cloud Computing	2
2019ECC026	Cross Culture Management	2
2019ECC027	Indian Economy And Trade Dependencies	2
2019ECC028	Export Marketing	2
2019ECC029	International Trade & Forex	2
2019ECC030	Brand Management	2
2019ECC031	Stress Management	2

2019ECC032	Risk And Insurance In International Trade	2
2019ECC033	Retail Marketing	2
2019ECC034	Export And Import Procedures	2
2019ECC035	Logistics And Supplychain Management	2
2019ECC036	Quality Management	2
2019ECC037	Management Of Small And New Enterprises	2
2019ECC038	Tourism Management	2
2019ECC039	Event Management	2
2019ECC040	Hospitality Management	2
2019ECC041	Consumer Behaviour	2
2019ECC042	Human Resource Management	2
2019ECC043	Principles And Practice Of Marketing Services	2
2019ECC044	Consumer Marketing	2
2019ECC045	Marketing Of Health Services	2
2019ECC046	International Banking	2
2019ECC047	E-Commerce	2
2019ECC048	International Accounting	2
2019ECC049	Corporate Social Responsibility And Governance	2
2019ECC050	Enterprise Resource Planning	2

SEMESTER I

Programme Code	B.Sc.IT	Programme Title	Bachelor of Science (Information Technology)	
Course Code	19U1TALT01	Title : Language 1: Tamil - I	Batch	2019-2022
			Semester	I
Hrs/week	5 Hours		Credits	3

நோக்கம்

- சமூகம் பற்றிய சிந்தனைகளைத் தமிழ்ப் படைப்பிலக்கியங்கள் மூலம் ஏற்படுத்துதல் புதுக்கவிதைகள், சிறுகதைகள் ஆகியவற்றைப் வாசிக்க வைத்தல், எழுத வைத்தல் தமிழ்நாடு அரசுப்பணியாளர் போட்டித்தேர்வு மையம் நடத்தும் போட்டித் தேர்வுகளுக்கு மாணவர்களைத் தயார் செய்தல்.
- மாணவர்களின் வாசிக்கும் ஆற்றலை ஊக்குவிக்கவும், தமிழ் இலக்கியத்தோடு தொடர்புடைய பிற நூல்களையும் மாணவர்கள் சுயமாக கற்று உணரச்செய்தல்
- மாணவர்கள் பிழையில்லாமல் எழுதுவதற்கும், பேசுவதற்கும், கருத்துப்பரிமாற்றத்திற்கும் இலக்கணம் உதவுகின்றன என்பதை அறிந்துகொள்ளல்.

பாடப்பகுதி கற்றலின் வெளிப்பாடு - Course Outcome (CO)

CO Number	CO Statement
CO1	தமிழ் மொழியின் வாயிலாக பண்பாடு, கலைகள் மற்றும் மரபுகள் முதலியவற்றை அறிதல்.
CO2	வாழ்வியல் நெறிகளை உணர்ந்து மனிதநேயத்துடனும் உயர்ந்த குறிக்கோளுடனும் சமுதாயத்தை நேசிக்கத் தகுந்தவர்களாக இருத்தல்.
CO3	இலக்கியங்களின் வாயிலாக பல்வேறு வகையான வாழ்க்கைத்தரம் மற்றும் மக்களின் வாழ்க்கை முறைகளைத் தெரிந்து கொள்ளுதல்.
CO4	அறத்தின் வழிநின்று பொருளீட்டி இன்பம் துய்ப்பது உன்னத வாழ்வின் அடிப்படை என்பதை இலக்கியங்கள் வாயிலாக மாணவர்கள் உணர்தல்.
CO5	சமூகம் மற்றும் பெண்ணியம் சார்ந்த கவிதைகளும், கருத்து பரிமாற்றத்திறனுக்கு அடிப்படையாக உள்ள இலக்கணமும், இன்றைய சமுதாய நிகழ்வுகளைப் பிரதிபலிக்கும் சிறுகதையும், தன்முயற்சிப்படிப்பின் வாயிலாக, நமது ஊரின் சிறப்புகளையும் மற்றும் வரலாற்றுச் செய்திகளையும் மாணவர்கள் அறிந்து கொள்ள செய்தல்.

நிரல் விளைவுகளைக் கொண்ட வரைபடம்

CO /PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	✓	✓	-	-	✓	-	✓	-	✓	-	-	✓
CO2	-	-	-	-	✓	✓	-	✓	-	-	✓	-
CO3	-	-	-	-	✓	✓	-	-	✓	-	-	-
CO4	-	-	-	-	✓	-	-	-	-	✓	-	-
CO5	✓	-	-	-	-	-	-	-	✓	-	-	-

பாடத்திட்டம்

அலகு – 1 செய்யுள் திரட்டு : மரபுக் கவிதைகள் (10 மணிநேரம்)

1. பாரதியார் - புதுமைப்பெண் (பாரதியார் கவிதைகள்)
2. பாரதிதாசன் - புத்தகச் சாலை (பாரதிதாசன் கவிதைகள்)
3. கவிமணி - புத்தரும் ஏழைச் சிறுவனும் (மலரும் மாலையும்)
4. கண்ணதாசன் - பிறப்பில் வருவது (கண்ணதாசன் கவிதைகள்)

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

1. புவியரசு – ரகசியம் (ஒரு முக்கிய அறிவிப்பு)
2. சிற்பி – தெற்கு வளைவு பாட்டையா (ஒரு கிராமத்து நதி)
3. அப்துல் ரகுமான் - மாதிரி (ஆலாபனை)
4. வைரமுத்து – மரங்களைப் பாடுவேன் (வைரமுத்து கவிதைகள்)
5. கனிமொழி – என் வீடு (கருவறை வாசனை)
6. முத்துக்குமார் - தூர் (பட்டாம்பூச்சி விற்பவன்)
7. திலிப் குமார் - எனது மௌனங்கள் (ஒத்திகை)
8. சுடலைமணி – பிறந்தநாள் பூங்கா (நட்சத்திரக்கிழவி)

அலகு – 3 சிறுகதைத் தொகுப்பு (13 மணிநேரம்)

1. புதுமைப்பித்தன் - காஞ்சனை.
2. ராஜம்கிருஷ்ணன் - சூரியக்கதிர்கள். (பெண்மையச் சிறுகதைகள்)
3. தி.ஜானகிராமன் - சிலிர்ப்பு. (கொட்டுமேளம்)
4. பிரபஞ்சன் - எனக்கும் தெரியும் (நேற்று மனிதர்கள்).
5. முத்துலிங்கம் - தாத்தா விட்டுப்போன தட்டச்சு மிசின் (கொழுத்தாடு பிடிப்பேன்)
6. வேணுகோபால் - தாய்மை, ஒரு துளி துயரம், பற்று
7. வெ. சுப்ரமணியபாரதி – மயங்கும் மனங்கள் (மரணித்த கணவனின் டைரி)
8. தாமரை – பசுத்தோல் (சந்திரக் கதிர்கள்)

அலுகு 4 இலக்கணம், பயன்பாட்டுத்தமிழ் 12 மணி நேரம்

நிறுத்தற் குறிகள் இடும் இடங்கள் - காற்புள்ளி, அரைப்புள்ளி, முக்காற்புள்ளி, முற்றுப்புள்ளி, புள்ளி, உணர்ச்சிக்குறி, கேள்விக்குறி, இரட்டை மேற்கோள்குறி, ஒற்றைமேற்கோள் குறி.

ஒருமை, பன்மை பிழைகளை நீக்குதல், மரபு பிழைகள், வழுஉச்சொற்களை நீக்குதல், பிறமொழிச் சொற்களை நீக்குதல்.

3. சொற்களை சேர்த்தும் இடம் விட்டும் எழுதுதல் - பெயர் ூ பெயர், பெயர் ூ வினை, வினை ூ வினை, இரட்டைச் சொற்கள், இடைச்சொற்கள்

அலகு 5 இலக்கிய வரலாறு 12 மணி நேரம்

1. சிறுகதையின் தோற்றமும் வளர்ச்சியும்.
2. புதுக்கவிதையின் தோற்றமும் வளர்ச்சியும்.
3. இலக்கணம் தோற்றமும் வளர்ச்சியும்.

4. தன்முயற்சி படிப்பு : தெரிந்த கோவை தெரியாத கதை
ஆசிரியர் : கவியன்பன்
வெளியீடு : விஜயா பதிப்பகம், கோயம்புத்தூர்.

பாடநூல் - செய்யுள் திரட்டு (தொகுப்பு) தமிழ்த்துறை வெளியீடு 2019

பார்வை நூல்கள்

வ. எண்	ஆசிரியர் பெயர்	நூலின் பெயர்	வெளியீடு	ஆண்டு ∴ பதிப்பு
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	கண்ணதாசன் கவிதைகள்	கலைக்காவிரி பதிப்பகம், திருச்சி.	ஐந்தாம் பதிப்பு: 1997
5	புவியரசு	ஒரு முக்கிய அறிவிப்பு	விஜயா பதிப்பகம், கோவை.	இரண்டாம் பதிப்பு: டிசம்பர் - 2005.
6	சிற்பி	ஒரு கிராமத்து நதி	கவிதா பதிப்பகம் சென்னை.	எட்டாம் பதிப்பு: ஆகஸ்ட்டு- 2011
7	அப்துல் ரகுமான்	ஆலாபனை	நேசனல் பப்ளிஷர்ஸ், சென்னை.	நான்காம் பதிப்பு: ஏப்ரல் - 2003
8	வைரமுத்து	வைரமுத்து கவிதைகள்	சூர்யா வெளியீடு, சென்னை.	பனிரெண்டாம் பதிப்பு: நவம்பர் -2000
9	கனிமொழி	கருவரை வாசைன	திருமகள் நிலையம்	மே - 1998
10	முத்துக்குமார்	பட்டாம்பூச்சி விற்பவன்	வம்கி கிராபிக்ஸ்	4 ம் பதிப்பு திசம்பர் 2007
11	திலிப் குமார்	ஒத்திகை - எனது மௌனங்கள்	--	--
12	ப.சுடலைமணி	நட்சத்திரக்கிழவி (கவிதைத் தொகுப்பு)	--	திசம்பர் 2018
13	புதுமைப்பித்தன்	புதுமைப்பித்தன் கதைகள்	பூம்புகார் பதிப்பகம், சென்னை.	இரண்டாம் பதிப்பு: ஜூலை –2006.
14	தி. ஜானகிராமன்	(கொட்டுமேளம்)	ஐந்திணைப் பதிப்பகம்	2012
15	பிரபஞ்சன்	நேற்று மனிதர்கள்	கவிதா பப்ளிகேசன்	ஜூன் 2001

16	முத்துலிங்கம்	கொழுத்தாடு பிடிப்பேன்	காலச்சுவடு பதிப்பகம்	திசம்பர் - 2013
17	வேணுகோபால்	ஒரு துளி துயரம்	விஜயா பதிப்பகம், கோவை.	பிப்ரவரி 2006
18	வெ. சுப்ரமணியபாரதி	மரணித்த கணவனின் டைரி	டிஸ்கவரி புக் பேலஸ்	ஜனவரி 2019
19	தாமரை	சந்திரக் கதிர்கள்	குமரன் பதிப்பகம்	ஜூன் 2004
20	வல்லிக்கண்ணன்	புதுக்கவிதையின் தோற்றமும் வளர்ச்சியும்	அகரம் பதிப்பகம்,, கும்பகோணம்.	நான்காம் பதிப்பு: ஜூலை - 1999.
21	கா.கோ.வெங்கட்ராமன்	தமிழ் இலக்கிய வரலாறு	கலையக வெளியீடு, திண்டுக்கல்.	இரண்டாம் பதிப்பு: ஜூன் - 2002.
22	மது.ச.விமலானந்தம்	தமிழ் இலக்கிய வரலாறு	முல்லை நிலையம், சென்னை.	2014.
23	மு.பரமசிவம்	நற்றமிழ் இலக்கணம்	சைவசித்தாந்த பதிப்பகம், திருநெல்வேலி.	முதற் பதிப்பு: 1995.
24	கவியன்பன். கே.ஆர் பாபு	தெரிந்த கோவை தெரியாத கதை	விஜயா பதிப்பகம் கோயம்புத்தூர்.	ஜூலை - 2011

SEMESTER I

Programme Code:	**B.Sc.IT**	**Programme Title**	**Bachelor of Science (Information Technology)**	
Course Code :	**19U1FRLT01**	Title :Language 1: French I	**Batch**	**2019-2022**
			Semester	**I**
Hrs/week	**5 Hours**		**Credits**	**3**

SYLLABUS

Prescribed text : **LATITUDES I**

Units : 1 – 4

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Yves Loiseau

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Question Paper Pattern

Semester I

Maximum Marks: 75 **Time: 3 hrs.**

(All questions to be set only from the prescribed text)

Section A (10)

1. Choisissez la meilleure réponse: (10X1=10)

Section B (25)

2. Dites vrai ou faux (5X1=5)

3. Traduisez les textes suivants en anglais:(4/5) (4X5=20)

Section C (40)

4. Compréhension (5x1=5)

5. Exercices de grammaire:(5X5=25) **(either/or)**

6. Remplissez le dialogue:(5X1=5)

7. Associez :(5X1=5)

SEMESTER I

Programme Code	B.Sc.IT	Programme Title	Bachelor of Science (Information Technology)	
Course Code	19U1HILT01	Title : Language 1:Hindi I	Batch	2019-2022
			Semester	I
Hrs/week	5 Hours		Credits	3

COURSE OBJECTIVES

To enable the students to understand the basic structure of Hindi language.

COURSE OUTCOMES (CO)

On Successful Completion of the course the students should be able to

CO Number	CO Statement
CO1	Help the learners to communicate with others in any part of India with ease.
CO2	Develop the skills of speaking and writing without flaws.
CO3	Help the learners to have a good critical thinking.

MAPPING WITH PROGRAMME OUTCOMES

CO/ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	✓	-	-	-	-	-	-	-	-	-	-	-
CO2	✓	-	-	-	-	-	-	-	-	-	-	-
CO3	-	-	-	-	-	✓	-	-	-	-	-	-

SYLLABUS

1. PROSE : NUTHAN GADYA SANGRAH

Editor : Jayaprakash

(Prescribed Lessons only 6)

Lesson 1 Bharathiya 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 BHARAT HINDI PRACHAR SABHA

CHENNAI – 17.

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

DAKSHIN BHARATH HINDI PRACHAR SABHA

CHENNAI-17.

SEMESTER I

Programme Code	B.Sc.IT	Programme Title	Bachelor of Science (Information Technology)	
Course Code	19U1MLLT01	Title : Language 1: Malayalam I	Batch	2019-2022
			Semester	I
Hrs/week	5 Hours		Credits	3

COURSE OBJECTIVES

To enable the students to understand the basic structure of Malayalam language.

COURSE OUTCOMES (CO)

On Successful Completion of the course the students should be able to

CO Number	CO Statement
CO1	Help the learners to learn other Indian languages like Sanskrit,Tamil etc., through Malayalam without much effort.
CO2	Develop the skills of speaking and writing without flaws.
CO3	Help the learners to have a good critical thinking.

MAPPING WITH PROGRAMME OUTCOMES

CO/ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	✓	-	-	-	-	-	-	-	-	-	-	-
CO2	✓	-	-	-	-	-	-	-	-	-	-	-
CO3	-	-	-	-	-	✓	-	-	-	-	-	-

SYLLABUS

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

Pathummayude Aadu - Vaikam Muhammed Basheerr
(D.C.Books, Kottayam, Kerala)

Unit III & IV

Ente Priyappeta Kadhakal – Akbar Kakkattil)
(D.C. Books, Kottayam, Kerala)

Unit V

Expansion of ideas, General Eassay and Translation. (A simple passage from English about 100 works to Malayalam)

Reference Books:

1.Malayala Novel Sahithya Charitram-K.M.Tharakan (N.B.S.Kottayam)
2.Cherukatha Innale Innu-M.Achuyuthan (D.C Books, Kottayam)
3.Sahithya Charitram Prasthanangalilude- Dr.K.M George,
(D.C.Books Kottayam)
4. Malayala Sahithya vimarsam-Sukumar Azhee kode (D.C.books)

SEMESTER-I

Programme Code	**B.Sc.IT**	**Programme Title**	**Bachelor of Science (Information Technology)**	
Course Code:	**19U1ENLT01**	**Language II- Functional English – I**	**Batch**	**2019-2022**
			Semester	**I**
Hrs/ Week	**5 Hours**		**Credits**	**3**

COURSE OBJECTIVES:

- To enable the students to understand the basic grammar in English.
- To acquaint students with the structure and strategies of conversation
- To make the students appreciate the significant works and style of prose.
- 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.

COURSE OUTCOMES (CO):

On Successful Completion of the course the students should be able to

CONumber	**CO Statement**
CO1	Speak and Write without commiting grammatical errors.
CO2	Read and appreciate simple literary works.
CO3	Deal with various conversational situations with confidence.

MAPPING WITH PROGRAMME OUTCOMES

COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	-	-	-	-	-	-	-	-	-	✓
CO2	✓	-	-	-	-	-	-	-	-	-
CO3	-	-	✓	-	-	-	-	-	-	-

SYLLABUS

UNIT –I-POETRY **(Hours-12)**

1. The Lotus Eaters - Alfred Lord Tennyson
2. Menelaus and Helen - Rupert Brooke
3. Night of the Scorpion - Nizzim Ezekiel

UNIT- II- PROSE **(Hours-12)**

1. My Vision for India - Abdul Kalam

2. A Speech by N. R. Narayana Murthy - N. R. Narayana Murthy

3. A Little Bit of what You Fancy - Desmond Morris

UNIT- III- Short Story **(Hours-12)**

1. The Happy Prince - Oscar Wilde
2. An astrologer's day - R. K. Narayan
3. The Blue Bouquet - Octavio Paz

UNIT-IV-Grammar and Composition **(Hours-12)**

1. Modals
2. Verbs
3. Pronoun
4. Letter Writing
5. Reading Comprehension

UNIT- V- Dialogue Writing (CONVERSATION EXERCISES) **(Hours-12)**

Greeting , Introducing , Requesting, Inviting & Congratulating

Recent editions of the following books only are recommended

TEXT BOOKS:

S. No	Author Name	Title of the Book	Publisher
1	A.G.Xavier	An Anthology of Popular Essays and Poems	Macmillan Indian Limited
2	Prof. A.E.Subramanian	Gifts to Posterity- An Anthology of Modern Short Stories	Chitra Publications, Chennai

REFERENCE BOOKS:

S.No	Author Name	Title of the Book	Publisher
1	N.Krishnaswamy	Modern English- A Book of Grammar Usage and Composition	Macmillan Indian Limited
2	Prof.K.Ramappa, Retd.	Essential English Grammar Usage & Composition	M. I. Publications
3.	Adibah Amin, Rosemary Eravelly, Farida J Ibrahim	Grammar Builder Level Volume 1	Cambridge University Press

Means of Curriculam Delivery: Lecture, Group Learning, Seminar, Assignment, Google Class Room.

SEMESTER I

Programme Code	**B.Sc IT**	**Programme Title**	**Bachelor of Science (Information Technology)**	
Course Code	**19U1ITCT01**	**Title : Core 1: C Programming with Problem Solving Techniques**	**Batch**	**2019-2022**
			Semester	**I**
Hrs/week	**4 Hours**		**Credits**	**4**

COURSE OBJECTIVES

- To enable the Students to provide the knowledge on problem solving techniques and algorithm
- fundamentals and skills that can be applied to the problems in other areas.
- 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.
- To know about the Basic Flow Chart design and represents algorithm workflow.

COURSE OUTCOMES (CO)

On the successful completion of the course, students should be able to

CO Number	**CO Statement**
CO1	Define the basic concepts of Problem solving and algorithms
CO2	Explain the loops and decision making statements to solve the problem
CO3	Apply different operations on arrays
CO4	Use functions to solve the given problem
CO5	Discuss about file system and operations on files

MAPPING WITH PROGRAMME OUTCOMES

COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**
CO1	-	✓	✓	-	-	✓	-	-	-	-	-	✓
CO2	-	✓	✓	✓	-	✓	-	-	-	✓	-	✓
CO3	-	✓	✓	✓	-	✓	-	-	-	✓	-	✓
CO4	-	✓	✓	✓	-	✓	-	-	-	✓	-	✓
CO5	-	✓	✓	✓	-	-	-	-	-	✓	-	✓

SYLLABUS

UNIT - I **(Hours : 10)**

Introduction to Computer Problem Solving: Problem Solving aspects-Top down design- Implementation of Algorithms- Program verification - Efficiency-Analysis of Algorithm. Flow Chart: Building Blocks – Common symbols- Diagramming.

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

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 : 10)**

Arrays - One Dimensional - Two Dimensional - Multidimensional arrays - Character string Handling - Declaring and initializing string variables -String:Introduction- Standard Functions. Funtions: 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 : 10)**

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 : 08)**

File management in C – Concept of files - Defining and opening a file - closing file - I/O operations on files – Predefined streams – Stream manipulation- Error handling during I/0 operations - Random access to files - Command line arguments - The Preprocessor.

TEXT BOOKS

S.No	Author Name	Title of the Book	Publisher&Edition
1.	E. Balagurusamy	Programming in ANSI C	Tata Mc. Graw Hill, Fifth Edition (reprint),
2.	R.G.Dromey	How to Solve it by Computer	Prentice Hall of India, Delhi

WEBSITE REFERENCES

1. http://www.cprogramming.com/tutorial.html
2. http://www.eskimo.com/~scs/cclass/notes/top.html
3. http://computer.howstuffworks.com/c.htm
4. http://www.iu.hio.no/~mark/CTutorial/CTutorial.html
5. http://www.di-mgt.com.au/cprog.html
6. https://www.lucidchart.com/pages/landing/flowchart_software

Means of Curriculum Delivery : Lecture, Group Learning, Seminar, Assignment,Google Classroom.

SEMESTER I

Programme Code :	**B.Sc IT**	**Programme Title**	**Bachelor of Science (Information Technology)**	
Course Code :	**19U1ITCT02**	**Title :Core 2: Digital Fundamentals and Architecture**	**Batch**	**2019-2022**
			Semester	**I**
Hrs/week	**4 Hours**		**Credits**	**4**

COURSE OBJECTIVES

- To provide a knowledge about the concepts of Computer Fundamentals and enable the students to understand Digital Logic Circuits and Gates.
- To know about number system and binary codes.
- 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 organizations.

COURSE OUTCOMES (CO):

On the successful completion of the course, students should be able to achieve the following outcomes

CO Number	**CO Statement**
CO1	Apply the principles of number system, binary codes and Boolean algebra to minimize logic expressions
CO2	Acquire knowledge about various logic gates and logic families and analyze basic circuits of these families
CO3	Develop K-maps to minimize and optimize logic functions up to 5 variables
CO4	Demonstrate computer architecture concepts related to design of modern processors, memories and I/Os.
CO5	Evaluate various design alternatives in processor organization

MAPPING WITH PROGRAMME OUTCOMES

CO/PO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**
CO1	-	✓	✓	✓	-	-	-	-	-	✓	-	
CO2	-	✓	✓	✓	-	-	-	-	-	✓	-	
CO3	-	✓	✓	✓	-	-	-	-	-	✓	-	
CO4	-	✓	✓	✓	-	-	-	-	-	✓	-	-
CO5	-	✓	✓	✓	-	-	-	-	-	✓	-	-

SYLLABUS

UNIT - I **(Hours: 10)**

Introduction to Number System – Binary Codes- Binary, Decimal, Octal and Hexadecimal- Conversions – Binary to Decimal, Binary to Octal, Binary to Hexadecimal (Vice-Versa) – Binary Addition, Multiplication, Division- Floating Point Representation- 1's, 2's, 9's and 10's Complements.

UNIT - II **(Hours: 10)**

BCD Code- Excess3 Code- Gray Code- Arithmetic Circuits: Half Adder, Full Adder, Parallel Binary Adder, BCD Adder, Half Subtractor- Full Subtractor- Parallel binary Subtractor- Digital Logic: Basic Gates- AND,OR,NAND,NOR, XOR and NOT.

UNIT - III **(Hours: 10)**

Combinational Logic Circuits: Boolean Algebra- Karnaugh Map- Canonical Form- Implicants- Don't Care Combinations- Product Of Sum and Sum Of Product- Sequential Circuits: Flip-Flops, RS, D, JK and T Flip Flops - Multiplexers- Demultiplexers.

UNIT - IV **(Hours: 10)**

Input-Output Organization: Input- Output Interface, I/O Bus-Interface- I/O Bus Versus Memory Bus- Isolated versus Memory- Mapped I/O- Asynchronous Data Transfer: Strobe Control and Handshaking.

UNIT - V **(Hours: 10)**

Direct Memory Access: DMA Controller, DMA Transfer, Input-Output Processor- CPU-IOP Communication- Memory Hierarchy- Main Memory-Associative Memory- Cache Memory- Hardware Organization- Read and Write Operation.

TEXT BOOKS

S. No	Author Name	Title of the Book	Publisher &Edition
1.	V.K. Puri	Digital Electronics Circuits and Systems	Tata Mc. Graw Hill,Third Edition
2.	M.Morris Mano	Digital Electronics Circuits and Systems	Tata Mc. Graw Hill,Third Edition

REFERENCE BOOKS

S. No	Author Name	Title of the Book	Publisher&Edition
1.	Albert Paul Malvino, Donald P Leach, Goutam Saha	Digital principles and applications	Tata Mc. Graw Hill,Sixth Edition
2.	S.Salivahanan, S. Arivazhagan	Digital Circuits and Design	Vikas Publishing House Pvt,.Ltd.,
3.	Thomas C.Bartee	Computer Architecture & Logic Design	Tata Mc. Graw Hill

WEBSITE REFERENCES

- https://www.tutorialspoint.com/computer_fundamentals/computernumbersystem.htm
- http://www.csd.nutn.edu.tw/Digital%20Fundamentals/ch04.pdf
- https://www.geeksforgeeks.org/flip-flop-types
- https://www.allaboutcircuits.com/textbook/digital

Means of Curriculum Delivery :Lecture,GroupLearning,Seminar,Assignment,Google Classroom.

SEMESTER I

Programme Code	**B.Sc IT**	**Programme Title**	**Bachelor of Science (Information Technology)**	
Course Code	**19U1ITCP03**	**Title : Core 3: C Programming - Practical**	**Batch**	**2019-2022**
			Semester	**I**
Hrs/week	**3 Hours**		**Credits**	**3**

COURSE OBJECTIVES:

- To enable the students to gain knowledge in developing C Programs for certain specified problems.
- To develop the applications using C Programming language.To apply the concepts like looping, functions, pointers and file types.

COURSE OUTCOMES (CO)

At the end of the practical session, students should be well-versed in

CO Number	**CO Statement**
CO1	Write programs using various data types in C.
CO2	Use various operators and expressions.
CO3	Apply the concept of Arrays, Pointers and strings
CO4	Apply the concept of loops and functional programming
CO5	Use the file handling concepts for maintaining record.

MAPPING WITH PROGRAMME OUTCOMES

COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**
CO1	-	✓	✓	-	-	-	-	✓	-	-	-	✓
CO2	-	✓	✓	-	-	✓	-	-	-	✓	-	✓
CO3	-	✓	✓	✓	-	✓	-	✓	-	✓	-	✓
CO4	-	✓	✓	✓	-	✓	-	✓	-	✓	-	✓
CO5	-	✓	✓	-	-	✓	-	✓	-	✓	-	✓

SYLLABUS

1. Write a C program to explain various data types in C.
2. Write a C program using various operators using switch case.

3. Write a C program to illustrate the concept of expressions
4. Write a C program using Loop & nested loop Statements (for, while, do-while)
5. Write a C program to using different dimensions of Array.
6. Write a C program to illustrate the concept of Strings.
7. Write a C Program to illustrate the concept of functions.
8. Write a C Program to store and display data using Structure.
9. Write a C Program to demonstrate the concept of Pointers.
10. Write a C program to illustrate the concept of file operations.

WEB REFERENCES

1.http://computer.howstuffworks.com/c.html

2.http://www.le.ac.uk/cc/tutorials/c/

3.http://www.cprogramming.com/tutorial.html

4.www.programiz.com/c-programming

5.https://www.coursera.org/course/cprogramming

Means of Curriculum Delivery : Power point presentation, Lab Assignments, Observation

SEMESTER I

Programme Code :	**B.Sc. IT**	**Programme Title**	**Bachelor of Science Information Technology**	
Course Code :	**19U1ITAT01**	**Title : Numerical Methods and Statistics**	**Batch**	**2019-2022**
			Semester	**I**
Hrs/week	**5 Hours**		**Credits**	**4**

COURSE OBJECTIVES:

- To enable the Students
- To understand the different Methods of solving numerical, algebraic and Transcendental Equations .
- To find derivatives using various formulae using numerical differentiation and integrate various functions using numerical integration.
- To have a knowledge of finding numerical solutions of ordinary differential Equations.
- To learn how to calculate various statistical constants.

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Find Numerical Solution of Algebaric and Transcental Equations.
CO2	Solve Simultaneous Linear Algebraic Equations by using different methods.
CO3	Explain the methods of Numerical Differentiation, Integeration of various functions and finding Numerical Solution of Ordinary Differential Equation using different methods.
CO4	Calculate the Statistical Constants.
CO5	Explain the concepts of Correlation and Regression and their applications in practical situations

MAPPING WITH PROGRAMME OUTCOMES

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	-	-	-	✓	✓	✓	✓	-	-	-	-	-
CO2	-	-	-	✓	✓	✓	✓	-	-	-	-	-
CO3	-	-	-	✓	✓	✓	✓	-	-	-	-	-
CO4	-	-	-	✓	✓	✓	✓	-	-	-	-	-
CO5	-	-	-	✓	✓	✓	✓	-	-	-	-	-

SYLLABUS

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:12)**

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:12)**

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:12)**

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 carry 100% marks.**

TEXT BOOKS

S. No	Author Name	Title of the Book	Publisher &Edition
1	P.Kandasamy, K.Thilagavathy, K.Gunavathi	Numerical methods	S.Chand & Company
2	P.A. Navanitham	Business Mathematics and Statistics	Jai publishers

REFERENCE BOOKS

S. No	Author Name	Title of the Book	Publisher&Edition
1	Dr.M.K. Venkataraman	Engineering MathematicsVolume II	National publishing company
2	R.S.N. Pillai and V. hagavathi	Saltatistical Methods	Sultan chand and Sons company
3	P.R.Vittal	Business Mathematics	Margham Publications
4	A.Singaravelu	Numerical Methods	Meenakshi Publications

WEBSITE REFERENCE

1. https://arxiv.org/pdf/0809.0465
2. www.cfm.brown.edu/people/sg/AM35odes.pdf
3. www.maths.manchester.ac.uk/cds/internal/tables/numerical.pdf
4. https://www3.nd.edu/~zxu2/acms40390F12/Lec-7.3.pdf

Means of Curriculum Delivery : Lecture, Group Learning, Seminar, Assignment, Google classroom.

SEMESTER - I

Programme Code	**B.Sc IT**	**Programme Title**	**Bachelor of Science Information Technology**	
Course Code:	**19U1VBET01**	**Title :Value Based Education 1 -Environmental Studies**	**Batch**	**2019-2022**
			Semester	**I**
Hrs/ Week	**2 Hours**		**Credits**	**1**

COURSE 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.

COURSE OUTCOMES (CO):

On Successful Completion of the course the students should be able to

CO Number	**CO Statement**
CO1	Be a resposible citizen in the conservation of natural resources.
CO2	To be able to make others to know about various ecosystems.
CO3	Make the society aware of the importance of conservation of biodiversity and take suitable steps towards that direction.
CO4	Make others to know about how this earth is being polluted by various types of pollution and realised the resopnsibility to take various measures to control such pollution.
CO5	Make the public aware of the dangerous of global warming and the immediate steps to be taken to reduce its impact.

MAPPING WITH PROGRAMME OUTCOMES

COs/POs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**
CO1	-	-	-	-	-	-	-	-	-	-	✓
CO2	-	-	-	-	-	-	-	-	-	✓	✓
CO3	-	-	-	-	-	-	-	✓	-	-	✓
CO4	-	-	-	-	-	-	-	✓	-	-	✓

SYLLABUS

UNIT I **(Hours:06)**

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:06)**

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:06)**

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. Threads of biodiversity: habitat loss, poaching of wild life. Man wild life conflicts. Endangered and endemic species of India. Conservation of biodiversity-insitu and Exsitu conservation of biodiversity.

UNIT IV **(Hours:06)**

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. Pollutions case studies. Disaster management: Foods, Earthquake, Cyclone and Landslides.

UNIT V **(Hours:06)**

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.

Recent editions of the following books only are recommended

TEXT BOOKS:

S. No	Author Name	Title of the Book	Publisher
1	Prof R. Ranganathan	Environmental Studies.	Bharathiar University Publications

REFERENCE BOOKS:

S. No	Author Name	Title of the Book	Publisher&Edition
1	Ritu Bir	Environmental Studies	Vayu Education of India
2	Erach Bharucha	Textbook for Environmental Studies	University Press India Pvt. Ltd
3	Anubha Kaushik & C.P.Kaushik	Perspectives in Environmental Studies	New Age International Publishers

Means of Curriculam Delivery: Lecture, Group Learning, Seminar, Assignment, Google Classroom.

SEMESTER I

Programme Code	**B.Sc.IT**	**Programme Title**	**Bachelor of Science (Information Technology)**	
Course Code	**19U1VBET02**	**Value Based Education 2: Yoga for Youth Empowerment ****	**Batch**	**2019-2022**
			Semester	**I**
Hrs/week	**2 Hours**		**Credits**	**-**

Syllabus

Unit 1: Philosophy of Life Science **(Hours:06)**

Life – Purpose of life – Philosophy of Life- Law of Nature-Kindness towards living beings Preserving Natural resources.

அலகு 1: வாழ்வியல் தத்துவம்

வாழ்க்கை - வாழ்வின் நோக்கம் -வாழ்க்கைத் தத்துவம் -இயற்கை நியதி -பிற உயிர் பேணல் -இயற்கை வளம் காத்தல்

Unit 2: Human values **(Hours:06)**

Culture –Analysis of thought- Moralization of Desire- Neutralization of Anger- Eradication of Worry- Blessings and Benefits- Harmonious Friendship- Love and Compassion-Individual Peace.

அலகு 2: தனிமனித பண்புகள்

பண்பாடு -எண்ணம் ஆராய்தல் -ஆசை சீரமைத்தல் -சினம் தவிர்த்தல் -கவலை ஒழித்தல் -வாழ்த்தும் பயனும் - நட்பு நலம் - அன்பும் கருணையும் - தனிமனித அமைதி.

Unit 3: Social Values **(Hours:06)**

Family- Family Peace- Society-Life style- World Brotherhood- Greatness of Women- Five Duties- Economics- Hygiene and Health Care- Education – Politics- Responsibilities of people.

அலகு 3: சமுதாய மதிப்புகள்

குடும்பம் - குடும்ப அமைதி - சமுதாயம் - வாழ்க்கை முறை - உலக சகோதரத்துவம் - பெண்ணின் -பெருமை - ஐவகைக் கடமைகள் -பொருளாதாரம் -சுகாதாரம் -கல்வி -அரசியல் -மக்களின் பொறுப்பு -உலக அமைதி

Unit 4: Development of Mental prosperity **(Hours:06)**

Prosperity of Mind- Life force- Bio-Magnetism and Mind – Functions of Mind- Mental Frequency – Ten Stages of Mind-Genetic Centre- Meditation- Value spirituality-Universal Magnetism and Bio-Magnetism.

அலகு 4 : மனிதவள மேம்பாடு

மனவளம் - உயிரும் மனமும் - உயிரின் இயக்க மையம் - மனத்தின் செயல்கள - மன அலைச்சுழல - மன இயக்கப் படி நிலைகள - கருமையம் - தவம்(தியானம்) - ஆன்மீக மதிப்பு - வான்காந்தம் - சிவகாந்தம்

Unit 5: Maintenance of Physical Health **(Hours:06)**

Structure of Human Body- Three Functional Bodies-Harmony Between Body and Life force-

Pain, Disease and Death- Reasons for Disease - Limit and Method in Five Factors- Simplified Physical Exersices- Practice for Simplified Physical Exercises.

Recent editions of the following books only are recommended
Text books:

S. No	Author Name	Title of the Book	Publisher
1	Vethathri maharishi	Journey of Consciouness,	Vethathri Publications
2	Vethathri maharishi	Simplified Physical Exercise	Vethathri Publications
3	Vethathri maharishi	Unified Force	Vethathri Publications
4	Thathuvagnani Vethathri maharishi	Yoga for modern age	Vethathri Publications
5	Dr. Chandrasekaran	Sound Health through yoga	Prem Kalyan Publications
6	வேதாத்திரி மகரிஷி	எளிய முறை உடற்பயிற்சி	வேதாத்திரி பதிப்பகம்

SEMESTER I

Programme Code :	**B.Sc IT**	**Programme Title**	**Bachelor of Science Information Technology**	
Course Code :	**19U1SBST01**	**Skill Based Subject 1 : Mathematics for Competitive Examinations -I**	**Batch**	**2019-2022**
			Semester	**I**
Hrs/week	**2 Hours**		**Credits**	**1**

COURSE OBJECTIVES

- To enable the Students
- To understand the fundamental arithmetic skills and various methods of problem solving.
- To learn about the average and Problems on numbers.
- To solve problem related to Ages, Calander and Clocks.

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	**CO Statement**
CO1	Recall the basic concepts of numerical computation.
CO2	Solve problems on ages, races, games of skills, stocks and shares.
CO3	Find solution to the problems on calender and clocks.

MAPPING WITH PROGRAMME OUTCOMES

CO/PO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**
CO1	-	-	-	✓	✓	✓	✓	-	-	-	-	-
CO2	-	-	-	✓	✓	✓	✓	-	-	-	-	-
CO3	-	-	-	✓	✓	✓	✓	-	-	-	-	-

SYLLABUS

UNIT I **(Hours:06)**

Numbers – H.C.F and L.C.M of Numbers – Decimal Fractions – Simplification

UNIT II **(Hours:06)**

Square Roots and Cube Roots – Average - Problems on Numbers

UNIT III **(Hours:06)**

Problems on Ages - Surds and Indices-Percentage

UNIT IV **(Hours:06)**

Races and games of skill – Calendar

UNIT V **(Hours:06)**

Clocks – Stocks and shares (Simple Problems only)

Recent editions of the following books only are recommended

TEXT BOOK

S. No	Author Name	Title of the Book	Publisher
1	R. S. Agarwal	Quantitative Aptitude (for Competitive Examinations)	S. Chand and Company Limited

REFERENCE BOOKS

S. No	Author Name	Title of the Book	Publisher
1	R.V.Praveen	Quantitative Aptitude and Resoning,	PHI Learning pvt. Ltd
2	Abhijit Guha	Quantitative Aptitude for Competitive Examinations	Tata Mc-Graw Hill Publishing Company

WEBSITE REFERENCE

1.*https://www.careerbless.com/aptitude/qa/home.php*
2.*https://www.indiabix.com/*

Means of Curriculum Delivery : Lecture, Group Learning, Seminar, Assignment, Google classroom.

SEMESTER-I

Programme Code:	**B.Sc IT**	**Programme Title**	**Bachelor of Science (Information Technology)**	
Course Code:	**19U1SBST02**	**Skill Based Subject 2: Communication Skills- I**	**Batch**	**2019-2022**
			Semester	**I**
Hrs/ Week	**2 Hours**		**Credits**	**1**

COURSE OBJECTIVES:

- To make the students to understand the barriers in their communication and the ways to over come the same.
- To make the students to know various types of listening and the effect of enhancing the listening skills **.**
- To encourage Group discussion and introduce to speak in different situations and the etiquette to be maintained.

COURSE OUTCOMES (CO):

On Successful completion of the course the students should be able to achieve the followingoutcomes.

CO Number	**CO Statement**
CO1	To communicate meaningfully and effectively with others
CO2	To explain various types of listening and be a careful listener
CO3	To deal with different kinds of situations by conversing effectively and maintaining the etiquette required for such situations

SYLLABUS

UNIT –I **(Hours:08)**

What's a sentence

Types of Sentences

Articles

Preposition

UNIT- II **(Hours:08)**

Homophones-
An Introduction
Homonyms
One Word Substitution
Cloze Test

UNIT- III **(Hours:08)**

Communication

An Introduction

E- Mail Drafting and Etiquette

Interviews

Recent editions of the following books only are recommended

TEXT BOOKS:

S. No	Author Name	Title of the Book	Publisher
1	Meenakshi Raman	Communication Skills	Oxford University Press
2	Shalini Aggarwal	Essential Communication Skills	Ane Books Pvt.Ltd. New Delhi

REFERENCE BOOKS:

S. No	Author Name	Title of the Book	Publisher
1	Course team, Bharathiyar University	Communication Skills a multi- skill course	Macmillan Publishers India LTD.
2	Krishna Mohan	Developing Communication Skills	Macmillan Publishers India LTD.
3	Joyce Pereire	Techinical English – II	Vijay Nicole Imprints Pvt.Ltd.

Means of Curriculam Delivery: Lecture, Group Discussion, Seminar, Assignment, Google Class Room.

SEMESTER II

Programme Code	**B.Sc.IT**	**Programme Title**	**Bachelor of Science (Information Technology)**	
Course Code	**19U2TALT02**	**Title : Language 2: Tamil - II**	**Batch**	**2019-2022**
			Semester	**II**
Hrs/week	**5 Hours**		**Credits**	**3**

நோக்கம்

- சமூகம் பற்றிய சிந்தனைகளைத் தமிழ்ப் படைப்பிலக்கியங்கள் மூலம் ஏற்படுத்துதல்
- இலக்கியங்கள், உரைநடைகள் ஆகியவற்றை வாசிக்க வைத்தல் மற்றும் விழிப்புணர்வை ஏற்படுத்துதல்.
- அடிப்படைத் தமிழ் இலக்கணத்தையும், பயன்பாட்டுத் தமிழான மொழிபெயர்த்தல், கடிதம் மற்றும் மடல்கள் எழுதுதல் பற்றியும் மாணவர்களை அறியச் செய்தல்.
- தமிழ்நாடு அரசுப்பணியாளர் போட்டித்தேர்வு மையம் நடத்தும் போட்டித் தேர்வுகளுக்கு மாணவர்களைத் தயார் செய்தல்.
- மாணவர்களின் வாசிக்கும் ஆற்றலை ஊக்குவிக்கவும், தமிழ் இலக்கியத்தோடு தொடர்புடைய பிற நூல்களையும் மாணவர்கள் சுயமாக கற்று உணரச்செய்தல்

பாப்பகுதி கற்றலின் வெளிப்பாடு - Course Outcome (CO)

CO Number	**CO Statement**
CO1	தமிழ் மொழியின் வாயிலாக பண்பாடு, கலைகள் மற்றும் மரபுகள் முதலியவற்றை அறிந்தல்.
CO2	நீதி இலக்கியங்கள், பக்தி இலக்கியங்கள் மூலம் வாழ்வியல் நெறிமுறைகளை அறிதல். உயர்ந்த நோக்கத்துடன், சமுதாயத்தை நேசிக்கத் தகுந்தவர்களாக இருத்தல்.
CO3	தமிழ் இலக்கியங்கள் வாயிலாக பல வகையான வாழ்க்கைத்தரம், மற்றும் மக்களின் வாழ்க்கை முறைகளைத் தெரிந்து கொள்ளுதல்.
CO4	அறத்தின் வழிநின்று பொருளீட்டி இன்பம் துய்ப்பது உன்னத வாழ்வின் அடிப்படை என்பதை இலக்கியங்கள் வாயிலாக மாணவர்கள் உணர்தல்.
CO5	சமுதாயம் மற்றும், கலைகள் சார்ந்த கவிதைகள் மற்றும் உரைநடைகளும், கருத்து பரிமாற்றத்திறனுக்கு உரிய அடிப்படை தமிழ் இலக்கணம் மற்றும் பயன்பாட்டுத் தமிழுக்குரிய பகுதியும், தன்முயற்சிப்படிப்பின் வாயிலாக, பேச்சுக்கலையின் முக்கியத்துவம், தேவை மற்றும் திறன்களை மாணவர்கள் அறிந்துகொள்ளல்.

நிரல் விளைவுகளைக் கொண்ட வரைபடம்

CO /PO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**
CO1	✓	✓	-	-	✓	-	✓	-	✓	-	-	✓
CO2	-	-	-	-	-	✓	✓	-	-	-	✓	-
CO3	-	-	-	-	-	-	-	-	-	-	✓	-
CO4	-	-	-	-	✓	-	-	-	-	✓	-	-
CO5	✓	-	-	-	-	-	-	-	✓	-	-	-

பாடத்திட்டம்

அலகு 1 நீதி நூல்கள் 13 மணி நேரம்

1. திருக்குறள் - (3 அதிகாரம்) இன்னா செய்யாமை, பொறையுடைமை, விருந்தோம்பல்
2. முதுமொழிக்காஞ்சி – அறிவுப்பத்து, சிறந்து பத்து
3. புழமொழி நானூறு – 21 முதல் 30 வரை (10 பாடல்கள்)
4. நீதிநெறி விளக்கம் - 1- 10 முதல் பத்து பாடல்கள்

அலகு 2 பக்தி இலக்கியங்கள் 15 மணி நேரம் 1. குறவஞ்சி – குறத்தி மலைவளம் கூறல் 62 – 63 (6 பாடல்கள்)

2. அபிராமி அந்தாதி – தனம் தருத் கல்வி தரும், பதினாறு பேறுகள் (2 பாடல்)
3. தேவாரம் - பொது – நின்ற திருத்தாண்டகம் - 670 (திருநாவுக்கரசு சுவாமிகள்)
4. நாலாயிரத்திவ்ய பிரபந்தம் - ஊனேறு செல்வத் துடற்பிறவி யான் வேண்டேன் (குலசேகராழ்வார் - 10 பாடல்).
5. திருமந்திரம் - கல்வி (10 பாடல்)

அலகு 3 உரைநடைத்தொகுப்பு 10 மணி நேரம்

1. நாஞ்சில் நாடன் - ஆதியில் சொல் இருந்தது. (திகம்பரம்)
2. சிற்பி – வீரத்துறவி விவேகானந்தர் (சிற்பியின் கட்டுரைகள்)
3. டாக்டர் அ. தட்சினாமூர்த்தி - ஓவியக்கலை (தமிழர் நாகரிகமும் பண்பாடும்)
4. டாக்டர் எம்.ஆர். விஜயகுமார் - அறிவியலும் ஆன்மீகமும் (பிரபஞ்ச ரகசியம்)
5. மஞ்சை வசந்தன் - உளவியல் (பழமொழி வழங்கும் பல்துறைச் சிந்தனைகள்)

அலகு 4 இலக்கணம், பயன்பாட்டுத்தமிழ் 10 மணி நேரம்

1. சொல் வகைகள் - பெயர், வினை, இடை, உரி
2. வாக்கியம், வாக்கிய வகைகள், வினை வகைகள் - செய்வினை, செயப்பாட்டுவினை, தன்வினை, பிறவினை, உடன்பாட்டுவினை
3. மொழிபெயர்த்தல், விண்ணப்பம், மடல்கள்

அலகு 5 இலக்கிய வரலாறு 10 மணி நேரம்

1. உரைநடையின் தோற்றமும் வளர்ச்சியும்
2. சிற்றிலக்கியங்களின் தோற்றமும் வளர்ச்சியும்.
3. நாயன்மார்கள், ஆழ்வார்கள்
4. நீதி நூல்கள்
5. தன்முயற்சிப் படிப்பு : பேசும் கலை
   முனைவர் கு.ஞானசம்பந்தன்
   விஜயா பதிப்பகம், கோயம்புத்தூர்.

பாடநூல் - செய்யுள் திரட்டு (தொகுப்பு) தமிழ்த்துறை வெளியீடு 2019

பார்வை நூல்கள்

வ. எண்	ஆசிரியர் பெயர்	நூலின் பெயர்	வெளியீடு	ஆண்டு ∴ பதிப்பு
1	உ.வே சாமிநாதஜயர்	குறுந்தொகை	கழக வெளியீடு	முதற் பதிப்பு: ஜூன் - 2000
2	புலவர் நா.இராமையாபிள்ளை (உ.ஆ)	நற்றிணை	வர்த்தமானன் பதிப்பகம், சென்னை.	முதற் பதிப்பு: 1999.
3	இ.வை அனந்தராமையர்	கலித்தொகை,	கழக வெளியீடு	முதற் பதிப்பு: டிசம்பர் - 1996.
4	டாக்டர் உ.வே.வெ சாமிநாதையர்	புறநானூறு,	கழக வெளியீடு	முதற் பதிப்பு: டிசம்பர் - 1996.
5	புலியூர்கேசிகன்	திருக்குறள்	பூம்புகார் பதிப்பகம்	பிப்ரவரி 2010
6	மதுரைக் கூடலூர்க் கிழார்	முதுமொழிக்காஞ்சி	தமிழ் இணையப் பல்கலைக்கழகம்	அக்டோபர் 2016
7	முன்றுறையரையனார்	பழமொழி நானூறு	தமிழ் இணையப் பல்கலைக்கழகம்	அக்டோபர் 2016
8	குமரகுருபரர்	நீதிநெறி விளக்கம்	தமிழ் இணையப் பல்கலைக்கழகம்	அக்டோபர் 2016
9	திரிகூடராசப்பக் கவிராயர் (புலியூர் கேசிகன் உரை)	திரு குற்றாலக் குறவஞ்சி	பாரி நிலையம் வெளியீடு	2013
10	அபிராமிபட்டர்	அபிராமி அந்தாதி	தமிழ் இணையப் பல்கலைக்கழகம்	ஜனவரி 2014
11	திருநாவுக்கரசு சுவாமிகள்	தேவாரம் - 6 ஆம் திருமுறை (பொது – நின்றதிருத்தாண்டகம்)	கழக வெளியீடு	1996
12	குலசேகராழ்வார்	நாலாயிரத்திவ்ய பிரபந்தம்	லிட்டில் ப்ளவர் கம்பெனி – சென்னை	1996
13	திரு.அ. சிதம்பரனார்	திருமந்திரம்	தென்னிந்திய சைவசித்தாந்த நூற்பதிப்புக் கழகம், சென்னை.	செப்டம்பர் 2017
14	நாஞ்சில்நாடன்	திகம்பரம்	விஜயா பதிப்பகம்	திசம்பர் - 2010

15	டாக்டர் இரா. மோகன்	சிற்பியின் கட்டுரைகள்	மணிவாசகர் பதிப்பகம்	ஆகஸ்டு 1996
16	டாக்டர் அ. தட்சிணா மூர்த்தி	தமிழர் நாகரிகமும் பண்பாடும்	யாழ் வெளியீடு	பிப்ரவரி - 1999
17	மஞ்சை வசந்தன்	பலமொழி வழங்கும் பல்துறைச் சிந்தனைகள்	விஜயா பதிப்பகம்	ஜூன் 2010
18	டாக்டர் எம்.ஆர் விஜய்குமார்	பிரபஞ்ச ரகசியம்	ருக்மணி ஆப்செட் பிரஸ்	1997
19	கா.கோ.வெங்கட்ராமன்	தமிழ் இலக்கிய வரலாறு	கலையக வெளியீடு, திண்டுக்கல்.	இரண்டாம் பதிப்பு: ஜூன் - 2002.
20	மது.ச.விமலானந்தம்	தமிழ் இலக்கிய வரலாறு	முல்லை நிலையம், சென்னை	2014.
21	மு.பரமசிவம்	நற்றமிழ் இலக்கணம்	சைவசித்தாந்த பதிப்பகம், திருநெல்வேலி.	முதற்பதிப்பு:1995.
22	வெங்கட்ராவ் பாலு	கடிதம் எழுதும் கலை	புதிய புத்தக உலகம்	முதல்பதிப்பு 2007
23	முனைவர் கு.ஞானசம்பந்தன்	பேசும் கலை	விஜயா பதிப்பகம்	ஏப்ரல் 2008

SEMESTER II

Programme Code	**B.Sc.IT**	**Programme Title**	**Bachelor of Science Information Technology**	
Course Code	**19U2FRLT02**	**Title : Language 2: French II**	**Batch**	**2019-2022**
			Semester	**II**
Hrs/week	**5 Hours**		**Credits**	**3**

COURSE OBJECTIVES

To enable the students to understand the basic structure of French language.

COURSE OUTCOMES (CO)

On Successful Completion of the course the students should be able to

CO Number	**CO Statement**
CO1	have access to the works of great french writers.
CO2	Develop the skills of speaking and writing without flaws.
CO3	Help the learners to have a good thinking.

MAPPING WITH PROGRAMME OUTCOMES

CO/ PO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**
CO1	✓	-	-	-	-	-	-	-	-	-	-	-
CO2	✓	-	-	-	-	-	-	-	-	-	-	-
CO3	-	-	-	-	-	✓	-	-	-	-	-	-

SYLLABUS

Prescribed text : **LATITUDES I**

Units : 5 – 8

Authors : Régine Mérieux

Yves Loiseau

Available at : Goyal Publishers Pvt Ltd

86, University Block

Jawahar Nagar (Kamla Nagar)

New Delhi – 110007.

Tel : 011 – 23852986 / 9650597000

Question Paper Pattern

Semester II

Maximum Marks: 75 **Time: 3 hrs.**

(All questions to be set only from the prescribed text)

Section A (10)

1. Choisissez la meilleure réponse: (10X1=10)

Section B (25)

2. Choisissez un des trois sujets et écrivez un texte d'environ 60 mots : (5X1=5)

3. Traduisez les textes suivants en anglais:(4/5) (4X5=20)

Section C (40)

4. Compréhension (5x1=5)

5. Exercices de grammaire:(5X5=25) **(either/or)**

6. Remplissez le dialogue:(5X1=5)

7. Associez :(5X1=5)

SEMESTER II

Programme Code	**B.Sc.IT**	**Programme Title**	**Bachelor of Science Information Technology**	
Course Code	**19U2HILT02**	**Title : Language 2: Hindi II**	**Batch**	**2019-2022**
			Semester	**II**
Hrs/week	**5 Hours**		**Credits**	**3**

COURSE OBJECTIVES

To enable the students to understand the basic structure of Hindi language.

COURSE OUTCOMES (CO)

On Successful Completion of the course the students should be able to

CO Number	**CO Statement**
CO1	help the learners to communicate with others in any part of India with ease.
CO2	Develop the skills of speaking and writing without flaws.
CO3	Help the learners to have a good critical thinking.

MAPPING WITH PROGRAMME OUTCOMES

CO/ PO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**
CO1	✓	-	-	-	-	-	-	-	-	-	-	-
CO2	✓	-	-	-	-	-	-	-	-	-	-	-
CO3	-	-	-	-	-	✓	-	-	-	-	-	-

SYLLABUS

1. MODERN POETRY : BHOOMIJA by NAGARJUN

Publishers

: Rajkamal Prakashan

1B Nethaji Subash Marg,

New Delhi.

2. ONE ACT PLAY : NAVEEN EKANKI SANGRAH

By Dr. Smt. MALATI THIVARI

SUMITHRA PRAKASHAN

ASHOK NAGAR

ALLAHABAD – 1.

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)

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

SEMESTER II

Programme Code	**B.Sc.IT**	**Programme Title**	**Bachelor of Science (Information Technology)**	
Course Code	**19U2MLLT02**	**Title :Language 2: Malayalam II**	**Batch**	**2019-2022**
			Semester	**II**
Hrs/week	**5**		**Credits**	**3**

COURSE OBJECTIVES

To enable the students to understand the basic structure of Malayalam language.

COURSE OUTCOMES (CO)

On Successful Completion of the course the students should be able to

CO Number	**CO Statement**
CO1	Help the learners to learn other Indian languages like Sanskrit,Tamil etc.,through Malayalam without much effort.
CO2	Develop the skills of speaking and writing without flaws.
CO3	Help the learners to have a good critical thinking.

MAPPING WITH PROGRAMME OUTCOMES

CO/ PO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**
CO1	✓	-	-	-	-	-	-	-	-	-	-	-
CO2	✓	-	-	-	-	-	-	-	-	-	-	-
CO3	-	-	-	-	-	✓	-	-	-	-	-	-

SYLLABUS

This paper will have the following five units:

Unit I & II

Autobiography

Uinit III,IV & V

Travelogue

Text Books prescribed:

Unit I & II

Vazhithiruvukal-Dr.A.P.J.Abdulkalam

(D.C.Books, Kottayam)

Unit III,IV & V

Alkoottathil Thaniyae - M.T Vasudhevan Nair (D.C.Books, Kottayam)

Reference books:

1. Athmakathasahithyam Malayalathil-Dr.Vijayalam Jayakumar (N.B.S.Kottayam)
2. Sancharasahithyam Malayalathil –Prof.Ramesh chandran. V,(Kerala Bhasha Institute, Trivandrum)

SEMESTER-II

Programme Code	**B.Sc IT**	**Programme Title**	**Bachelor of Science (Information Technology)**	
Course Code:	**19U2ENLT02**	**Language II-Functional English – II**	**Batch**	**2019-2022**
			Semester	**II**
Hrs/ Week	**5 Hours**		**Credits**	**3**

COURSE OBJECTIVES:

- To enable the students to understand the basic grammar in English.
- To acquaint students with the structure and strategies of conversation
- To make the students appreciate the significant works and style of prose
- 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.

COURSE OUTCOMES (CO):

On Successful Completion of the course the students will be able to

CO Number	**CO Statement**
CO1	Speak and Write without commiting grammatical errors.
CO2	Read and appreciate simple literary works.
CO3	Deal with various conversational situations with confidence.

MAPPING WITH PROGRAMME OUTCOMES

COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	-	-	-	-	-	-	-	-	-	✓
CO2	✓	-	-	-	-	-	-	-	-	-
CO3	-	-	✓	-	-	-	-	-	-	-

SYLLABUS

UNIT –I-POETRY **(Hours-12)**

1.La Belle Dame Sans Merci - John Keats

2.The Ballad of Father Gilligan – William Butler Yeats

3.The Daffodils - William Wordsworth

UNIT- II- PROSE **(Hours-12)**

1. At School - Gandhi
2. My lost Dollar - Stephen Butler Leacock
3. On The Rule of The Road- A.G. Gardiner

UNIT- III- ONE – ACT PLAY **(Hours-12)**

1. A Meeting in a Forest - G. B. Shaw
2. The Dear Departed - Stanley Hougton

UNIT-IV-GRAMMAR AND COMPOSITION **(Hours-12)**

1. Sentence Structure
2. Wh- Questions
3. Question Tag
4. Advertisement
5. Hints Development

UNIT- V- DIALOGUE WRITING (CONVERSATION EXERCISES) **(Hours-12)**

Suggestions , Sympathy, Complaining, Agreement & Apologising

TEXT BOOKS:

S. No.	Author Name	Title of the Book	Publisher**&Edition**
1	A.G.Xavier	An Anthology of Popular Essays and Poems	Macmillan Indian Limited.
2	Prof. A.E.Subramanian	Gifts to Posterity- An Anthology of Modern Short Stories	Chitra Publications, Chennai.

REFERENCE BOOKS:

S. No	Author Name	Title of the Book	Publisher**&Edition**
1	N.Krishnaswamy	Modern English- A Book of Grammar Usage and Composition	Macmillan Indian Limited
2	Prof.K.Ramappa, Retd.	Essential English Grammar Usage & Composition	M. I. Publications
3.	Adibah Amin, Rosemary Eravelly, Farida J Ibrahim	Grammar Builder Level Volume 1	Cambridge University Press

Means of Curriculam Delivery: Lecture, Group Learning, Seminar, Assignment, Google Class Room.

SEMESTER II

Programme Code	**B.Sc IT**	**Programme Title**	**Bachelor of Science (Information Technology)**	
Course Code	**19U2ITCT04**	**Title :Core 4 : C++ PROGRAMMING**	**Batch**	**2019-2022**
			Semester	**II**
Hrs/week	**4 Hours**		**Credits**	**3**

COURSE OBJECTIVES:

- To provide knowledege on object oriented programming concepts using C++.
- To enable the students to provide an indepth knowledge about the concepts of language structure, program divisions of C++ programming language.
- To enhance the knowledge about dynamic memory management.
- To gain the knowledge about polymorphism.
- To enhance the students knowledege in writing C++ programs and the concepts of File Handiling.

COURSE OUTCOMES (CO):

On successful completion of the course, students should be able to achieve the following outcomes.

CO Number	**CO Statement**
CO1	Describe the object oriented paradigm with concepts of streams, classes, functions, data and objects
CO2	Summarize relative merits of object oriented programming language & concepts.
CO3	Apply pointers, constructors, destructors in dynamic memory management.
CO4	Describe the concept of function overloading, operator overloading and virtual functions
CO5	Explain about exception handling and class templates.

MAPPING WITH PROGRAMME OUTCOMES

COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**
CO1	-	✓	✓	-	-	✓	-	✓	-	-	-	✓
CO2	-	✓	✓	✓	-	✓	-	✓	-	✓	-	✓
CO3	-	✓	✓	-	-	✓	-	✓	-	✓	-	✓
CO4	-	✓	✓	✓	-	✓	-	✓	-	✓	-	✓
CO5	-	✓	✓	-	-	✓	-	✓	-	✓	-	✓

SYLLABUS

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

Introduction- Object Oriented Approach- Characteristics of Object -Basic Concepts of OOP-Oriented Languages-Objects- Classes- Inheritance- Reusability- Creating New Data types-Polymorphism and Overloading – Differene between C and C++- Object oriented Paradigm-Benefits- Object oriented Languages and Applications.

UNIT - II **(Hours : 08)**

Basic Program Construction - Functions -Program Statements- Structure of C++ Program-Simple C++ Program – More statements- Creating Source file- Compiling and Linking-Tokens-Keywords-Identifiers- Constants- Basic Data Types- Declaration of variables- Reference Variables- Operators in C++- Arrays and their types.

UNIT - III **(Hours : 10)**

Character Variables: Character Constants-Initialization-Escape Sequences Floating Point Types: Type float- Floating point constants- const qualifier- # define directive.Type Conversion-Automatic Conversion – Library functions: Header files- Library files. Functions- Prototyping-Call by reference- Inline – Function overloading – Friend Function.

UNIT - IV **(Hours : 10)**

Loops and Decisions: Loops- FOR loop- WHILE Loop- DO Loop – Do While- IF Statement-IF ELSE – ELSE IF- Switch – Control statements. Contructors and Destructors: Multiple Constructors- Constructors with default arguments- Copy constructors- Destructors. Operator overloading – Functional overloading- Pointers- Structures.

UNIT - V **(Hours : 10)**

Working with Files: File stream operations-opening and closing file- Detecting EOF- File pointers and their manipulations- Sequential I/O operations- Random Access Files- Error Handling – Command line Arguments- File I/O with Member Functions -Overloading the Extraction and Insertion Operators.

TEXT BOOKS

S. No.	Author Name	Title of the Book	Publisher&Edition
1.	Robert Lafore	Object Oriented Programming in Turbo C++	Galgotia Publications,
2.	E.Balagurusamy	Object Oriented Programming with C++	Tata Mc.Graw Hill

REFERENCE BOOKS

S. No	Author Name	Title of the Book	Publisher&Edition
1.	Bjarne Stroustrup	The C++ Programming Language	Wesley Publications
2.	M.TSomashekara, D.S Guru, H.S.Nagendrasamy, K.S.Manjunath	Object Oriented Programming in C++	Tata McGrawhill, Second Edition

WEBSITE REFERENCES

1. https://www.geeksforgeeks.org/c-plus-plus/
2. https://www.tutorialspoint.com/cplusplus/
3. https://www.linkedin.com/learning/topics/c-plus-plus
4. https://www.hackerrank.com/domains/cpp
5. https://trainings.internshala.com/c-plus-plus-training

Means of Curriculum Delivery : Lecture, Group Learning, Seminar, Assignment, Google Classroom

SEMESTER II

Programme Code	**B.Sc IT**	**Programme Title**	**Bachelor of Science (Information Technology)**	
Course Code	**19U2ITCT05**	**Title : Core 5 : Data Structures**	**Batch**	**2019-2022**
			Semester	**II**
Hrs/week	**4 Hours**		**Credits**	**3**

COURSE OBJECTIVES

- To study about the design and implementation of the data structure and how the data are manipulated in order to develop an application and also helps the students in understanding the use of data structure in the real world.
- To make the students to understand the basic concepts of Data Structures and Algorithms.
- To understand the abstract data types stack, queue, deque, and list.
- To understand the performance of the implementations of basic linear data structures.
- To understand prefix, infix, and postfix expression formats.

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	**CO Statement**
CO1	Recalls information for writing algorithms in solving problems.
CO2	Choose appropriate data structure as applied to specified problem definition.
CO3	Apply problem solving skills and provide a foundation for advanced programming courses using an object-oriented programming methodology.
CO4	Use linear and non-linear data structures like stacks, queues, linked list etc., and show operations like searching, insertion, deletion, traversing mechanism etc. on various data structures
CO5	Illustrate to store and retrieve data stored in both main memory and in secondary memory.

MAPPING WITH PROGRAMME OUTCOMES

CO/PO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**
CO1	-	✓	✓	✓	-	✓	-	-	-	-	-	✓
CO2	-	✓	✓	✓	-	✓	-	-	-	-	-	✓
CO3	-	✓	✓	-	-	✓	-	-	-	-	-	✓
CO4	-	✓	✓	-	-	✓	-	-	-	-	-	✓
CO5	-	✓	✓	-	-	✓	-	-	-	-	-	✓

SYLLABUS

UNIT - I **(Hours:10)**

Introduction to algorithms, Algorithm Specification,-How To Create Programs and Analyze them Arrays – Representation of Arrays- Ordered Lists-Sparse Matrices-Recursion – Tower of Hanoi

UNIT - II **(Hours: 10)**

Stacks: Introduction, Array representation of stacks, Operations and implementation, Applications of stacks - Queues: Introduction, Array representation of Queue, Types of Queues : Circular and Deques, Operations and implementation, Applications of Queues.- Evaluation of Expressions.

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

Linked Lists: Representation - Types of Linked List - Single Linked Lists - Double Linked Lists - Linked Stacks and Queues – Polynomial Addition - Dynamic Storage Management - Garbage Collection and Compaction – Trees: Basic terminology, - Binary trees - Binary tree representation, Binary tree traversal, Threaded BinaryTrees- Application of trees.

UNIT - IV **(Hours: 10)**

Searching: Linear Search, Binary Search, Interpolation Search - Sorting: Internal Sorting with Insertion Sort, Bubble Sort, Heap Sort, Merge Sort, Quick Sort – External Sorting with Disks – Merging: Kway Merging - Symbol Tables- Hash Tables .

UNIT -V **(Hours: 08)**

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

Recent editions of the following books only are recommended

TEXT BOOKS

S.NO	Author Name	Title of the Book	Publisher&Edition
1.	Ellis Horowitz & Sartaj Sahani	Fundamentals of Data Structure	Galgothia book source,1999
2.	Ashok N Kamthane	Programming and Data Structures	PearsonEducation,
3.	Jeen-Paul Tremblay and Paul G Sorenson	An Introduction to Data structures with Applications	Tata Mc. Graw Hill

REFERENCE BOOKS

S.No.	Author Name	Title of the Book	Publisher&Edition
1.	Aaron M.Taenenbaum, Yedidyah angsam	Data Structures Using C	Prentice Hall of India
2.	ISRD group	Data sturcutres using C	Tata Mc. Graw Hill

WEBSITE REFERENCES

1. https://www.tutorialspoint.com/data_structures_algorithms/
2. https://code.tutsplus.com/series/data-structures-succinctly-part-1--cms-551
3. https://www.geeksforgeeks.org/data-structures/
4. https://visualgo.net/en

Means of Curriculum Delivery: Lecture, Group Learning, Seminar, Assignment, Google classroom.

SEMESTER II

Programme Code	**B.Sc IT**	**Programme Title**	**Bachelor of Science (Information Technology)**	
Course Code	**19U2ITCP06**	**Title : Core 6 : C++ Programming Practical**	**Batch**	**2019-2022**
			Semester	**II**
Hrs/week	**3 Hours**		**Credits**	**3**

COURSE OBJECTIVES:

- To enable the students to gain knowledge in developing C++ Programs for certain specified problems.
- To develop the applications using C++ Programming language.
- To apply the concepts like looping, control statements arrays, function overloading and file concepts.

COURSE OUTCOMES (CO)

At the end of the practical session, students should be well-versed in

CO Number	**CO Statement**
CO1	Write programs in C++ to demonstrate Classes and objects
CO2	Use various types of arrays and constructors
CO3	Apply the concepts of virtual functions and function overloading
CO4	Write programs in C++ using special functions, constructor and destructor.
CO5	Use the file handling concepts

MAPPING WITH PROGRAMME OUTCOMES

COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**
CO1	-	✓	✓	-	-	✓	-	-	-	-	-	✓
CO2	-	✓	✓	-	-	✓	-	-	-	-	-	✓
CO3	-	✓	✓	✓	-	✓	-	-	-	✓	-	✓
CO4	-	✓	✓	✓	-	✓	-	-	-	✓	-	✓
CO5	-	✓	✓	✓	-	✓	-	-	-	✓	-	✓

SYLLABUS

1. Write a program which demonstrates Classes and objects
2. Write a C++ program to illustrate the concept of arrays.
3. Write a program to demonstrate different types of constructors
4. Write a C++ program to demonstrate Function Overloading.
5. Write a C++ program to implement function overloading and virtual functions.
6. Write a C++ program to overload unary operator using friend function.
7. Write a C++ program to create single inheritance and multilevel inheritance.
8. Write a C++ program to illustrate 'this' pointer and pointers to derived classes.
9. Write a C++ Program to understand the concept of Constructors.
10. Write a C++ program to copy the contents of a file into another.

WEB REFERENCE

1. https://www.tutorialspoint.com/cplusplus/
2. https://www.programiz.com/cpp-programming
3. https://www.class-central.com/tag/c++
4. http://www.cplusplus.com/doc/tutorial/program_structure/
5. https://www.hscripts.com/tutorials/cpp

Means of Curriculum Delivery : Power point presentation, Lab Assignments, Observation

SEMESTER II

Programme Code :	**B.Sc. IT**	**Programme Title**	**Bachelor of Science Information Technology**	
Course Code :	**19U2ITAT02**	**Title : Allied 2 : Discrete Mathematics**	**Batch**	**2019-2022**
			Semester	**II**
Hrs/week	**5 Hours**		**Credits**	**4**

COURSE OBJECTIVES

- To enable the Students 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

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	**CO Statement**
CO1	Define the concepts of set theory, partition of sets, inclusion and exclusion principles.
CO2	Write an argument using logical notation and determine if the argument is valid or invalid.
CO3	Describe the binary relations between two sets and determine if the relation is partial order relation or equivalence relation using set operations.
CO4	Explain the concepts of formal languages and construct the finite state automata.
CO5	State the concept of graphs, enumerate the types of graphs and their applications practical situations.

MAPPING WITH PROGRAMME OUTCOMES

CO/PO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**
CO1	-	-	-	✓	✓	✓	✓	-	-	-	-	-
CO2	-	-	-	✓	✓	✓	✓	-	-	-	-	-
CO3	-	-	-	✓	✓	✓	✓	-	-	-	-	-
CO4	-	-	-	✓	✓	✓	✓	-	-	-	-	-
CO5	-	-	-	✓	✓	✓	✓	-	-	-	-	-

SYLLABUS

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:12)**

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

UNIT III **(Hours:12)**

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

UNIT IV **(Hours:12)**

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

S. No	Author Name	Title of the Book	Publisher&Edition
1	J.K. Sharma	Discrete Mathematics	Macmillan India Ltd

REFERENCE BOOKS

S. No	Author Name	Title of the Book	Publisher&Edition
1	J. P Tremblay R Manohar	Discrete Mathematics Structures with Applications to Computer Science	Mc Graw Hill International Publications
2	Dr.M.K.Venketaramen,Dr.N.Sridharan, N.Chandarasekaran	DiscreteMathematics	The National publishing Company
3	V.Sundaresan	Discrete Mathematics	A.R.Publications
4	M.K.Chandborthy	Introduction to Discrete Mathematics	Books and Allied Pvt.Ltd.

WEBSITE REFERENCE

1.www.coursera.com
2.www.tutorialpoint.com

Means of Curriculum Delivery : Lecture, Group Learning, Seminar, Assignment, Google classroom.

SEMESTER II

Programme Code	**B.Sc.IT**	**Programme Title**	**Bachelor of Science (Information Technology)**	
Course Code	**19U2VBET02**	**Value Based Education 2: Yoga for Youth Empowerment ****	**Batch**	**2019-2022**
			Semester	**II**
Hrs/week	**2 Hours**		**Credits**	**4**

Syllabus

Unit 1: Philosophy of Life Science **(Hours:06)**

Life – Purpose of life – Philosophy of Life- Law of Nature-Kindness towards living beings Preserving Natural resources.

அலகு 1: வாழ்வியல் தத்துவம்

வாழ்க்கை - வாழ்வின் நோக்கம் -வாழ்க்கைத் தத்துவம் -இயற்கை நியதி -பிற உயிர் பேணல் -இயற்கை வளம் காத்தல்

Unit 2: Human values **(Hours:06)**

Culture –Analysis of thought- Moralization of Desire- Neutralization of Anger- Eradication of Worry- Blessings and Benefits- Harmonious Friendship- Love and Compassion-Individual Peace.

அலகு 2: தனிமனித பண்புகள்

பண்பாடு -எண்ணம் ஆராய்தல் -ஆசை சீரமைத்தல் -சினம் தவிர்த்தல் -கவலை ஒழித்தல் -வாழ்த்தும் பயனும் - நட்பு நலம் - அன்பும் கருணையும் - தனிமனித அமைதி.

Unit 3: Social Values **(Hours:06)**

Family- Family Peace- Society-Life style- World Brotherhood- Greatness of Women- Five Duties- Economics- Hygiene and Health Care- Education – Politics- Responsibilities of people.

அலகு 3: சமுதாய மதிப்புகள்

குடும்பம் - குடும்ப அமைதி - சமுதாயம் - வாழ்க்கை முறை - உலக சகோதரத்துவம் - பெண்ணின் -பெருமை - ஐவகைக் கடமைகள் -பொருளாதாரம் -சுகாதாரம் -கல்வி -அரசியல் -மக்களின் பொறுப்பு -உலக அமைதி

Unit 4: Development of Mental prosperity **(Hours:06)**

Prosperity of Mind- Life force- Bio-Magnetism and Mind – Functions of Mind- Mental Frequency – Ten Stages of Mind-Genetic Centre- Meditation- Value spirituality-Universal Magnetism and Bio-Magnetism.

அலகு 4 : மனிதவள மேம்பாடு

மனவளம் - உயிரும் மனமும - உயிரின் இயக்க மையம் - மனத்தின் செயல்கள - மன அலைச்சுழல - மன இயக்கப் படி நிலைகள - கருமையம் - தவம்(தியானம்) - ஆன்மீக மதிப்பு - வான்காந்தம் - சிவகாந்தம்

Unit 5: Maintenance of Physical Health **(Hours:06)**

Structure of Human Body- Three Functional Bodies-Harmony Between Body and Life force- Pain, Disease and Death- Reasons for Disease - Limit and Method in Five Factors- Simplified Physical Exersices- Practice for Simplified Physical Exercises.

Text books:

S. No	Author Name	Title of the Book	Publisher
1	Vethathri maharish	Journey of Consciouness,	Vethathri Publications
2	Vethathri maharish	Simplified Physical Exercise	Vethathri Publications
3	Vethathri maharish	Unified Force	Vethathri Publications
4	Thathuvagnani Vethathri aharishi	Yoga for modern age	Vethathri Publications
5	Dr. Chandrasekaran	Sound Health through yoga	Prem Kalyan Publications
6	**Ntjhj;jpup kfup\p**	**vspa Kiw clw;gapw;rp**	**Ntjhj;jpup gjpg;gfk;**

SEMESTER II

Programme Code	**B.Sc.IT**	**Programme Title**	**Bachelor of Science (Information Technology)**	
Course Code	**19U2VBET03**	**Value Based Education 3: Ethics and Culture ****	**Batch**	**2019-2022**
			Semester	**II**
Hrs/week	**2 Hours**		**Credits**	**1**

- Ethics and Culture (மனிதவள மாண்பு - தனிமனித விழுமியங்கள்இசமுதாய விழுமியங்கள்)
- **அறவியலும் பண்பாடும்** - (தனிமனித விழுமியங்கள்இ குடும்ப விழுமியங்கள், சமுதாய விழுமியங்கள், பணிசார்ந்த விழுமியங்கள், தேசிய விழுமியங்கள், உலகளாவிய விழுமியங்கள்)

நோக்கம்

- ஒவ்வொருவரும் தன்னை உயர்த்திக் கொண்டுஇ சமுதாய மக்களுடன் இணக்கமாக வாழ்ந்து சமுதாயத்தை உயர்த்த வேண்டும். உன்னத இலட்சியத்திற்காக தமது வாழ்க்கையை அர்த்தமுள்ளதாக ஆக்கிக் கொள்ள வேண்டும்.
- குடும்ப அமைதி, ஐந்தொழுக்கப் பண்பாடு, உணவே மருந்து, ஆளுமைப்பண்பு, தலைமைப்பண்பை மாணவர்களிடம் உருவாக்குதல்.
- உலக நாடுகளுடன் ஒற்றுமை, புரிந்துணர்வு ஆகியவற்றின் மூலம் இந்தியாவின் வலிமையை உணரச்செய்தல்.
- வளர்ந்துவரும் இந்தியா, உலகிற்கு வழங்கும் செய்தி, வேற்றுமையில் ஒற்றுமை, இந்தியாவும் ஆன்மீகமும், பற்றி மாணவர்களை உணரச்செய்தல்.

பாடப்பகுதி கற்றலின் வெளிப்பாடு - Course Outcome (CO)

CO Number	**CO Statement**
CO1	தன்னை, உள்நோக்க அறிவால் ஆராய்ந்து தன்னிடமுள்ள உணர்ச்சி வயப்பட்ட குணங்களை எல்லாம் மாற்றியமைத்துக் கொள்ளச் செய்தல்.
CO2	குடும்ப அமைதி, ஐந்தொழுக்கப் பண்பாட்டை அறிந்து, அதன்படி வாழ்ந்து தன்னை உயர்த்திக் கொள்ளச் செய்தல்.
CO3	வாழ்க்கையின் இலக்கை அடையத் தேவையான தகுதியை வளர்த்துக் கொள்ளல்.
CO4	பிற நாடுகளோடு இந்தியா கொண்டுள்ள தொடர்பின் மூலம் நமது நாட்டினுடைய கலாச்சாரம், பண்பாட்டினை உணரச்செய்தல்.
CO5	வளர்ந்துவரும் இந்தியா, உலகிற்கு வழங்கும் செய்தி, வேற்றுமையில் ஒற்றுமை, இந்தியாவும் ஆன்மீகமும் பற்றி மாணவர்களை உணரச்செய்தல்.

epuy; tpisTfisf; nfhz;l tiuglk;

CO /PO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**
CO1	-	-	-	-	✓	✓	-	-	✓	-	-	-
CO2	-	-	-	-	✓	-	-	-	✓	-	-	-
CO3	-	-	-	-	-	-	-	-	✓	-	-	-
CO4	✓	-	✓	-	-	-	-	-	-	-	-	-
CO5	✓	-	-	-	-	-	-	-	-	-	-	-

பாடத்திட்டம்

அலகு – 1 **6 மணி நேரம்**

மனித வள மாண்பின் அவசியம் - மனித வாழ்வின் நோக்கமும் தத்துவமும் - தன்னிலை அறிதல் - வாழ்த்தும் பயனும் - அன்பும் கருணையும்

அலகு – 2 **6 மணி நேரம்**

குடும்ப அமைதி - இல்லறமே நல்லறம் - ஐந்தொழுக்கப் பண்பாடு – பாலுணர்வும் ஆன்மீக மேம்பாடும் - உணவே மருந்து .

அலகு – 3 **6 மணி நேரம்**

ஆளுமை மேம்பாட்டுக் கூறுகள் - சுயமுன்னேற்றமும் தலைமைப் பண்பும் மனித வேறுபாட்டிற்கான காரணங்கள் - மனத்தூய்மை தரும் சமுதாய நலன் .

அலகு – 4 **6 மணி நேரம்**

செம்மாந்த குடியுரிமை – வளர்ந்து வரும் இந்தியா – வெளிநாட்டவர் பார்வையில் இந்தியா - இந்திய கலாச்சாரத்தின் மேன்மை

அலகு – 5 **6 மணி நேரம்**

இந்தியா உலகிற்கு வழங்கும் செய்தி – வேற்றுமையில் ஒற்றுமை - இந்தியாவும் ஆன்மீகமும் - கலாச்சார சீரழிவும் தீர்வும் - செயலும் மனிதனே தீர்வும் மனிதனே .

பாட நூல் - தொகுப்பு தமிழ்த்துறை வெளியீடு 2019.
பார்வை நூல்கள்

ளூ. ே ழ	யுரவாழச யேஅந	வுவைடந ழக வாந டீழழம	ீரடிடளைாநச
1	-	தனிமனித விழுமியங்கள்	என்.ஜி.எம். கல்லூரிஇ பொள்ளாச்சி.
2	-	சமுதாய விழுமியங்கள்	என்.ஜி.எம். கல்லூரிஇ பொள்ளாச்சி.
3	-	குடும்ப விழுமியங்கள்	என்.ஜி.எம். கல்லூரிஇ பொள்ளாச்சி.
4	-	உலகளாவிய விழுமியங்கள்	என்.ஜி.எம். கல்லூரிஇ பொள்ளாச்சி.
5	-	பணிசார்ந்த விழுமியங்கள்	என்.ஜி.எம். கல்லூரிஇ பொள்ளாச்சி.
6	-	தேசிய விழுமியங்கள்	என்.ஜி.எம். கல்லூரிஇ பொள்ளாச்சி.

SEMESTER II

Programme Code :	**B.Sc.IT**	**Programme Title**	**Bachelor of Science (Information Technology)**	
Course Code :	**19U2SBST03**	**Title : Skill Based Subject 3 Mathematics for Competitive Examinations -II**	**Batch**	**2019-2022**
			Semester	**II**
Hrs/week	**2 Hours**		**Credits**	**1**

COURSE OBJECTIVES

- To enable the Students to know about concept of Interest and Profit and loss.
- To know about methods of calculation concept of Interest and Profit and loss.
- To develop the ability in solving problems involving Permutation , Combinations and Bankers Discount.
- To Solve Problems of Permutations and combinations

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to achieve the following outcomes.

CO Number	**CO Statement**
CO1	Explain the basic concepts of mathematics of finance.
CO2	Solve the problems on time and distance, time and work.
CO3	Apply the concept of permutation and combinations to solve problem.

MAPPING WITH PROGRAMME OUTCOMES

CO/PO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**
CO1	-	-	-	✓	✓	✓	✓	-	-	-	-	-
CO2	-	-	-	✓	✓	✓	✓	-	-	-	-	-
CO3	-	-	-	✓	✓	✓	✓	-	-	-	-	-

SYLLABUS

UNIT I **(Hours : 06)**

Profit and Loss – Ratio and Proportion

UNIT II **(Hours : 06)**

Partnership – Chain Rule

UNIT III **(Hours : 06)**

Time and Distance – Time and work

UNIT IV **(Hours : 06)**

Permutation & Combinations

UNIT V **(Hours : 06)**

True Discount- Bankers Discount

(Simple Problems only)

TEXT BOOKS

S. No	Author Name	Title of the Book	Publisher
1	R. S. Agarwal	Quantitative Aptitude (for Competitive Examinations)	S. Chand and Company Limited

REFERENCE BOOKS

S. No	Author Name	Title of the Book	Publisher
1	R.V.Praveen	Quantitative Aptitude and Resoning	PHI Learning pvt. Ltd
2	Abhijit Guha	Quantitative Aptitude for Competitive Examinations	ata Mc-Graw Hill Publishing Company

WEBSITE REFERENCE

1.https://www.careerbless.com/aptitude/qa/home.php
2.https://www.indiabix.com/

Means of Curriculum Delivery : Lecture, Group Learning, Seminar, Assignment, Google classroom.

SEMESTER-II

Programme Code:	**B.Sc IT**	**Programme Title**	**Bachelor of Science (Information Technology)**	
Course Code:	**19U2SBST04**	**Title: Skill Based Subject 4 : Communication Skills- II**	**Batch**	**2019-2022**
			Semester	**II**
Hrs/ Week	**2 Hours**		**Credits**	**1**

COURSE OBJECTIVES:

- To make the students to understand the barriers in their communication and the ways to over come the same
- To make the students to know various types of listening and the effect of enhancing the listining skills
- To encourage Group discussion and introduce to speak in different situations and the etiquette to be maintained

COURSE OUTCOMES (CO):

On Successful Completion of the course the students should be able to achieve the following outcomes.

CO Number	**CO Statement**
CO1	to communicate meaningfully and effectively with others
CO2	to explain various types of listining and be a careful listener
CO3	to deal with different kinds of situations by conversing effectively and maintaining the etiquette required for such situations

SYLLABUS

UNIT –I

Parts of Speech

Tenses

Active voice and passive voice

4. Phrasal Verbs

UNIT- II

1. Confusable Words
2. Jumbled Sentences
3. Synonyms
4. Antonyms

UNIT- III

Reading Techniques (Skimming and Scanning)
Types of Reading - Intensive Reading and Extensive Reading
Brain Storming
Role Play

TEXT BOOKS:

S. No	Author Name	Title of the Book	Publisher
1	Meenakshi Raman	Communication Skills	Oxford University Press
2	Shalini Aggarwal	Essential Communication Skills	Ane Books Pvt.Ltd. New Delhi

REFERENCE BOOKS:

S. No	Author Name	Title of the Book	Publisher
1	Course team, Bharathiyar University	Communication Skills a multi-skill course	Macmillan Publishers India LTD.
2	Krishna Mohan	Developing Communication Skills	Macmillan Publishers India LTD.
3	Joyce Pereire	Techinical English – II	Vijay Nicole Imprints Pvt.Ltd.

Means of Curriculam Delivery: Lecture, Group Discussion, Seminar, Assignment, Google Class Room.

SEMESTER – III

Programme Code :	**B.Sc IT**	**Programme Title**	**Bachelor of Science (Information Technology)**	
Course Code :	**19U3ITCT07**	**CORE 7: OPERATING SYSTEMS**	**Batch**	**2019-2022**
			Semester	**III**
Hrs/week	**5 Hours**		**Credits**	**4**

COURSE OBJECTIVES:

- To gain knowledge on OS concepts and functioning of modern OS.
- To understand the different types of operating systems concepts like shell, Multi-Tasking / Time-sharing and Distributed Operating System.
- To understand the basic structure of OS , process and threads.
- To understand the deadlock & Memory management concepts.

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	**CO Statement**
CO1	Explain the basics of operating systems like kernel,shell, types and views of operating systems
CO2	Implement operating system functions.
CO3	Describe the various CPU scheduling algorithms and remove deadlocks
CO4	Explain various memory management techniques and concept of thrashing
CO5	Recognize file system interface, protection and security mechanisms.

MAPPING WITH PROGRAMME OUTCOMES

CO/PO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**
CO1	-	✓	✓	-	-	-	-	-	-	-	-	✓
CO2	-	✓	✓	-	-	-	-	-	-	-	-	✓
CO3	-	✓	✓	-	-	-	-	-	-	-	-	✓
CO4	-	✓	✓	-	-	-	-	-	-	-	-	✓
CO5	-	✓	✓	-	-	-	-	-	-	-	-	✓

SYLLABUS

UNIT I **(Hours:12)**

Introduction: Basic OS functions, types of operating systems–simple batch systems-multiprogrammed batched systems , time sharing systems; personal computer systems, parallel systems, Distributed Systems, real time systems. OS Concepts - Processes, files, system calls and the shell.

UNIT II **(Hours:11)**

OS Structure:Layered Systems-Virtual Machines-Client ServerModels. Processes-System view of the process model, process hierarchy,process states, implementation of processes. Process Synchronization-critical section problem, semaphores.Thread-motivation for threads, thread states, threading models.

UNIT III **(Hours:13)**

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 riters Problems-The Sleeping Barber Problem. Process Scheduling- round robbin scheduling, priority Scheduling, multiple queues Scheduling, shortest job first Scheduling, shortest process first Scheduling policy versus Mechanism,First-in-First-out Scheduling, Scheduling in Real-Time Systems, Thread Scheduling.

UNIT IV **(Hours : 10)**

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 wait Condition- Attacking the No Preemption Condition-Attacking the Circular Wait Condition.

UNIT V **(Hours : 14)**

Memory Management: Physical and virtual address space; memory allocation strategies, segmentation. Virtual Memory Organization-Paging-Page Tables-Page Replacement Algorithm: The Optimal Page Replacement Algorithm-The Not Recently Used Page Replacement Algorithm- The First In First Out. 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, Directory operations.

Text Book

S.No.	Author Name	Title of the Book	Publishers	Year / Edition
1.	Abraham Silberschatz Peter Baer Galvin and Greg Gagne	Operating System Concepts	John Wiley & Sons (ASIA) Pvt. Ltd	Seventh Edition,2004
2.	AndrewSTanenbaum	Modern Operating Systems	Prentice Hall of India Pvt. Ltd	Fourth Edition,2014
3.	Harvey M. Deitel	Operating Systems	Pearson Education Pvt. Ltd	Nineth Edition,2018

Reference Books

S.NO.	Author Name	Title of the Book	Publishers	Year / Edition
1.	Pramod chandra P.Bhatt	An Introduction to Operating systems	PHI Learning Pvt. Ltd	Fourth Edition,2014
2.	William Stallings	Operating systems	PHI Learning Pvt. Ltd	Seventh Edition2014
3.	Sathe S R	Operating systems	Mac Millan	Fourth Edition,2014

WEBSITE REFERENCES

1. https://en.wikipedia.org/wiki/Operating_system
2. https://www.tutorialspoint.com/computer.../computer_operating_system.htm
3. https://www.webopedia.com/TERM/O/operating_system.html
4. https://www.geeksforgeeks.org/operating-systems-need-and-functions/
5. https://www.lifewire.com › How To › Windows › Key Concepts › Computer Concepts

Means of Curriculum Delivery : Lecture, Group Learning, Seminar, Assignment, Case studies, Google Classroom

SEMESTER – III

Programme Code :	**B.Sc IT**	**Programme Title**	**Bachelor of Science (Information Technology)**	
Course Code:	**19U3ITCT08**	**CORE 8: JAVA PROGRAMMING**	**Batch**	**2019-2022**
			Semester	**III**
Hrs/week	**5 Hours**		**Credits**	**4**

COURSE OBJECTIVES

- To introduce the OOP concepts and basic syntax of java.
- To provide knowledge on classes, inheritance, interfaces and packages.
- To make the students to understand exception handling and multithreading.
- To gain the knowledge on Input/Output concepts and applets.

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Explain object oriented programming concepts of java.
CO2	Comprehend building blocks of OOPs language, inheritance, package and interfaces
CO3	Identify exception handling methods
CO4	Develop multithreading object oriented programs
CO5	Develop an object oriented program handling data file.

MAPPING WITH PROGRAMME OUTCOMES

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	-	✓	✓	-	-	✓	-	-	-	-	-	✓
CO2	-	✓	✓	-	-	✓	-	-	-	✓	-	✓
CO3	-	✓	✓	-	-	✓	-	-	-	✓	-	✓
CO4	-	✓	✓	-	-	✓	-	-	-	✓	-	✓
CO5	-	✓	✓	-	-	✓	-	-	-	✓	-	✓

SYLLABUS

UNIT I **(Hours : 12)**

Introduction to Object-Oriented Programming: Fundamentals: Object Oriented Paradigm – Basic Concepts -Benefits of OOP – Applications of OOP. **Java Evolution :** History – Features - Difference between Java,C and C++. **Overview of Java language** : Simple Java Program - Java Program Structure – Java Tokens - Java statements – Implementing a java Program-JVM. **Constants,Variables, Data types:** Constants – Variables – Data types - Declaration of Variables- Giving values to variables. **Operators and Expressions.**

NIT II **(Hours : 12)**

Decision Making and Branching: if, if..else, switch – **Decision making and looping:** While statement, do statement, for statement, Jumps in Loops, Labelled Loops - **Classes, Objects and Methods**: Defining a class, Field declaration, Methods declaration, Creating objects Accessing class members, Constructors, Method Overloading,

Inheritance: Extending a class, Overriding Methods. - Arrays, Strings and vectors: One and Two dimensional Array, Creating an Array, Strings.

UNIT III **(Hours : 10)**

Interfaces: Multiple Inheritance – Packages : Putting classes together – Multithreaded programming : Creating threads, Extending Threads, Life cycle of a Thread, Using Thread Methods, Implementing 'Runnable' Interface

UNIT IV **(Hours : 14)**

Exception Handling: Exception Handling Fundamentals-Exception types- Uncaught Exceptions-Using try and catch-Multiple Catch clauses- Nested try statements-Throw- Throws-Finally-Java's Built-in Exceptions- **Applet Programming**: Introduction – Applet differs from Applications – Preparing to write Applets- Building Applet code - Applet Life Cycle Skeleton-Creating an Executable Applet- Designing a web Page-Applet Tag- Adding Applet to a HTML file- Running the Applet.

UNIT V **(Hours : 12)**

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

TEXT BOOKS

S.No	Author Name	Title of the Book	Publishers	Year / Edition
1.	E.BalaGurusamy	"Programming with Java"	Tata McGraw Hill Pvt Ltd	Sixth Edition,2019
2.	Patrick Naughton & Hebert Schildt	"The Complete Reference Java 2"	Tata McGraw Hill Pvt Ltd.	Sixth Edition,2018

REFERENCE BOOKS

S.No	Author Name	Title of the Book	Publishers	Year / Edition
1.	John R.Hubbard	Programming with Java	Tata McGraw	Fifth Edition,2004
2.	Aaron Walsh and John Fronckowiak	Java Programming Bible	IDG Books	Fifth Edition,2005

WEBSITE REFERENCES

1) https://www.tutorialspoint.com
2)https://www.geeksforgeeks.org
3)http://javanotes.co.in
4)https://www.leepoint.net

Means of Curriculum Delivery : Lecture, Group Learning, Seminar, Assignment, Google classroom.

SEMESTER – III

Programme Code :	**B.Sc IT**	**Programme Title**	**Bachelor of Science (Information Technology)**	
Course Code:	**19U3ITCT09**	**Core 9: Microprocessor and ALP**	**Batch**	**2019-2022**
			Semester	**III**
Hrs/week	**6 Hours**		**Credits**	**3**

COURSE OBECTIVES

- To make the students to have basic Knowledge and understanding of fundamental microprocessor architecture, and operating models.
- To understand various types of processors and data process using Microprocessor architectures
- Understand the programs to run on 8086 microprocessor based systems.
- Understand and devise techniques for faster execution of instructions, improve speed of operations and enhance performance of microprocessors.

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	**CO Statement**
CO1	Explain the various types of processors and data process using Microprocessor architectures.
CO2	Explain the programs to run on 8086 microprocessor based systems.
CO3	Design system using memory chips and peripheral chips for 16 bit 8086 microprocessor.
CO4	Discribe the devise techniques for faster execution of instructions, improve speed of operations and enhance performance of microprocessors.
CO5	Distinguish between RISC and CISC processors and understand multi core processor and its advantages

MAPPING WITH PROGRAMME OUTCOMES

CO/PO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**
CO1	-	√	√	-	-	-	-	-	√	-	√	√
CO2	-	√	√	-	-	-	-	-	√	-	√	√
CO3	-	√	√	-	-	-	-	-	√	-	√	√
CO4	-	√	√	-	-	-	-	-	√	-	√	-
CO5	-	√	√	-	-	-	-	-	√	-	-	-

SYLLABUS

UNIT I **(Hours:13)**

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:14)**

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 : 16)**

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 Commands-Assembler-I/O Procesor-Co-Processor.

UNIT IV **(Hours:14)**

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.

UNIT V **(Hours:15)**

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.

Text Books:

S.No.	Author Name	Title of the Book	Publishers	Year / Edition
1.	Badri Ram	AdvancedMicroprocessors and Interfacing	Tata McGraw Hill Pvt Ltd	Sixth Edition,2019
2.	Yu-Cheng Liu & GlannA.Gibson	Microcomputer Systems:the8086/8088 Family architecture, programming and design	PHI Private Ltd	Second Edition,2005

Reference Books:

S.No	Author Name	Title of the Book	Publishers	Year / Edition
1.	Douglas Hal	Microprocessor and Interfacing	Tata McGraw Hill Pvt Ltd	Second Edition 2001
2.	Daniel Tabak	Advanced Microprocessor	Tata McGraw Hill Pvt Ltd,	Fourth Edition, 2006

WEBSITE REFERENCES:

1. https://en.m.wikipedia.org>org wiki
2.https://simple.m.wikipedia.org>wiki
3.https://www.tutorialspoint.com>microprocessor
4.https://computer.howstuffworks.com>
5.https://electrosome.com>microprocessor

Means of Curriculum Delivery : Lecture, Group Learning, Seminar, Assignment, Google Classroom

SEMESTER – III

Programme Code :	**B.Sc IT**	**Programme Title**	**Bachelor of Science (Information Technology)**	
Course Code :	**19U3ITCP10**	**Core 10: Java Programming - Practical**	**Batch**	**2019-2022**
			Semester	**III**
Hrs/week	**6 Hours**		**Credits**	**3**

COURSE OBJECTIVES

- Understand fundamentals of object – oriented programming in Java, including defining classes, invoking methods using class libraries.
- To be able to use the Java SDK environment to create, debug and run simple Java programs.
- To enable the students to gain knowledge in developing Java Programs for certain specified problems.

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	**CO Statement**
CO1	Implement Object Oriented programming concept using basic syntaxes of control Structures, strings and function for developing skills of logic building activity.
CO2	Identify classes, objects, members of a class and the relationships among them needed for a finding the solution to specific problem
CO3	Demonstrates how to achieve reusability using inheritance, interfaces and packages and describes faster application development can be achieved.
CO4	Demonstrate understanding and use of different exception handling mechanisms and concept of multithreading for robust faster and efficient application development.
CO5	Identify and describe common user interface components to design GUI in Java using Applet

MAPPING WITH PROGRAMME OUTCOMES

CO/PO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**
CO1	-	✓	✓	-	-	✓	-	-	-	-	-	✓
CO2	-	✓	✓	-	-	✓	✓	✓	-	-	-	✓
CO3	-	✓	✓	-	-	✓	✓	✓	-	-	-	✓
CO4	-	✓	✓	-	-	✓	✓	✓	-	-	-	✓
CO5	-	✓	✓	-	-	✓	✓	✓	-	-	-	✓

SYLLABUS

1. Write a Java Program to define a class, define instance methods for setting and Retrieving values of instance variables and instantiate its object.
2. Write a Java Program to define a class, define instance methods and overload them and use them for dynamic method invocation.
3. Write a Java Program to define a class, describe its constructor, overload the Constructors and instantiate its object.
4. Write a Java Program to demonstrate use of sub class.
5. Write a Java Program to demonstrate use of nested class.
6. Write a Java Program to implement array of objects.
7. Write a Java program to practice using String class and its methods.
8. Write a Java program to practice using String Buffer class and its methods.
9. Write a Java Program to implement inheritance and demonstrate use of method overriding.
10. Write a Java Program to implement multilevel inheritance by applying various access controls to its data members and methods.
11. Write a program to demonstrate use of implementing interfaces.
12. Write a program to implement the concept of threading by extending Thread Class.
13. Write a program using Applet to display a message in the Applet.

WEB REFERENCES

1. http://www3.ntu.edu.sg/home/ehchua/programming/java/j3f_oopexercises.html
2. https://www.javatpoint.com
3. https://www.w3resource.com/java-exercises/
4. http://enggedu.com/object_oriented_programming_lab_exercise_programs/index.php
5. http://www.java67.com/2013/01/10-programming-questions-and-exercises.html

Means of Curriculum Delivery : Power point presentation, Lab Assignments, Observation

SEMESTER-III

Programme Code :	**B.Sc IT**	**Programme Title**	**Bachelor of Science (Information Technology)**	
Course Code :	**19U3ITAT03**	**Allied 3: Operations Research**	**Batch**	**2019-2022**
			Semester	**III**
Hrs/week	**5 Hours**		**Credits**	**4**

COURSE OBJECTIVES

To enable the Students

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

CO Number	**CO Statement**
CO1	Define Operations Research, Linear Programming Problem and explain the methods of solving Solution of LPP using Graphical Method simplex method and Big M method
CO2	Solve Transportation and Assignment problems
CO3	Explain the concepts of Game Theory
CO4	Study the concepts of Queueing theory and solving simple problems
CO5	Know distinction between PERT & CPM

MAPPING WITH PROGRAMME OUTCOMES

CO/PO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**
CO1	-	-	-	✓	-	✓	-	-	-	-	-	-
CO2	-	-	-	✓	-	✓	-	-	-	-	-	-
CO3	-	-	-	✓	-	✓	-	-	-	-	-	-
CO4	-	-	✓	✓	-	✓	-	-	-	✓	✓	✓
CO5	-	-	✓	✓	-	✓	-	-	-		✓	✓

SYLLABUS

UNIT I **(Hours:12)**

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

UNIT II **(Hours:12)**

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:12)**

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

UNIT IV **(Hours:12)**

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

UNIT V **(Hours:12)**

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

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

Text Book:

S. No.	Author Name	Title of the Book	Publisher	Year / Edition
1	Prof. V. Sundaresan, K.S. Ganapathy Subramanian, K. Ganesan	Resource Management Techniques	A.R. Publications, Chennai.	Sixth Edition,2015

REFERENCE BOOKS:

S. No.	Author Name	Title of the Book	Publisher	Year / Edition
1	Kanti Swarup, P.K. Gupta and Man Mohan	Operation Research	Sultan Chand & sons, New Delhi	13th, Edition, 2007.
2	Prof.V.Sundaresan, K.S.Ganapaty Subramanian, K. Ganesan	Resource Management Techniques	A.R. Publications, Chennai	6th Edition,,-2012
3	Prem Kumar Gupta D.S, Hira S	Operation Research	Chand & Company Ltd, Ram Nagar, New Delhi	2007

WEBSITE REFERENCE

1.https://www.nptel.ac.in-courses-Webcourse-contents-OPTIMIZATION-METHODS-pdf-Module
2. https://www.mech.iitm.ac.in/nspch.pdf
3. https://www.shodhganga.inflibnet.ac.in/bitstream/10603/11449/.pdf

Means of Curriculum Delivery : Lecture, Group Discussion, Seminar, Assignment, Google classroom

SEMESTER III

Programme Code :	**B.Sc IT**	**Programme Title**	**Bachelor of Science (Information Technology)**	
Course Code :	**19U3SBST05**	**Skill Based Subject 5: Mathematics for Competitive Examinations -III**	**Batch**	**2019-2022**
			Semester	**III**
Hrs/week	**2 Hrs**		**Credits**	**1**

COURSE OBJECTIVES

To enable the Students

- To make the students to know the concept of Pipes, Cistern and Probablity.
- To solve problem related to Problems on Boats and Streams .
- To make the students to know the concept of Alligation or mixture,Problem of Heights and distance,odd man out series.

COURSE OUTCOME (CO)

CO Number	CO Statements
CO1	Several tricks and formulas for pipes and cisterms are available which reduces the effort to solve the problem.
CO2	Solve the problems on time and distance train, boats and stream.
CO3	Apply the concept of Alligation and height & distance to solve problem.

UNIT I **(6Hrs)**

Pipes and cisterm – Probablity

UNIT II **(6Hrs)**

Problems on trains

UNIT III **(6Hrs)**

Problems on Boats and Streams

UNIT IV **(6Hrs)**

Alligation or mixture

UNIT V **(6Hrs)**

Heights & Distance- Odd Man Out & Series **(Simple Problems only)**

TEXT BOOK

S. No.	Author Name	Title of the Book	Publisher	Year / Edition
1	R. S. Agarwal	Quantitative Aptitude (for Competitive Examinations)	S. Chand and Company Limited	2017.

REFERENCE BOOKS

S. No.	Author Name	Title of the Book	Publisher	Year / Edition
1	R.V.Praveen	Quantitative Aptitude and Resoning,	PHI Learning pvt. Ltd	2012
2	Abhijit Guha	Quantitative Aptitude for Competitive Examinations	Tata Mc-Graw Hill Publishing Company	2019

WEBSITE REFERENCE

1.https://www.careerbless.com/aptitude/qa/home.php
2.https://www.indiabix.com/

Means of Curriculum Delivery *: Lecture, Group Discussion, Seminar, Assignment, Google classroom.*

SEMESTER-III

Programme Code :	**B.Sc IT**	**Programme Title**	**Bachelor of Science (Information Technology)**	
Course Code :	**19U3SBST06**	**Skill Based Subject 6: Communication Skills-III**	**Batch**	**2019-2022**
			Semester	**III**
Hrs/week	**2 Hours**		**Credits**	**1**

COURSE OBJECTIVES:

- 1. To make the students to understand the barriers in their communication and the ways to over come the same.
- 2. To make the students to know various types of listening and the effect of enhancing the listining skills**.**
- 3. To encourage Group discussion and introduce to speak in different situations and the etiquette to be maintained.

COURSE OUTCOMES (CO):

On Successful Completion of the course the students will be able to achieve the following outcomes.

CO Number	CO Statement
CO1	To communicate meaningfully and effectively with others
CO2	To explain various types of listining and be a careful listener
CO3	To deal with different kinds of situations by conversing effectively and maintaining the etiquette required for such situations

SYLLABUS

UNIT –I

1.Parts of Speech

2.Tenses

3.Active voice and passive voice

4.Phrasal Verbs

UNIT- II

1. Confusable Words
2. Jumbled Sentences
3. Synonyms
4. Antonyms

UNIT- III

1. Reading Techniques (Skimming and Scanning)
2. Types of Reading - Intensive Reading and Extensive Reading
3. Brain Storming
4. Role Play

TEXT BOOKS:

S.No	Author Name	Title of the Book	Publisher	Year/Edition
1	Meenakshi Raman	Communication Skills	Oxford University Press	2011
2	Shalini Aggarwal	Essential Communication Skills	Ane Books Pvt.Ltd. New Delhi	2011

REFERENCE BOOKS:

S.No	Author Name	Title of the Book	Publisher	Year/Edition
1	Bharathiyar University	Communication Skills a multi- skill course	Macmillan Publishers India LTD.	2009
2	Krishna Mohan	Developing Communication Skills	Macmillan Publishers India LTD.	2018
3	Joyce Pereire	Techinical English – II	Vijay Nicole Imprints Pvt.Ltd.	2017

Means of Curriculam Delivery: Lecture, Group Discussion, Seminar, Assignment, Google Class Room.

SEMESTER-III

Programme Code :	**B.Sc IT**	**Programme Title**	**Bachelor of Science (Information Technology)**	
Course Code :	**19U3NMET01**	**Non Major Elective 1: Food Science and Nutrition**	**Batch**	**2019-2022**
			Semester	**III**
Hrs/week	**2 Hours**		**Credits**	**2**

COURSE OBJECTIVES

On successful completion of the course, students will be able to achieve the following outcomes

- To understand the importance of Nutrition and the role of food in the maintenance of good 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 laws, hygiene and sanitation relating to food safety..

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to achieve the following outcomes.

CO Number	CO Statement
CO1	Identtify the properties of various food comonenets
CO2	Explain the role of Nutrition in the maintenance of good heallth.
CO3	Explain about classification, sources, functions, requirements, health hazards due to deficiency and excess of thses vitamins
CO4	Explain the problems of malnutrition and measures to overcome the same.
CO5	Explain the various laws available for food safety and find out whether the food is a adulterated.

SYLLABUS

Unit-I	(6 Hours) 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	(6 Hours) 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	(6 Hours) 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 andsources, requirement, deficiency and excess of the following. Calcium, Phosphorus, Iron and Iodine. FIBRE- definition, types, sources, functions, importance in disease prevention
Unit-IV	(6 Hours) 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	(6 Hours) 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 BOOKS:

S. No	Author Name	Title of the Book	Publishers&Edition
1	Dr.A.Indhuleka and Dr.S.N.Suresh	Food Science and Nutrition	SURE Publishers, Coimbatore.

REFERENCE BOOKS:

S. No	Author Name	Title of the Book	Publishers&Edition
1	Guthrie Helen.	Introductory Nutrition	Mirror/ Mosby College Publishing Times
2	Mudambi, S.R., Rajgopal, M.V.	Fundamentals of Foods and Nutrition	NewAge International Pvt. Ltd

Means of Curriculam Delivery: Lecture, Group Learning, Seminar, Assignment, Case Studies, Google Classroom.

SEMESTER III

Programme Code :	12-ம் வகுப்பு வரை தமிழ் மொழிப்பாடம் பயிலாதவர்களுக்கு	**Programme Title**	**Bachelor of Science (Information Technology)**	
Course Code :	**19U3BTLT01**	**Non Credit Course 1:** Basic Tamil-I Title : அடிப்படைத் தமிழ்	**Batch**	**2019-2022**
			Semester	**III**
Hrs/week	-		**Credits**	-

அகமதிப்பீட்டுத் தேர்வு மட்டும்

நோக்கம் :

- தமிழ் எழுத்துக்களை எழுத, படிக்க தெரிந்து கொள்ளுதல்.
- சொற்களின் வகைகளைத் தெரிந்து கொள்ளுதல்.
- தொடர் அமைப்புகளைத் தெரிந்து கொள்ளுதல்.
- வாக்கியங்களைப் பிழையின்றி எழுதக் கற்றுக் கொள்ளுதல்.

பாடப்பகுதி கற்றலின் வெளிப்பாடு – Course Outcome (CO)

CO Number	CO Statement
CO1	தமிழ் எழுத்துக்களைத் தெளிவாக எழுதுதல்.
CO2	சொற்கள் கொடுக்கப்பட்டால் அவைகள் எச்சொற்கள் என வகைகளைக் கூறுதல்.
CO3	ஒரு சொற்றொடரில் எழுவாய், செயப்படுபொருள், பயனிலை எவை என கண்டறிந்து கூறுதல்.
CO4	வாக்கியங்களைப் பிழையின்றி எழுதுதல்.

நிரல் விளைவுகளைக் கொண்ட வரைபடம்

CO /PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	-	-	-	-	-	-	-	-	-	-	-	-
CO2	-	-	-	-	-	-	-	-	✓	-	-	-
CO3	-	-	-	-	-	-	-	-	-	-	-	-
CO4	-	-	-	-	-	-	-	-	✓	-	-	-

தமிழ் மொழியின் அடிப்படைக் கூறுகள்.

- 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 III

Programme Code :	12-ம் வகுப்பு வரை தமிழ் மொழிப்பாடம் பயின்றவர்களுக்கு	**Programme Title**	**Bachelor of Science (Information Technology)**	
Course Code :	**19U3ATLT01**	**Non Credit Course 1:** Advanced Tamil -I Title : சிறப்புத் தமிழ்	**Batch**	**2019-2022**
			Semester	**III**
Hrs/week	-		**Credits**	-

அகமதிப்பீட்டுத் தேர்வு மட்டும்

நோக்கம்:

- மேல்நிலைக் கல்வியில் தமிழ் மொழி பயின்ற மாணவர்களுக்கு இளங்கலை பட்ட வகுப்பில் தமிழ் இலக்கியத்தின் சிறப்பினை எடுத்துக் கூறுதல்.
- மரபுக் கவிதைகள், புதுக்கவிதைகள் வேறுபாடு பற்றி மாணவர்கள் அறியச் செய்தல்.
- சொற்களை உச்சரிக்கும் போது ஒலி வேறுபாடு அறிந்து வாக்கியங்களில் பிழை நீக்கி எழுதச் செய்தல்.
- பயன்பாட்டுத் தமிழில் கடிதங்கள் மற்றும் மடல்கள் எழுதுவதற்குப் பயிற்சியளித்தல்.
- பாடப்பகுதியோடு இணைந்த இலக்கிய வரலாற்றுச் செய்திகளை அறியச் செய்தல்.

பாடப்பகுதி கற்றலின் வெளிப்பாடு - Course Outcome (CO)

CO Number	CO Statement
CO1	மரபுக்கவிதை, புதுக்கவிதைகளுக்கு இடையில் உள்ள வேறுபாடுகள் அறிதல்.
CO2	மொழித்திறன் பயிற்சியின் மூலம், மாணவர்கள் பிழைநீக்கி எழுதுதல்.
CO3	இன்றைய சூழலுக்கு ஏற்ப, விண்ணப்பங்கள், மடல்கள் மற்றும் கடிதங்கள் எழுதச்செய்தல்
CO4	இலக்கியங்களின் வாயிலாக படைப்புகளின் வரலாறுகள், நோக்கம் உணர்தல்.
CO5	சொற்களைக் கொண்டு வாக்கியங்கள் அமைப்பதற்குப் பயிற்சி எடுத்தல்.

நிரல் விளைவுகளைக் கொண்ட வரைபடம்

CO /PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	-	-	-	-	-	✓	-	-	-	-	-	-
CO2	✓	-	-	-	-	-	-	-	-	-	-	-
CO3	✓	-	-	-	-	-	-	-	-	-	-	-
CO4	-	-	-	-	-	-	-	-	✓	-	-	-
CO5	-	-	-	-	-	-	-	-	-	✓	-	-

பாடத்திட்டம்

கூறு – 1 : பாரதியார் கவிதைகள்
கண்ணன் என் சேவகன்

பாரதிதாசன் - அழகின் சிரிப்பு (முழுவதும்)
மீரா (கவிஞர்) - குக்கூ (புதுக்கவிதை)

கூறு – 2 மொழித்திறன்
பிழைநீக்கி எழுதுதல் - றன, ரண வேறுபாடு அறிதல்
ளன, ழன, லன வேறுபாடு அறிதல்
ன, ண, ந வேறுபாடு அறிதல்
குறில் நெடில் வேறுபாடு அறிதல்

கூறு – 3 : கடிதங்கள் எழுதுதல் - பாராட்டுக் கடிதம், நன்றிக்கடிதம், அழைப்புக்கடிதம், அலுவலக விண்ணப்பம்.

கூறு – 4 சொற்களைத் தந்து தொடர்களை அமைக்கும் பயிற்சி அளித்தல், வல்லினம் மிகும் இடங்கள்.

கூறு – 5 பாடந்தழுவிய வரலாறு.

	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 – III

Programme Code :	**B.Sc IT**	**Programme Title**	**Bachelor of Science (Information Technology)**	
Course Code :	**19U3SSCT01**	**Self Study Course1:Manitha Vazhklayum Gandhiadigalum Self Study Course 1: மனித வாழ்க்கையும் காந்தியடிகளும்மூழு**	**Batch**	**2019-2022**
			Semester	**III**
Hrs/week	**2 Hours**		**Credits**	-

நோக்கம்

1. மானிட வாழ்வில் பின்பற்ற வேண்டிய நடைமுறைச் செயல்பாடுகளை உணர்த்துதல்.
2. இன்றைய நவீன வாழ்க்கைச் சூழலில் ஏற்படும் சிக்கல்கள், பிரச்சனைகளை காந்திய தீர்வுகளை அறியச் செய்தல்.
3. மகாத்மாவின் வாழ்க்கை முறை, கல்வி, வாழ்வு பற்றிய கருத்துக்களை கற்று உணர்தல்.
4. நடைமுறை வாழ்வில் அகிம்சையைப் பின்பற்றுவதால் ஏற்படும் நன்மைகளைப் புரிந்து கொள்ளச் செய்தல்.
5. காந்தியடிகள் இந்திய விடுதலைக்காகப் பின்பற்றிய கொள்கைகளை மாணவர்கள் கற்று அறிதல்.

பாடப்பகுதி கற்றலின் வெளிப்பாடு - Course Outcome (CO)

CO Number	**CO Statement**
CO1	மானிட பிறப்பின் நோக்கம், வாழ்க்கை இரகசியம், தன்னலம் இல்லா வாழ்க்கை, இல்வாழ்க்கையின் சிறப்பு, உடலைப் பாதுகாத்தல் ஆகியவற்றை புரிந்து கொள்ளல்.
CO2	வாய்மையினால் இணைந்த மெய்யறிவு, இயற்கையுடன் இணைந்த மெய்யறிவு, சத்தியாகிரகிகளாக ஆத்ம சக்தியுடன் வாழ்ந்த பெரியோர்களின் வாழ்வை உணர்ந்துஅவர்கள் வழியில் வாழ முயற்சித்தல்.
CO3	குாந்தியடிகள் வாழ்க்கை மூலம் கல்வி, இல்லறம், பெற்றோரைப் பேணல், தியாகம், இயற்கை வாழ்வு, செல்வம், உண்மை, அஞ்சாமை மாணவர்கள் அறிதல்.
CO4	இயற்கையின் நோக்கம், அகிம்சையை பின்பற்றுதல், ஊன் உண்ணாமை, தீண்டாமை, சுயராஜ்யத்தின் தன்மைகள், மக்களின் வாழ்க்கையில் சுதேசியம், சுதேசிய உரிமை, காந்தியடிகளின் வாழ்க்கை மூலம் மாணவர்கள் அறிதல்.
CO5	சத்தியாகிரகம் விளக்கம், காந்தியும் சத்தியாகிரகமும், காந்தியும் தென்னாப்பிரிக்கப் பயணம், ரௌலட் சட்டம், காந்தியின் சிறை வாழ்வு, சமய வாழ்வு, சமரச சன்மார்கம், சமரச வாழ்வின் பயன் போன்றவற்றை மாணவர்கள் அறிதல்.

MAPPING WITH PROGRAMME OUTCOMES

CO /PO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**
CO1	-	-	-	-	-	-	-	-	-	-	✓	-
CO2	-	-	-	-	-	-	-	-	-	✓	✓	-
CO3	-	-	-	-	-	-	-	✓	-	-	✓	-
CO4	-	-	-	-	-	-	-	✓	-	-	✓	-
CO 5	✓	-	-	-	-	-	-	✓	-	-	-	✓

பாடத்திட்டம் : மனித வாழ்க்கையும் காந்தியடிகளும்

அலகு 1 பக்க எண் (1 – 40)

மனிதன் - மனிதப் பிறவியின் விழுப்பம் - மக்கள் - மனிதன் எவன் - வாழ்க்கை – கீதா ரகசியம் - கருத்து வேற்றுமை – உரை கண்டவர் - போர்களத்தில் இல்லறத்தானுக்கு அறிவுறுத்தல் - பயன் கருதா அருளறம் - அருச்சுணன் தெளிவு - இரு பிறப்பு - இல்லற நோக்கம் - திருக்குறள் நுட்பம் - இல்லற மாண்பு – அருளறம் - நாட்டு அறநூல்கள் -சில முறைகள் உடலோம்பல் - ஞானிகள் நோக்கம் - உடம்பின் அருமை.

அலகு 2 பக்க எண் (41 – 73)

வாய்மை – வாய்மையில் பிற அறங்கள் - வாய்மை உயிர் மெய்யறிவு – விலங்கும் மனிதனும் - இயல்பு – மனச்சான்று - இயற்கை வாழ்வில் மெய்யறிவு – பொறுமை – நான்கு குணங்கள் - அடக்கம் - உள்ளநிறை – உண்மை – பொறுமை – பொறாமை ஆன்ம சக்தி – உள் ஒளி – ஆத்ம சக்தி – ஆத்ம சக்தியும் பூத சக்தியும் - சத்யாகிரகம் - இயல்பு – துராக்கிரகம் - அச்சுறுத்தல் - தியாகம் - சத்யாகிரகிகள் - ஊடல் - மார்க்கண்டேயர் - பிரகலாதன் - அரிச்சந்திரன் - வசிஷ்டல் - புத்தர் - ஸோக்ரதர்- கிருஸ்து – முகம்மது – கீதை – சாவித்திரி – திருநாவுக்கரசர் - மெய்பொருள் - பிரான்சிஸ் முனிவர் - தால்தாய் - தோரி – முதலியோர் - இயற்கையறம் சத்தியாகிரகம், சாதுநிலை – சாது எவன்.

அலகு 3 பக்க எண் (75 – 200)

காந்தியடிகள் - பொருள் - மகாத்மா – மகான் - சில அடி கண்மார் புது உலகம் - காரல் மார்க்ஸ் - சிறியவுடலில் பெரிய ஒளி – பிறப்பு – கல்வி – பெற்றோர்ப் பேணல் - இல்லறம் - தியாகம் - இயற்கை வாழ்வு – செல்வம் நல்குரவு – வாழ்க்கைக் கூறுகள் - கிறிஸ்து மொழிகள் - உண்மையும் அஞ்சாமையும் - அடிகளின் அஞ்சா வினைகள் - மெய்யறிவு.

அலகு 4 பக்க எண் (200 – 257)

அஹிம்சை – அஹிம்சையும் சமயமும் - ஊன் எண்ணாமை – தீண்டாமை - இயற்கை அறம் அஹிம்சை – நவகாளி நிகழ்ச்சி – மார்க்ஸியம் - சுயராஜ்யமும் சுதேசியுமும் - பன்மையில் ஒருமை – பாரத மக்களும் சுதேசியமும் - சுதேசியமும் உரிமையும் - சுயராஜ்யம் கடவுள் படைப்பு நோக்கம் - சாதி சமயப்போர் - நாட்டுத்தொண்டு.

அலகு 5 பக்க எண் (257 – 364)

பொருள் - காலம் தோற்றம் - சத் விளக்கம் - சத்யாக்கிரகியார் - குறைபாடுகள் - உயிர் உடல் வாழ்வு – சத்யாகிரகமும் அடிகளும் - கூர்ஜரப் பாட்டு – தென்னாப்பிரிக்கா – சாம்யராண் - செய்தா – ரௌலட் சட்டம் - சத்யாகிரக நாள் - சட்டமும் அறமும் - சட்ட வரம்பு – சிறைப்பாகுபாடுகள் - சமயவாழ்வு – உண்மை மனிதன் - முழுமுதற் பொருளுண்மை – அஹிம்சையே சமயம் - சமயப்போர் - சமய வாழ்வின் இயல்பு – அடிகள் சமயம் சமரச சன்மார்க்கம் - சாதுநிலை – சமய வாழ்வின் பயன் சாதுநிலை – சாதுக்களால் உலகம் நடைபெறல் - பிறர்க்குரிய வாழ்வு – பெரியோர் வருகை – அடிகள் வாழ்வு நூலின் பெரும் பிரிவுகள் - அடிகள் அறவுரைச் சுருக்கம் - இன்பப்பேறு – வாழ்த்து.

பாடநூல்

வ. எண்	ஆசிரியர் பெயர்	நூலின் பெயர்	வெளியீடு	ஆண்டு – பதிப்பு
1	திரு. வி. கலியாணசுந்தரனார்	மனித வாழ்க்கையும் காந்தியடிகளும்	பூம்புகார் பதிப்பகம் சென்னை - 600013	ஏப்ரல் - 2004

பார்வை நூல்

வ. எண்	ஆசிரியர் பெயர்	நூலின் பெயர்	வெளியீடு	ஆண்டு – பதிப்பு
1	மோகன்தாசு கரம்சந்த் காந்தி (தமிழாக்கம் - ரா. வேங்கடராஜுலு)	மகாத்மா காந்தியின் சுய சரிதை	நவஜீவன் பிரசுராலயம் அகமதாபாத் - 380014	ஜுலை - 2000
2	தொகுப்பு – பேராசிரியர் முனைவர் மா.ரா.போ. குருசாமி	முகாத்மா நூல்கள் (காந்தி முன்னோடிகள்)	வர்த்தமானர் பதிப்பகம் -சென்னை - 17	2005
3	மோகன்தாசு கரம்சந்த் காந்தி (தமிழாக்கம் - தி.சு. ஆவினாசிலிங்கம்)	முகாத்மா நூல்கள் (தென்னாப்பிரிக்காவில் சத்தியாகிரகம்)	வர்த்தமானர் பதிப்பகம் -சென்னை - 17	2005

SEMESTER – IV

Programme Code :	**B.Sc IT**	**Programme Title**	**Bachelor of Science (Information Technology)**	
Course Code :	**19U4ITCT11**	**CORE 11 : COMPUTER GRAPHICS**	**Batch**	**2019-2022**
			Semester	**IV**
Hrs/week	**5 Hours**		**Credits**	**3**

COURSE OBJECTIVES:

To enable the students

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

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Explain the basics of computer graphics, different graphics systems and applications of computer graphics.
CO2	Discuss various algorithms for scan conversion and filling of basic objects and their comparative analysis.
CO3	Use of geometric transformations on graphics objects and their application in composite form.
CO4	Explore projections and visible surface detection techniques for display of 3D .
CO5	Apply the logic to develop animation and gaming programs.

MAPPING WITH PROGRAMME OUTCOMES

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	-	✓	✓	-	-		-	-	-	-	-	-
CO2	-	✓	✓	-	-		-		-	✓	✓	✓
CO3	-	✓	✓		-		-		-	✓	✓	✓
CO4	-	✓	✓		-		-		-	✓	✓	✓
CO5	-	✓	✓	-	-	-	-	-	-	✓	✓	✓

SYLLABUS

UNIT I **(Hours: 12)**

Overview of Graphics System:Video Display Devices-Raster scan systems-Random Scan systems- Graphics Monitors and workstations-input devices-hard copy devices.

UNIT II (Hours: 12)

Output Primitives : Points and lines-Line Drawing-DDA-Bresenhams line agorithm - Parallel line Drawing algorithm - Circle Drawing Algorithms.

UNIT III **(Hours: 12)**

Two Dimensional Geometric Transformations: Basic Transformations –Matrix Representations Composite Transformations. Two Dimensional Viewing: The Viewing Pipeline – Clipping Operations.

UNIT IV (Hours: 12)

Three Dimensional Display methods :Parallel Projection - Perspective Projection. Three Dimensional Graphics: Bezier Curves and Surfaces. Color models – XYZ-RGB-YIQ- CMY-HSV Models - Computer Animation.

UNIT V (Hours: 12)

Multimedia: Characteristics of Muiltimedia- Uses of Multimedia.- Text: Types of Text- Font-Insertion of Text-Text compression- Text File Formats. - Image: Image data Representation- Image Acquisition- Image Output on Monitors and Printers - Image file formats. - Audio: Acoustics-Sound waves-Types and properties of Sounds-Components of Audio systems- Digital Audio Processing:Basic operations-Digital Audio Broadcasting- Audio Processing softwares. - Video: Motion Video- Video file formats- Video Editing Concepts. Animation: – Uses of Animation – Principles of Animation -Animation File formats.

TEXT BOOKS:

S.No	Author Name	Title of the Book	Publishers	Year / Edition
1	Donald Hearn and M. Pauline Baker	Computer Graphics	Prentice Hall of India	Second Edition,2002
2	Ranjan Parekh	Principles of Multimedia	Mc Graw Hill Education	Second Edition,2006

REFERENCE BOOKS :

S.No	Author Name	Title of the Book	Publishers	Year / Edition
1	Steven Harringhton	Computer Graphics Programming Approach	McGraw Hill	Second Edition,2017
2	W.M.Newman and Sproul	“Principles of interactive Computer Graphics	Tata Mc-Graw Hill Publishing Company	Second Edition,2015

WEBSITE REFERENCES

1. https://en.wikipedia.org/wiki/Computer_graphics
2. https://www.geeksforgeeks.org/computer-graphics-2/
3. https://www.tutorialspoint.com/computer_graphics/
4. ecomputernotes.com › Computer Graphics › Basic of Graphics

Means of Curriculum Delivery : Power point presentation, Lab Assignments, Observation, Google Classroom

SEMESTER – IV

Programme Code :	**B.Sc IT**	**Programme Title**	**Bachelor of Science (Information Technology)**	
Course Code :	**19U4ITCT12**	**CORE 12: SYSTEM ANALYSIS AND DESIGN**	**Batch**	**2019-2022**
			Semester	**IV**
Hrs/week	**5 Hours**		**Credits**	**4**

COURSE OBJECTIVES

To enable the students

- To understand the principles and tools of systems analysis and design
- To gather data to analyse and specify the requirements of a system.
- To design system components and environments..
- To build general and detailed models that assist programmers in implementing a system. .
- To design a database for storing data and a user interface for data input and output, as well as controls to protect the system and its data.

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Explain the principles and tools of systems analysis and design
CO2	Solve a wide range of problems related to the analysis, design and construction of information systems
CO3	Apply Project Management and Requirement analysis,Principles to S/W project development.
CO4	Analyze the cost estimate and problem complexity using various Analyze estimation techniques
CO5	Plan and undertake a major individual project, prepare and deliver coherent and structured verbal and written technical reports

MAPPING WITH PROGRAMME OUTCOMES

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	-	✓	✓	-	-	✓	✓	-	-	✓	-	✓
CO2	-	✓	✓	-	-	✓	✓	-	-	✓	-	✓
CO3	-	✓	✓	-	-	✓	✓	-	-	✓	-	✓
CO4	-	✓	✓	-	-	✓	✓	-	-	✓	-	✓
CO5	-	✓	✓	-	-	✓	✓	-	-	✓	-	✓

SYLLABUS

UNIT - I **(Hours : 13)**

INTRODUCTION :The Systems Concept – 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 - Prototyping – Multifaceted role of the analyst

UNIT -II **(Hours : 14)**

SYSTEM ANALYSIS : Initial Investigation:Needs Identification, Information gathering: Kind of information – Information gathering tools – types of interviews and Questionnaires. Structured Analysis:Tools- DFD-Data Dictionary-Decession tree and tables – Feasibility Study: Steps in feasibility Analysis-Feasibility report – Cost and benefit Analysis:Cost and benefit categories.

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

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 – TheRole of the Database Administrator.

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

SYSTEM IMPLEMENTATION: System Testing and Quality Assurance- 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 : 15)**

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:

S. No	Author Name	Title of the Book	Publisher	Year / Edition
1.	Elias M.Awad	Systems Analysis and Design	Galgotia.	Second Edition, 1997

REFERENCE BOOKS:

S.No	Author Name	Title of the Book	Publisher	Year / Edition
1.	Jeffrey A. Hoffer	Modern System Analysis and Design	Pearson Education	Second Edition, 2013
2.	Charles S.Wasson Leiserson,R.L. Rivest and C. Stein	System Analysis, Design, and Development: Concepts, Principles, and Practices	-	Second Edition 2006

WEBSITE REFERENCES

1.https://en.wikipedia.org/wiki/Systems_analysis_and_design
2.https://www.tutorialspoint.com/system_analysis_and_design
3.www.B.Sc ITnotes.com/Sad.html
4.https://www.wisdomjobs.com › ... › System Analysis and Design
5.https://en.wikibooks.org/wiki/Systems_Analysis_and_Design/Introduction

Means of Curriculum Delivery : Lecture, Group Learning, Seminar, Assignment, Case studies, Google Classroom

SEMESTER – IV

Programme Code	**B.Sc IT**	**Programme Title**	**Bachelor of Science (Information Technology)**	
Course Code	**19U4ITCT13**	**Core 13 :Data Communication and Networks**	**Batch**	**2019-2022**
			Semester	**IV**
Hrs/week	**5 Hours**		**Credits**	**3**

COURSE OBJECTIVES:

To enable the students to

- Build an understanding of the fundamental concepts of computer networking.
- Understand the various networking modals
- Understand the functions of each layer of OSI Layer.
- Introduce the student to advanced networking concepts, preparing the student for entry Advanced courses in computer networking.

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	**CO Statement**
CO1	Describe the components of a data communications system.
CO2	Identify key considerations in selecting various transmission media in networks.
CO3	Identify and define roles and features of various data transmission protocols.
CO4	Describe various error detection and correction schemes.
CO5	Summarize the features and functions of multiplexing and Network Security.

MAPPING WITH PROGRAMME OUTCOMES

CO/PO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**
CO1	-	-	√	√	-	-	-	-	-	-	√	√
CO2	-	-	√	-	-	-	-	-	-	-	√	√
CO3	-	√	√	-	-	-	-	-	-	-	√	√
CO4	-	√	√	-	-	-	-	-	-	-	√	√
CO5	-	√	√	-	-	-	-	-	-	-	√	√

SYLLABUS

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

INTRODUCTION -Data communications and its components – Networks and its types – Network Protocol –Network Topology – Network models : Architecture and layers of OSI Reerence Model – TCP/IP Protocol model.

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

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 : 12)**

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 : 10)**

NETWORK LAYER-Network Layer services - Packet switching – Network layer performance – IPV Address – Forwarding of IP packets – Mobile IP – IP Addressing Methods : Subnettting – Routing Algorithms.

UNIT - V **(Hours : 14)**

TRANSPORT LAYER :Transport layer protocols - User Datagram Protocol – Transmission Control Protocol – Stream Control Transmission Protocol . APPLICATION LAYER : Standard client server protocols : WWW and HTTP – FTP _ Electronic mail – Telnet – Secure Shell – Domain Name System – SNMP. Network Security : Common Terms – Firewalls – VPN.

TEXT BOOKS

S.No.	Author Name	Title of the Book	Publishers	Year / Edition
1.	Behrouz A.Forouzan	Data Communications and Networking	McGraw Hill Education pvt ltd	Fifth Edition,2013
2.	ISRD Group	Data Communication and Computer Networks	Tata McGraw Hill Education pvt Ltd	TenthEdition,2012

REFERENCE BOOKS

S.No	Author Name	Title of the Book	Publishers	Year / Edition
1.	Achyut S Godbole	Data Communications and Networks	Tata McGraw Hill Education pvt Ltd,	Eleventh Edition, 2008
2.	Uyless d. Black	Data Communications and Networks	Tata McGraw Hill Education Pvt Ltd	Third Edition,2000

WEBSITE REFERENCES

1.https://www.tutorialspoint.com>data_communication
2.https://what-when-how.com>*data - communication*
3.https://www.courseera.org>*learn>data communication*
4.https:// www.researchgate.net > *publication*
5.https://www.ecomputers.com

Means of Curriculum Delivery : Lecture, Group Learning, Seminar, Assignment, Case studies, Google Classroom

SEMESTER – IV

Programme Code :	**B.Sc IT**	**Programme Title**	**Bachelor of Science (Information Technology)**	
Course Code :	**19U4ITCP14**	**CORE 14: COMPUTER GRAPHICS PRACTICAL**	**Batch**	**2019-2022**
			Semester	**IV**
Hrs/week	**6 Hours**		**Credits**	**3**

COURSE OBJECTIVES

- To enable the students to gain knowledge in developing C Programs for certain specified problems.
- Understand the basics of computer graphics, different graphics systems and applications of computer graphics
- Understand the concepts of different type of geometric transformation of objects in 2D and 3D

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Demonstrate the basics of computer graphics, different graphics systems and applications of computer graphics.
CO2	Design scan conversion problems using C++ and c applications.
CO3	Apply clipping and filling techniques for modifying an object.
CO4	Implement the concepts of different type of geometric transformation of objects in 2D and 3D.
CO5	Apply the logic to develop animation and gaming programs.

MAPPING WITH PROGRAMME OUTCOMES

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	-	✓	✓	-	-	-	-	-	-	-	-	✓
CO2	-	✓	✓	-	-	-	-	✓	-	✓	-	✓
CO3	-	✓	✓	-	-	-	-	✓	-	✓	-	✓
CO4	-	✓	✓	-	-	-	-	✓	-	✓	-	✓
CO5	-	✓	✓	-	-	-	-	✓	-	✓	-	✓

SYLLABUS

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. Write a program to draw the Indian Flag by using the primitives lines and circle.
6. Write a program to draw a car using the graphics primitives .
7. Write a simple program to illustrate the 2D and 3D functions.
8. Write a program to implement polygon filling.
9. Write a program to design a human face using the graphics primitives.
10. Write a program to demonstrate 2D animation such as clock simulation or rising sun.
11. Write a program to implement the bouncing ball inside a defined rectangular window.

WEBSITE REFERENCE:

1. vardhamancse.yolasite.com/resources/Computer%20Graphics%20Lab%20Manual.pdf
2. https://www.slideshare.net/.../computer-graphics-lab-manual-70492057
3. chettinadtech.ac.in/storage/14-06-30/14-06-30-13-18-28-2629-sakthivijayan80.pdf
4. https://www.vidyarthiplus.com/vp/Thread-CS6513-Computer-Graphics-Lab-Manua

Means of Curriculum Delivery : Power point presentation, Lab Assignments, Observation

SEMESTER-IV

Programme Code :	**B.Sc IT**	**Programme Title**	**Bachelor of Science (Information Technology)**	
Course Code :	**19U4ITAT04**	**Title: ALLIED 4: BUSINESS ACCOUNTING**	**Batch**	**2019-2022**
			Semester	**IV**
Hrs/week	**5 Hours**		**Credits**	**4**

COURSE OBJECTIVE

- To make the students understand the accounting principles, branches of accounting and journal, ledger and trial balance.
- To enable the students to prepare the final accounts.
- To enlighten the students of various methods of costing.
- To make the students to calculate the stock level and differtiate between cost, management and financial accounting.
- To provide knowledge on various types of budjets.

COURSE OUTCOMES(CO)

On successful completion of the course, students should be able to achieve the following outcomes

CO Number	CO Statement
CO1	Explain the basic Accounting concepts and the procedure to prepare journal and ledger.
CO2	Prepare Final Accounts of sole proprietor concern.
CO3	Prepare the cost sheet.
CO4	Calculate the Pricing of Material Issues.
CO5	Explain the Budgetary control system and Prepare the various types of budgets.

MAPPING WITH PROGRAMME OUTCOMES

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	-	-	-	✓	-	-	-	-	-	-	-	✓
CO2	-	-	-	✓	-	-	-	-	-	-	-	✓
CO3	-	-	-	✓	-	-	-	-	-	-	-	✓
CO4	-	-	-	✓	-	-	-	-	-	-	-	✓
CO5	-	-	-	✓	-	-	-	-	-	-	-	✓

SYLLABUS

UNIT –I **(Hours:12)**

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

UNIT – II **(Hours:12)**

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

UNIT – III **(Hours:12)**

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

UNIT – IV **(Hours:12)**

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

UNIT – V **(Hours:12)**

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

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

Text Books:

S. No.	Author Name	Title of the Book	Publishers	Year / Edition
1.	T. S. Reddy & A. Murthy	Financial Accounting	Margham Publication, Chennai	2012
2.	K.L.Nagarajan, N.Vinayakam, P.L. Nagarajan	Principles of Accountancy	S. Chand & Sons Company Limited	2010
3.	N.P.Srinivasan& Sakthivel Murugan	Accounting for management	S. Chand & Company Limited	2010
4.	T.S.Reddy & Y Hari Prasad Reddy	Cost Accounting	Margham publications	2012
5.	S.Reddy & Y Hari Prasad Reddy	Management Accounting	Margham publications	2000

SEMESTER-IV

Programme Code:	**B.Sc IT**	**Programme Title**	**Bachelor of Science (Information Technology)**	
Course Code:	**19U4SBST07**	**Skill Based Subject 7: Mathematics for Competitive Examinations -IV**	**Batch**	**2019-2022**
			Semester	**IV**
Hrs/ Week	**2 Hours**		**Credits**	**1**

COURSE OBJECTIVES

To enable the Students

- To make the students to know the concept of Problems of Interest andVenn Diagrams
- To solve problem related to Problems on Sequence and series.
- To develop the skills in solving problems in Mental Ability and Logical reasoning.

COURSE OUTCOME (CO)

CO NO	**CO Statements**
CO1	Explicate the concept of finance and discover the inference using Venn- diagram.
CO2	Solve the problems on logarithms,area,Volume, Sequence and series.
CO3	Find solution to the problems on Tabulation, graphs and puzzles.

SYLLABUS

UNIT I **(6Hrs)**

Simple Interest-Compound Interest -Logcal Venn Diagram

UNIT II **(6Hrs)**

Logarithms – Sequence and series

UNIT III **(6Hrs)**

Area-Volume and Surface areas

UNIT IV **(6Hrs)**

Tabulation-Bar Graphs-Puzzles

UNIT V **(6Hrs)**

Pie Charts-line Graphs- Mental Ability and Logical reasoning

(Simple Problems only)

TEXT BOOK

S. No.	Author Name	Title of the Book	Publisher	Year / Edition
1	R. S. Agarwal	Quantitative Aptitude (for Competitive Examinations)	S. Chand and Company Limited	2017

REFERENCE BOOKS

S. No.	Author Name	Title of the Book	Publisher	Year / Edition
1	R.V.Praveen	Quantitative Aptitude and Resoning	PHI Learning pvt. Ltd	2012
2	Abhijit Guha	Quantitative Aptitude for Competitive Examinations	Tata Mc-Graw Hill Publishing Company	2019

WEBSITE REFERENCE

1.*https://www.careerbless.com/aptitude/qa/home.php*
2.*https://www.indiabix.com/*

Means of Curriculum Delivery : *Lecture, Group Discussion, Seminar, Assignment, Google classroom*

SEMESTER-IV

Programme Code:	**B.Sc IT**	**Programme Title**	**Bachelor of Science (Information Technology)**	
Course Code:	**19U4SBST08**	**Skill Based Subject 8: Communication Skills -IV**	**Batch**	**2019-2022**
			Semester	**IV**
Hrs/ Week	**2 Hours**		**Credits**	**1**

COURSE OBJECTIVES:

1.To know clearly the use of various symbols for pronunciating the words with proper sounds.

2. to make aware of various techniques of reading and writing different reports.

COURSE OUTCOMES (CO):

On Successful Completion of the course the students will be able to achieve the following outcomes.

CO Number	CO Statement
CO1	To be able to prounuce the words clearly with proper pronunciation.
CO2	Read the given materials properly and to write meaningful reports

SYLLABUS

UNIT-I : READING & WRITING

1. Resume Preparation
2. Report Writing
3. Minutes of a Meeting
4. Data Representation and Interpretation

5.Memos

UNIT- II : SOUNDS & SYMBOLS

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

TEXT BOOKS:

S. No	Author Name	Title of the Book	Publisher	Year / Edition
1	Meenakshi Raman	Communication Skills	Oxford University Press	2011
2	Shalini Aggarwal	Essential Communication Skills	Ane Books Pvt.Ltd. New Delhi	2011

REFERENCE BOOKS:

S. No	Author Name	Title of the Book	Publisher	Year / Edition
1	Course team, Bharathiyar University	Communication Skills a multi- skill course	Macmillan Publishers India LTD.	2009
2	Krishna Mohan	Developing Communication Skills	Macmillan Publishers India LTD.	2018
3	Joyce Pereire	Techinical English – II	Vijay Nicole Imprints Pvt.Ltd.	2017

Means of Curriculam Delivery: Lecture, Group Discussion, Seminar, Assignment, Google Classroom.

SEMESTER – IV

Programme Code:	**B.Sc IT**	**Programme Title**	**Bachelor of Science (Information Technology)**	
Course Code:	**19U4NMET02**	**NON MAJOR ELECTIVE 2 : FLORICULTURE**	**Batch**	**2019-2022**
			Semester	**IV**
Hours/ Week	**2 Hours**		**Credits**	**2**

COURSE 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.

COURSE OUTCOMES (CO):

On Successful Completion of the course the students should be able to

CO Number	**CO Statement**
CO1	Identify the basic classification of floricultural crops.
CO2	Understand the techniques and practices of production and use of floricultural crops.
CO3	Implement the techniques in gardening, arranging bouquets and shipping the cut flowers in Export &Import marketing

MAPPING WITH PROGRAMME OUTCOMES

CO/PO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**
CO1	✓	-	✓	✓	-	-	-	✓	-	-	-	-
CO2	✓	-	✓	✓	-	-	-	✓	-	-	-	-
CO3	✓	-	✓	✓	-	-	-	✓	-	-	-	-

SYLLABUS

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/Boutonnieres, 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 and how to start business.

TEXT BOOKS:

S. No	Author Name	Title of the Book	Publisher	Year / Edition
1	Dr.S.N.Suresh, Dr. V. subha Priya and Dr. C.Initha LebanonEbency	Introduction to Floriculture	Teachers Publishing House	FirstEdition,2017

REFERENCE BOOKS:

S.No	Author Name	Title of the Book	Publisher	Year / Edition
1	Jacob Varghese Kunthara	Know your Garden Plants	H and C Books	
2	Dr. B. Hemlanaik, Professor & Head (Hort.) cum,Coordinator(PPMC)	Production Technology of Ornamental Crops and Landscape Gardening	UAHS,Shimoga	

Means of Curriculam Delivery: Lecture, Group Learning, Seminar, Assignment, Google Classroom.

SEMESTER IV

Programme Code :	12-ம் வகுப்பு வரை தமிழ் மொழிப்பாடம் பயிலாதவர்களுக்கு	**Programme Title**	**Bachelor of Science (Information Technology)**	
Course Code :	**19U3BTLT02**	**Non Credit Course 2 : Basic Tamil-II Title : அடிப்படைத் தமிழ்**	**Batch**	2019-2022
			Semester	IV
Hrs/week	-		**Credits**	-

அகமதிப்பீட்டுத் தேர்வு மட்டும்

நோக்கம்:

- ஆத்திச்சூடி, கொன்றை வேந்தன், திருக்குறள் போன்ற நூல்களில் கூறப்பட்டுள்ள நீதிகளைத் தெரிந்து கொள்ளுதல்.
- தடையில்லாமல், பிழையில்லாமல் படிப்பதற்கு எளிமையான கதைகளைப் படித்துப் பழகுதல்.
- தமிழ் இலக்கியங்களின் வரலாறு மற்றும் சிறப்புகளை அறிந்து கொள்ளச்செய்தல்.
- தமிழக மக்களின் வாழ்க்கை முறை உணவுமுறை, கலாச்சாரம், பண்பாடு பற்றி அறிந்துகொள்ளச் செய்தல்.

பாடப்பகுதி கற்றலின் வெளிப்பாடு (Course Outcome)

CO Number	CO Statement
CO1	ஆத்திச்சூடி, கொன்றை வேந்தன், திருக்குறள் போன்ற நூல்களின் வழி அக்கால மக்கள் பின்பற்றிய நீதிகளை அறிந்து அதன்படி வாழ்தல்.
CO2	எளிமையான நூல்களைப் படிப்பதன் மூலம், பிழையில்லாமல், தெளிவான உச்சரிப்போடு கதைகளைப் படித்துப் பழகுதல்.
CO3	தமிழ் இலக்கியங்களின் வரலாறு மற்றும் அதன் சிறப்புகளை அறிந்து கொள்ளுதல்.
CO4	பழங்கால மக்களின் வாழ்க்கை முறை, பண்பாடு, கலாச்சாரம் ஆகியவற்றை அறிந்து கொள்ளுதல்.

நிரல் விளைவுகளைக் கொண்ட வரைபடம்

CO /PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	-	-	-	-	✓	-	-	-	-	-	-	-
CO2	-	-	-	-	-	✓	-	-	✓	-	-	-
CO3	-	-	-	-	✓	-	-	-	-	-	✓	-
CO4	✓	-	✓	-	-	-	-	-	-	-	-	-

நீதி நூல்கள் : ஆத்திச்சூடி (முதல் 12) "அறம் செய விரும்பு", முதல் "ஔவியம்

- பேசேல்" வரை.

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)
5. எப்பொருள் யார் யார்... (423)

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

- 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 IV

Programme Code :	12-ம் வகுப்பு வரை தமிழ் மொழிப்பாடம் பயின்றவர்களுக்கு	**Programme Title**	**Bachelor of Science (Information Technology)**	
Course Code :	**19U3ATLT02**	**Advanced Tamil-II # Title : சிறப்புத் தமிழ்**	**Batch**	**2019-2022**
			Semester	**IV**
Hrs/week	-		**Credits**	-

அகமதிப்பீட்டுத் தேர்வு மட்டும்

நோக்கம்:

- இளங்கலை பட்ட வகுப்பில் தமிழ் - பயிலாதவர்களுக்கு, தமிழ் இலக்கியத்தின் சிறப்பினை எடுத்துக்கூறுதல்.
- திருக்குறளின் சிறப்பை அறியச் செய்தல்.
- சொற்களைப் பயன்படுத்தும் முறைகளையும், வாக்கியப் பிழைகள் ஏற்படுவதைத் தவிர்க்கும் முறைகளையும் அறியச் செய்தல்.
- பேச்சு வழக்குகளில் நாம் பயன்படுத்தும் சொற்களையும், சொற்களில் உள்ள பிழைகளையும், சரியாகப் பயன்படுத்தும் சொற்களையும் தெரிந்து கொள்ளச் செய்தல்.
- மாணவர்களின் கற்பனைத்திறன், படைப்பாற்றல் திறமை மேம்படுத்த பயிற்சி அளித்தல்.

பாடப்பகுதி கற்றலின் வெளிப்பாடு (Course Outcome)

CO Number	CO Statement
CO1	தமிழ் இலக்கியங்களின் சிறப்பினை உணரச் செய்தல்
CO2	திருக்குறளின் வாயிலாக மக்களின் வாழ்க்கைமுறைகளை அறிதல்
CO3	வாக்கியங்களை பிழையில்லாமல் சரியான முறையில் எழுதுதல்.
CO4	பேச்சு வழக்கில் நாம் பேசும் போது ஏற்படும் மரபுபிழைகளைத் தவிர்த்தல் மற்றும் தகுதியான வழக்குச் சொற்களைப் பயன்படுத்துதல்.
CO5	திறமையான மாணவர்களை ஊக்குவித்து படைப்பாளர்களாக, கவிஞர்களாக உருவாக்குதல்.

நிரல் விளைவுகளைக் கொண்ட வரைபடம்

CO /PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	-	-	-	-	✓	-	-	-	✓	-	✓	✓
CO2	-	-	-	-	✓	-	-	-	-	-	-	-
CO3	-	-	-	-	✓	-	-	-	-	-	-	-
CO4	-	-	-	-	✓	-	-	-	-	-	-	-
CO5	-	-	-	-	-	-	✓	-	✓	✓	-	-

பாடத்திட்டம்

கூறு – 1 திருக்குறள் - ஒழிபியல் முதல் 5 அதிகாரங்கள் மட்டும்.

கூறு – 2 உரைநடை : (கட்டுரை)

(இளைஞர்களின் ஒளிமயமான எதிர்காலத்திற்கு - கு.வெ. பாலசுப்பிரமணியம்)

கூறு – 3 எழுத்துப்பிழை நீக்க வழிகள் - பிழையும் திருத்தமும், சொற்களைச் சரியாகப் பயன்படுத்தும் பாங்கு – வினைச்சொற்கள் துணை வினைகள்

(எடுத்துக்காட்டுகளுடன் விளக்குதல்)

கூறு – 4 வழக்கறிதல் : மரபு வழக்கு - இயல்பு வழக்கு – தகுதி வழக்கு அறிதல்

கூறு – 5 படைப்பாற்றல் பயிற்சி – கட்டுரை எழுதுதல்.

	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

Programme Code:	**B.Sc IT**	**Programme Title**	**Bachelor of Science (Information Technology)**	
Course Code:	**19U4SSCT02**	**Self Study Course 2: Women Rights****	**Batch**	**2019-2022**
			Semester	**IV**
Hours/ Week	**-**		**Credits**	**1**

COURSE OBJECTIVES:

- To make the women students understand the legal systems, constitutional frame work and human rights in India.
- To understand and appreciate the women's claims to land and their right to property.
- To make the women students to know fully about the laws enacted to protect women against violence, harassement sexual abuse and the loopholes in practice.
- To give a knowledge to the students about the various acts enacted relating to marriage validation, Hindu widow re- marriage, dowry prohibition, imortal traffic prevention, and women development and empowerment.

COURSE OUTCOMES (CO):

In Successful Completion of the course the students will be able to

CO Number	CO Statement
CO1	Explain clearly about the legal systems costitutional frame work and human rights.
CO2	Tell about their claims to land and right to property.
CO3	To explain about the various laws and acts enacted for protection of women from various kinds of violence and abuse, and for validating their marriage
CO4	Explain various acts available for women development and empowerment.

SYLLABUS

UNIT I

Laws, Legal Systems and Change: Definition - Constitutional law, CEDAW and International Human Rights – Laws and Norms – Laws and Social Context – Constitutional and Legal Framework.

UNIT II

Politics of land and gender in India: Introduction – Faces of Poverty – Land as Productive Resources – Locating Identities – Women's Claims to Land – Right to Property - Case Studies.

UNIT III

Women's Rights: Access to Justice: Introduction – Criminal Law – Crime Against Women – Domestic Violence – Dowry Related Harassment and Dowry Deaths – Molestation – Sexual Abuse and Rape – Loopholes in Practice – Law Enforcement Agency.

UNIT IV

Women's Rights: Violence Against Women – Domestic Violence - The Protection of Women from Domestic Violence Act, 2005 - The Marriage Validation Act, 1982 - The Hindu Widow Re-marriage Act, 1856 - The Dowry Prohibition Act, 1961

UNIT V

Special Women Welfare Laws: Sexual Harassment at Work Places – Rape and Indecent Representation – The Indecedent Representation (Prohibition) Act, 1986 - Immoral Trafficking – The Immoral Traffic (Prevention) Act, 1956 - Acts Enacted for Women Development and Empowerment -Role of Rape Crisis Centers.

REFERENCE BOOKS:

S. No	Author Name	Title of the Book	Publisher	Year /Edition
1	Nitya Rao	Good Women do not Inherit Land	Social Science Press and Orient Blackswan	2008
2	Monica Chawla	Gender Justice	Deep and Deep Publications Pvt Ltd.	2006
3	Preeti Mishra	Domestic Violence Against Women	Deep and Deep Publications Pvt Ltd.	2007
4	P.D.Kaushik	Women Rights	Bookwell Publication	2007
5	Aruna Goal	Violence Protective Measures for Women Development and Empowerment	Deep and Deep Publications Pvt	2004

Means of Curriculam Delivery: Lecture, Group Discussion, Seminar, Assignment, Google Class Room.

SEMESTER – V

Programme Code :	**B.Sc IT**	**Programme Title**	**Bachelor of Science (Information Technology)**	
Course Code :	**19U5ITCT15**	**Core 15. ASP.Net and C#**	**Batch**	**2019-2022**
			Semester	**V**
Hrs/week	**5 Hours**		**Credits**	**3**

COURSE 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.

COURSE OUTCOMES (CO)

On successful completion of the course, students would be able to

CO Number	**CO Statement**
CO1	Understand about ASP.Net environment and its applications.
CO2	Know about the various forms in Visual Basic and Session controls.
CO3	Write various applications using C# Language in the .NET Framework.
CO4	Develop distributed applications using .NET Framework.
CO5	Create various applications using C#.Net framework

MAPPING WITH PROGRAMME OUTCOMES

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	-	✓	✓	-	-	-	-	-	-	-	-
CO2	-	✓	✓	-	-	-	-	-	-	-	-
CO3	-	✓	✓	-	-	-	-	-	-	-	-
CO4	-	✓	✓	-	-	-	-	-	-	-	-
CO5	-	✓	✓	-	-	-	-	-	-	-	-

SYLLABUS

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 - 15)**

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 - 15)**

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, and 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, Functions, Strings, File I/O.

TextBooks

S. No	Author Name	Title of the Book	Publisher&Edition
1.	Dave Marcer	ASP .NET – A Beginner's Guide	McGraw Hill Education India Private Limited, Third Edition,2002
2.	E. Balagurusamy	Programming in C# - A Primer	Tata McGraw Hill Pvt Ltd, Third Edition,2010

REFERENCE BOOKS

S. No	Author Name	Title of the Book	Publisher
1.	Stephen C. Perry	Core C# and .NET	Pearson Education.
2.	Karli Watson, Christian Nagel, Jacob Hammer Pedersen, Jon Reid, and Morgan Skinner	BEGINNING VISUAL C#	Wiley Publishing, Inc,2010

WEBSITE REFERENCES

1. https://www.quora.com/What-is-the-difference-between-C-and-ASP-net
2. https://docs.microsoft.com/en-us/visualstudio/get-started/csharp/tutorial-aspnet-core
3. https://softwareengineering.stackexchange.com/.../relationship-between-c-net-asp-asp-.
4. https://stackoverflow.com/questions/.../whats-the-difference-between-asp-net-and-c

Means of Curriculum Delivery : Lecture, Group Learning, Seminar, Assignment, Google Classroom

SEMESTER V

Programme Code	**B.SC IT**	**Programme Title**	**Bachelor of Science Information Technology**	
Course Code	**19U5ITCT16**	**Core 16: PHP & MySQL**	**Batch**	**2019-2022**
			Semester	**V**
Hrs/week	**5 Hours**		**Credits**	**3**

COURSE OBJECTIVES

Develops skills to create server-side scripts using PHP. Introduces server-side programming concepts and terminology. Explores a variety of server-side techniques and MySQL database manipulation.

COURSE OUTCOMES (CO)

On successful completion of the course, students would be able to

CO Number	CO Statement
CO1	Describe and use the features and syntax of programming language PHP
CO2	Create, translate, and process HTML information using the Common Gateway Information (CGI) protocol.
CO3	Apply PHP code to produce outcomes and solve problems.
CO4	Display and insert data using PHP and MySQL. Retrieve, insert, update, and delete data from the relational database MySQL
CO5	Test, debug, and deploy web pages containing PHP and MySQL.

MAPPING WITH PROGRAMME OUTCOMES

Cos/ Pos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	✓	✓	-	✓	-	-	-	-	-	-	-
CO2	-	✓	✓	-	-	-	-	-	-	-	-
CO3	-	✓	✓	✓	-	-	-	-	-	-	-
CO4	✓	✓	✓	-	✓	✓	-	-	-	-	-
CO5	-	✓	✓	-	✓	✓	-	-	-	-	-

SYLLABUS

UNIT I **(Hours:10)**

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:10**)

Arrays: creating and accessing array elements, looping through arrays, multidimensional array, manipulating array Strings: creating and accessing strings, searching strings, replacing text within strings and formatting strings.

UNIT III **(Hours:10)**

Handling HTML forms with PHP: HTML forms work, capture form data with PHP, multi value fields, web forms with PHP, storing PHP variables in forms, create file upload forms, redirecting PHP.

UNIT IV **(Hours:8)**

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

UNIT V **(Hours:10)**

Manipulating MYSQL data with PHP insert, update, delete records- Working with files anddirectories: understanding files and directories, getting information on files, opening and closing files,reading files and writing files , file permissions, Copying ,renaming and deleting files, working withdirectories. Case Study: Building a text editor (to be given as assignment).

TEXT BOOKS:

S.No	Authors	Title	Publishers**&Edition**
1.	Matt Doyle	Beginning PHP 5.3	TataMcgraw Hill,2012

REFERENCE BOOKS:

S.No	Authors	Title	Publishers**&Edition**
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

WEBSITE REFERENCES

1. https://www.phpexercises.com
2. https://www.w3resource.com/php-exercises/
3. https://www.geeksforgeeks.org/php/

Means of Curriculum Delivery : Lecture, Group Learning, Seminar, Assignment, Google Classroom

SEMESTER -V

Programme Code :	**B.SC IT**	**Programme Title**	**Bachelor of Science Information Technology**	
Course Code :	**19U5ITCP17**	**Core 17 : ASP .NET AND C# - PRACTICAL**	**Batch**	**2019-2022**
			Semester	**V**
Hrs/week	**6 Hours**		**Credits**	**3**

COURSE OBJECTIVES

To enable the students to gain knowledge about the teaching methodologies useful for the implementation and console based application and web based application.

COURSE OUTCOMES (CO)

At the end of the practical session, students would be well-versed in

CO Number	CO Statement
CO1	Design, create, build, and debug arithmetic operations for displaying numeric output using .NET applications.
CO2	Developing a console application in ASP .NET.
CO3	Compute different operations using looping statements.
CO4	Developing applications using C#

MAPPING WITH PROGRAM OUTCOMES

COs/ POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	-	✓	✓	-	-	-	-	-	-	-	✓
CO2	-	✓	✓	-	-	-	-	-	-	-	✓
CO3	-	✓	✓	-	-	-	-	-	-	-	✓
CO4	-	✓	✓	-	-	-	-	-	-	-	✓
CO5	-	✓	✓	-	-	-	-	-	-	-	✓

Syllabus

S.No	Program List
1	Write a ASP .NET program to perform arithmetic operation.
2	Write a ASP .NET program for conversion of numbers
3	Write a ASP .NET program to develop a simple calculator.
4	Write a ASP .NET program to demonstrate the text control
5	Write a ASP .NET program to demonstrate the checkbox control.
6	Write a C# program using arrays.
7	Write a C# program for converting numbers into words.
8	Write a C# program for arithmetic operations
9	Write a C# program to check whether given string is a palindrome or no
10	Write a C# program to read number and check ODD or EVEN.
11	Write a C# program that prints out Fibonacci Series.
12	Write a C# program to convert from Fahrenheit to Celsius and Celsius to Fahrenheit

WEBSITE REFERENCES

1. www.codingfusion.com/Asp--Net-Practice-Questions
2. www.corporatebpl.com/cistuploads/DotNetMEAssignment.pdf
3. tusharkant.com/2013/04/asp-net-lab-manual-programs.html
4. https://www.sanfoundry.com/csharp-programming-examples/
5. https://www.w3resource.com/csharp-exercises/

Means of Curriculum Delivery : Power point presentation, Lab Assignments, Observation

SEMESTER -V

Programme Code	**B.SC IT**	**Programme Title**	**Bachelor of Science Information Technology**	
Course Code	**19U6ITCP18**	**CORE 18: PHP AND MY SQL -PRACTICAL**	**Batch**	**2019-2022**
			Semester	**V**
Hrs/week	**6 Hours**		**Credits**	3

COURSE OBJECTIVE

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

COURSE OUTCOMES (CO)

At the end of the practical session, students would be well-versed in

CO Number	CO Statement
CO1	Write PHP code to produce outcomes and solve problems.
CO2	Display and insert data using PHP and MySQL.
CO3	Test, debug, and deploy web pages containing PHP and MySQL.

Mapping With Programme Outcomes

CO/ POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	-	✓	✓	-	-	-	-	-	-	-	✓
CO2	-	✓	✓	-	-	-	-	-	-	-	✓
CO3	-	✓	✓	-	-	-	-	-	-	-	✓
CO4	-	✓	✓	-	-	-	-	-	-	-	✓
CO5	-	✓	✓	-	-	-	-	-	-	-	✓

Program list

1.Write a program to create different variables.
2.Develop a PHP program using controls and functions
3.Develop a PHP program to design a college application form using MYSQL table.
4.Write a program to send an HTML formatted Email in PHP.
5.Develop a PHP program to display student information using MYSQL table.
6. Write a program to do different types of Sorting in PHP.
7. Write a program to do String Manipulation in PHP.
8. Write a PHP program to get color code from the user which displays the color name.
9. Write a PHP program to do calculator functions
10.Write a program to upload a file in PHP.
11.Write a program for login authentication using PHP and MySQL
12.Create a Pay slip for an employee using PHP and MySQL
13.Write a program to demonstrate how a web page can communicate with a web server while a user type characters in an input field
14.Develop a PHP program using session
15.Develop a PHP program using cookie and session

Text Books

S. No	Author Name	Title of the Book	Publisher
1.	Matt Doyle	“Beginning PHP 5.3”	Wunley India Edition

Reference books

S.No	Authors	Title	Publishers
1.	VikramVaswani	PHP: A Beginners guide	TataMcgraw Hill,2009.
2.	Lawpoint	Guide to PHPLP Computer series	2007.
3.	Larry Ullman	PHP 6 and MySQL 5	Pearson Education,2000

Website References

1. https://www.phpexercises.com
2. https://www.w3resource.com/php-exercises/
3. https://www.geeksforgeeks.org/php/

Means of Curriculum Delivery : Power point presentation, Lab Assignments, Observation

SEMESTER-V

Programme Code :	**B.Sc IT**	**Programme Title**	**Bachelor of Science Information Technology**	
Course Code :	19U5NCCT01	**Non Credit Course 1 :** Aptitude and Soft Skills I	**Batch**	2019-2022
			Semester	V
Hrs/week	3 Hours		**Credits**	-

COURSE OBJECTIVES

To enable the Students

- To acquire inter personal skills, problem solving skills and be an effective goal oriented team player.
- To equip the students with the required soft skills that would instill confidence and courage in them, to take up new opportunities for their career.
- To know about improving various soft skills required while working in a team.
- To understand the various methods of solving problems involving numerical and logical reasoning.
- To understand the methods of solving certain problems not using calculations but using only mental ability.
- To know how to face the personal interview effectively.

COURSE OUTCOME (CO)

On successful completion of the course, students should be able to

CO NO	**CO Statements**
C01	Apply the inter personal and problem solving skills in the placement drive.
C02	To apply the behavioural skills required for promoting individual competence by implementing the principles of interpersonal communication and value – based living to meet the market expectations.
C03	grasp the approaches and strategies to solve problems with speed and accuracy.
C04	Ability to reason critically by analyzing , elevating and extending arguments.
C05	Explain the concepts deal with graphs, tables, number sequence and texts.

MAPPING WITH PROGRAMME OUTCOMES

CO/PO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**
CO1	-	✓	✓	✓	-	✓	✓	-	-	✓	-	✓
CO2	-	✓	✓	✓	-	✓	✓	-	-	✓	-	✓
CO3	-	✓	✓	✓	-	✓	✓	-	-	✓	-	✓
CO4	-	✓	✓	✓	-	✓	✓	-	-	✓	-	✓
CO5	-	✓	✓	✓	-	✓	✓	-	-	✓	-	✓

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

Numerical Reasoning

Mental Ability

Logical Reasoning

Text Books:

Recent editions of the following books only are recommended

S. No.	Author Name	Title of the Book	Publisher
1	Prof .N. Lakshmana Perumal	Technical English – I	Sri Krishna Hitech Publishing Company (P) Ltd
2	R. S. Aggarwal	Quantitative Aptitude for Competitive Examinations,	English, Paperback

REFERENCE BOOK

S. No.	Author Name	Title of the Book	Publisher
1	Joyce Pereire	Techinical English – II	Vijay Nicole Imprints Pvt.Ltd.

WEBSITE REFERENCE

1.http://www.indiabix.com
2.http://placement.freshersworld.com

Means of Curriculum Delivery : Lecture, Group Learning, Seminar, Assignment, Google classroom.

SEMESTER-V

Programme Code :	B.Sc IT	**Programme Title**	Bachelor of Information Technology	
Course Code :	19U5SSCT03	**Self Study Course 3 :** General Awareness	**Batch**	2019-2022
			Semester	V
Hrs/week	-		**Credits**	1

COURSE OBJECTIVES:

- It aims at testing the candidates' general awareness and knowledge of current affairs occurring around the world and in India.
- Develops a commitment to citizenship, through the ability to make informed decisions about public issues.
- Create an awareness of the achievements and perspectives of people of different nations and cultures, and of different races, genders and ethnicities.

COURSE OUTCOMES (CO):

On Successful Completion of the course the students will be able to:

CO Number	CO Statement
CO1	get familiar with general awareness of the environment around him and its apply it to the society.
CO2	reason logically, abstractly and understand numerical data comprehend arguments and positions that depend on numbers and statistics.
CO3	have a critical understanding of one's own values and of others, and of their role in making ethical choices.

MAPPING WITH PROGRAMME OUTCOMES

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	-	✓	-	✓	✓	-	✓	-	✓	-	✓	✓
CO2	-	✓	✓	-	-	✓	-	-	-	✓	-	✓
CO3	-	✓	-	-	✓	-	-	✓	-	-	✓	✓

SYLLABUS

Unit I

- Verbal Aptitude
- History and Freedom Struggle

Unit II

- Abstract Reasoning
- Tamil and other Literature

Unit III

General Science and Technology

Computer

Unit IV

- Economics and Commerce
- Social Studies

Unit V

- Sports
- Current Affairs

TEXT BOOKS:

S. No	Author Name	Title of the Book	Publisher	Year /Edition
1	Compiled By Faculty, Department of English	General Awareness, Question Bank	KovaiKalaimagal College of Arts and Science, Coimbatore- 09	First Edition: 2021

Means of Curriculum Delivery : The students can study by themselves with the prescribed material.

SEMESTER –VI

Programme Code :	**B.Sc IT**	**Programme Title**	**Bachelor of Science Information Technology**	
Course Code :	**19U6ITCT19**	**Core 19: SOFTWARE TESTING**	**Batch**	**2019-2022**
			Semester	**VI**
Hrs/week	**5 Hours**		**Credits**	**3**

COURSE OBJECTIVES

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

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	List a range of different software testing techniques and strategies and be able to apply specific (automated) unit testing method to the projects.
CO2	Distinguish characteristics of structural testing methods
CO3	Demonstrate the integration testing which aims to uncover interaction and compatibility problems as early as possible
CO4	Discuss about the functional and system testing methods.
CO5	Demonstrate various issues for object oriented testing with planning, Management, Execution and Reporting.

Mapping With Program Outcomes

CO/ POs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**
CO1	-	□	□	-	-	-	-	-	-	-	□
CO2	-	□	□	-	-	-	-	-	-	-	□
CO3	-	□	□	-	-	-	-	-	-	-	□
CO4	-	□	□	-	-	-	-	-	-	-	□
CO5	-	□	□	-	-	-	-	-	-	-	□

Syllabus

UNIT I **Hours:13**

Software Development Life Cycle models: Phases of Software project – Quality, Quality Assurance, Quality control – Testing, Verification and Validation – Process Model to represent Different Phases - Life Cycle models. White-Box Testing: Static Testing – Structural Testing – Challenges in White-Box Testing.

UNIT II **Hours:12**

Black-Box Testing: What is Black-Box Testing? - Why Black-Box Testing? – When to do Black-Box Testing? – How to do Black-Box Testing? – Challenges in White Box Testing - Integration Testing: Integration Testing as Type of Testing – Integration Testing as a Phase f Testing – Scenario Testing – Defect Bash.

UNIT III **Hours:11**

System and Acceptance Testing: system Testing Overview – Why System testing is done? – Functional versus Non-functional Testing - Functional testing - Non-functional Testing – Acceptance Testing – Summary of Testing Phases.

UNIT IV **Hours:13**

Performance Testing: Factors governing Performance Testing – Methodology of Performance Testing – tools for Performance Testing – Process for Performance Testing – Challenges. Regression Testing: What is Regression Testing? – Types of Regression Testing – When to do Regression Testing – How to do Regression Testing – Best Practices in Regression Testing.

UNIT V **Hours:11**

Test Planning, Management, Execution and Reporting: Test Planning – Test Management – Test Process – Test Reporting –Best Practices. Test Metrics and Measurements: Project Metrics – Progress Metrics – Productivity Metrics – Release Metrics.

TextBooks

S.No.	Author Name	Title of the Book	Publisher
1.	Srinivasan Desikan, Gopalsamy Ramesh	Software Testing Principles and Practices	Pearson Education,Sixth Impression,2008

Reference Book s

S.NO	Author Name	Title of the Book	Publisher &Edition
1.	William E Perry	Effective Methods of Software Testing	Wiley India ,2015
2.	Renu Ranjani, Pradeep Oak	Software Testing	TMH,2007

Website Reference

1.https://www.softwaretestingmaterial.com/software-testing/
2.https://www.guru99.com/software-testing-introduction-importance.html
3.https://en.wikipedia.org/wiki/Software_testing
4.https://www.tutorialspoint.com/software_testing
5.https://www.softwaretestinghelp.com/types-of-software-testing

Means of Curriculum Delivery : Lecture, Group Learning, Seminar, Assignment, Google Classroom

SEMESTER – VI

Programme Code :	**B.Sc IT**	**Programme Title**	**Bachelor of Science Information Technology**	
Course Code :	**19U6ITCT20**	**Core 20: Operations of E-Wallet and Information Security**	**Batch**	**2019-2022**
			Semester	**VI**
Hrs/week	**6 Hours**		**Credits**	**3**

Course 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.

COURSE OUTCOMES (CO)

At the end of the practical session, students would be well-versed in

CO Number	CO Statement
CO1	Explain the usage and operations of E-wallets
CO2	Explain the need of Information Security, polices, standards
CO3	Explain the various kinds of security technologies available.
CO4	Describe the information security implementation and maintenance models.
CO5	Describe the concepts of Infromation Security.

MAPPING WITH PROGRAMME OUTCOMES

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	-	✓	✓	-	-	-	-	-	-	-	-	✓
CO2	-	✓	✓	-	-	-	-	-	-	-	-	✓
CO3	-	✓	✓	-	-	-	-	-	-	-	-	✓
CO4	-	✓	✓	-	-	-	-	-	-	-	-	✓
CO5	-	✓	✓	-	-	-	-	-	-	-	-	✓

SYLLABUS

UNIT- I **(Hours:13)**

Introduction to E-Wallet :What is an E-wallet-Features of E-Wallet-Risks-Types of E-wallet-Various E-wallet paytm, MobiKwik, oxigenWallet , CitrusWallet, ItsCash, FreeCharge , AirtelMoney, Jiomoney, mRupee, SBIBuddy, Vodaphone M-Pesa. Advantages and disadvantages of E-Wallet.

UNIT-II **(Hours:14)**

Introduction to Information Security: Introduction--Security -Critical Characteristics of Information -NSTISSC Security Model -Components of an Information System -Security Components -Approaches to Information Security Implementation -The Systems Development Life Cycle -The SecuritySystems Development Life Cycle.

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

The Need for Security: Business Needs First -Threats -Attacks -Secure Software Development. Risk management: Overview -Risk Identification -Risk Assessment-Risk Control Strategies -Selecting a Risk Control Strategy -Quantitative Versus Qualitative Risk Control Practices Planning for Security: Information Security Policy, Standards and Practices -The Information Security Blue print

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

Security Technology: Firewalls- VPNS - Access controls- -Intrusion Detection and Prevention Systems -Honey Pots -Honey Nets, and Padded Cell Systems -Scanning and Analysis Tools -Biometric Access Control.

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

Implementation of Information Security: Information Security Project Management -Technical Aspects of Implementation -Non Technical Aspects of Implementation. Information Security Maintenance: Security Management Maintenance Model -Digital Forensics.

TEXT BOOK

S.No.	Author Name	Title of the Book	Publishers&Edition
1.	E.Michel Whitman, CISSP and Herbert, J. Mattord	Principles of Information Security	Course Technology, Cengage Learning,Fourth Edition,2012

REFERENCE BOOKS

S.No.	Author Name	Title of the Book	Publishers&Edition
1.	CharlesA.Sennewald	Effective Security Management	Elsevier,Fifth edition,2012
2.	Dhiren R. Patel	Information Security: Theory and Practice	Prentice Hall of India Pvt Ltd
3.	S.M. Bhaskar, S.I. Ahson	Information Security: A Practical Approach	Alpha Science
4.	Gerald L.Kovacich	Information System Security Officer’s Guide,	Butterworth Hinemann

Reference Websites :

1. http://odocmms.nic.in/OCMMS/SPCB_DOCUMENTS/eWallet_User_Guide.pdf
2. http://vikaspedia.in/e-governance/digital-payment/e-wallet
3. https://en.wikipedia.org/wiki/Digital_wallet
4. https://www.tutorialspoint.com/articles/types-of-mobile-wallets-and-leaders-in-india
5. https://www.indiainfoline.com/article/news-personal-finance/5-things-to-know-about-e-wallets

Means of Curriculum Delivery : Lecture, Group Learning, Seminar, Assignment, Google Classroom

SEMESTER – VI

Programme Code :	**B.Sc IT**	**Programme Title**	**Bachelor of Science Information Technology**	
Course Code :	**19U6ITCP21**	**Core 21: Software Testing-Practical**	**Batch**	**2019-2022**
			Semester	**VI**
Hrs/week	**6 Hours**		**Credits**	**3**

COURSE OBJECTIVES

- To understand software test automation problems and solutions.
- To learn how to planning a test project, design test cases and data, conduct testing operations, manage software problems and defects, generate a testing report.
- To gain the techniques and skills on how to use modern software testing tools to support software testing projects.

COURSE OUTCOMES (CO)

Upon successful completion of this lab Course, student should be able to

CO Number	CO Statement
CO1	Find practical solutions to the problems.
CO2	Solve specific problems alone or in teams manage a project from beginning to end
CO3	Define, formulate and analyze a problem
CO4	Developing applications and Test them
CO5	Find practical solutions to the problems.

Mapping With Programme Outcomes

CO/ POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	-			-	-	-	-	-	-	-	✓
CO2	-			-	-	-	-	-	-	-	✓
CO3	-			-	-	-	-	-	-	-	✓
CO4	-			-	-	-	-	-	-	-	✓
CO5	-			-	-	-	-	-	-	-	✓

Program list

S.No	Programs
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.

Means of Curriculum Delivery : Power point presentation, Lab Assignments, Observation

SEMESTER- VI
CORE 22: PROJECT VIVA-VOCE

Subject Code: 19U6ITCV22 **Total Hours: 75** **No. of Credits: 4**

Objective: To enable the students to apply practically in a specific area using any specific domain knowledge he/she posses 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

CONTENTS

ACKNOWLEDGEMENT

CONTENTS

SYNOPSIS

1. INTRODUCTION
- 1.1 ORGANIZATION PROFILE
- 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
- F. REPORTS

SEMESTER VI

Programme Code :	**B.Sc IT**	**Programme Title**	**Bachelor of Science Information Technology**	
Course Code :	**19U6SBST04**	**Non Credit Course 4 : Aptitude and Soft Skills II**	**Batch**	**2019-2022**
			Semester	**VI**
Hrs/week	**3 Hours**		**Credits**	**-**

COURSE OBJECTIVES

To enable the students

- To acquire inter personal skills, problem solving skills and be an effective goal oriented team player.
- To equip the students with the required soft skills that would instill confidence and courage in them, to take up new opportunities for their career.
- To know about improving various soft skills required while working in a team.
- To understand the various methods of solving problems involving numerical and logical reasoning.
- To understand the methods of solving certain problems not using calculations but using only mental ability.
- To know how to face the personal interview effectively.

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO NO	Statements
C01	Apply the inter personal and problem solving skills in the placement drive.
C02	To apply the behavioural skills required for promoting individual competence by implementing the principles of interpersonal communication and value – based living to meet the market expectations.
C03	Grasp the approaches and strategies to solve problems with speed and accuracy.
C04	Ability to reason critically by analyzing , elevating and extending arguments.
C05	Explain the concepts deal with graphs, tables, number sequence and texts.

MAPPING WITH PROGRAMME OUTCOMES

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	-	✓	✓	✓	-	✓	✓	-	-	✓	-	✓
CO2	-	✓	✓	✓	-	✓	✓	-	-	✓	-	✓
CO3	-	✓	✓	✓	-	✓	✓	-	-	✓	-	✓
CO4	-	✓	✓	✓	-	✓	✓	-	-	✓	-	✓
CO5	-	✓	✓	✓	-	✓	✓	-	-	✓	-	✓

SYLLABUS

Unit I: E- Materials

Interactive Exercises for Grammar and Vocabulary

Audio/Video Excerpts of different Accents

Interpreting Posters

Unit II: Aptitude

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

Text Book:

S. No.	Author Name	Title of the Book	Publisher
1	Prof .N. Lakshmana Perumal	Technical English – I	Sri Krishna Hitech Publishing Company (P) Ltd
2	R. S. Aggarwal	Quantitative Aptitude for Competitive Examinations,	English, Paperback

Reference Books:

S. No.	Author Name	Title of the Book	Publisher
1	Joyce Pereire	Technical English – II	Vijay Nicole Imprints Pvt.Ltd.

WEBSITE REFERENCE

1.http://www.indiabix.com
2.http://placement.freshersworld.com

- **Means of Curriculum Delivery :** Lecture, Group Learning, Seminar, Assignment, Google classroom.

SEMESTER-V

Programme Code	**B.Sc**	**Programme Title**	**Bachelor of Science Information technology**	
Course Code	**19U5ITET1A**	**ELECTIVE 1: DATA MINING AND WAREHOUSING**	**Batch**	**2019-2022**
			Semester	**V**
Hrs/week	**4 Hours**		**Credits**	**3**

COURSE 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

COURSE OUTCOMES (CO)

On successful completion of the course, students would be able to

CO Number	CO Statement
CO1	To present survey on different learning, classification and data mining foundations.
CO2	To and methods for data Mining application.
CO3	To solve problems for multi-core or distributed, concurrent/Parallel environments.
CO4	To survey and use latest trends and advances in data mining and warehousing.

MAPPING WITH PROGRAMME OUTCOMES

CO /POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	-	✓	✓	-	-	-	-	-	-	-	-	-
CO2	-	✓	✓	-	-	-	-	-	-	-	-	-
CO3	-	✓	✓	-	-	-	-	-	-	-	-	-
CO4	-	✓	✓	-	-	-	-	-	-	-	-	-

Syllabus

UNIT I **(Hours: 10)**

Introduction –what Data mining – definition-KDD VS data mining DBMS VS Data mining-DM Techniques-Issues and challenges in data mining DM Application Area-DM Applications.

Association rules: Introduction –What is association rules-Methods for discovering association rules-A-priori algorithm-partition algorithm-Rapid association rule mining-incremental algorithm.

UNIT II **(Hours: 10)**

Classification: Introduction –statistical based algorithm-distance based algorithm-decision tree based algorithm-neural network based algorithm**.**

UNIT III **(Hours: 10)**

Clustering – Introduction-similarity and distance measures-outliers-hierarchical algorithms-Partition algorithms**.**

Decision Trees – What is Decision Tree – Tree construction principal – Best Split – Splitting Indices – Splitting Criteria.

UNIT IV **(Hours: 9)**

Data warehousing: An introduction – Characteristics of data warehouse- Data marts - Other aspects of data marts – Online Analytical Processing**.**

UNIT V **(Hours: 9)**

Developing a Data Warehouse – Applications of Data Warehouse and Data Mining in Government – case Study.

TEXT BOOKS

S.No.	Author Name	Title of the Book	Publisher&Edition
1.	Margaret H.dunhum	Data mining	Pearson publisher,Latest Edition,2003
2.	Arun K.Pujar	Data Mining Techniques	Universities Press (India) Limited,2004

REFERENCE BOOKS

S.No.	Author Name	Title of the Book	Publisher&Edition
1.	George M. Marakas	Modern Data warehousing, Mining and Visualization	Printice Hall,First Edition,2002
2	Jiwei Han, Michelien Kamber	"Data Mining Concepts and Techniques"	Morgan Kaufmann Publishers an Imprint of Elsevier

WEBSITE REFERENCES

1.www.vssut.ac.in/lecture_notes/lecture1428550844.pdf

2.https://www.tutorialspoint.com/dwh/dwh_overview.htm

3.https://www.educba.com › Data Science › Blog › Head to Head Differences

4.https://www.trifacta.com/data-warehousing-and-data-mining/

Means of Curriculum Delivery: Lecture, Group Discussion, Seminar, Assignment, Google Classroom

SEMESTER-V

Programme Code	**B.Sc**	**Programme Title**	**Bachelor of Science (Information Technology)**	
Course Code	**19U5ITET1B**	**ELECTIVE 1: SOFTWARE ENGINEERING**	**Batch**	**2019-2022**
			Semester	**V**
Hrs/week	**4 Hours**		**Credits**	**3**

COURSE OBJECTIVES

- To learn the basics Concepts of Software Engineering .
- To Understand the Phases of Software Engineering Life Cycle.
- To learn about various types of Testing.

COURSE OUTCOMES

On the successful completion of the course, students will be able to

CO Number	**CO Statement**
CO1	Explain a planning for a software project Development.
CO2	Prepare the SR analysis and Analysis Modelling Approaches. Apply Project Requirement analysis , Verification and validation
CO3	Generate designing Models
CO4	Developing Component based Software
CO5	Generate test cases using various testing techniques.

MAPPING WITH PROGRAMME OUTCOMES

COS	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**
CO1	-	✓	✓	-	-	✓	-	✓	-	-	-	✓
CO2	-	✓	✓	-	-	✓	-	✓	-	-	-	✓
CO3	-	✓	✓	-	-	✓	-	✓	-	-	-	✓
CO4	-	✓	✓	-	-	✓	-	✓	-	-	-	✓
CO5	-	✓	✓	-	-	✓	-	✓	-	-	-	✓

SYLLABUS

UNIT I **Hours:15**

Introduction to Software Engineering : The Evolving Role of Sotfware – Software – The Changing Nature of Software. The Software Process : Software Engineering – A Process Framework – Process Models : The Waterfall Model – Evolutionary Process Model. Software Engineering Practice : The Essence of Practice – Core Principles. System Engineering : Computer Based System – The System Engineering Hierarchy.

UNIT II **Hours:15**

Software Requirements : Functional and Non-functional Requirements – User Requirements – System Requirements. Requirement Engineering Process: Feasibility Studies - Requirements Elicitation and Analysis – Requirements validation – Requirements Management. Building the Analysis Model : **Analysis Modelling Approaches** – Data Modelling Concepts – Creating a Behavioiural Model.

UNIT III **Hours:15**

Design : Design Process and Design quality – Design Concepts – The Design Model. Creating an Architectural Design : Software Architecture – Data Design – Architectural Design – Mapping Data Flow into a Software Architecture . Performing User Interface Design : User Interface Analysis and Design. Real-time Software Design

UNIT IV **Hours:15**

Development : Rapid Software Development : Agile Methods – Extreme Programming – Rapid Application Development – Software Prototyping. Software Reuse : The Reuse Landscape – Design Patterns. Component Based Software Engineering : Components and Component Models.

UNIT V **Hours:15**

Testing : Testing Strategies : A Strategic approach to Software Testing – Test Strategies for Conventional Software -Validation Testing – System Testing – Black-Box and White-Box Testing – Debugging Strategies.

Text books: (Recent Edition of the following bools only are recommended)

S. No	Authors	Title	Publishers	Year / Edition
1.	Roger S.Pressman	Software engineering- A practitioner's Approach	McGraw-Hill,	Seventh Edition 2012
2	Ian Sommerville	Software engineering	Pearson education Asia	10 Edition / 2018

REFERENCE BOOKS

S.No.	Authors	Title	Publishers	Year / Edition
1.	Pankaj Jalote	An Integrated Approach to Software Engineering	Springer Verlag	Third Edition 2005
2	James F Peters and Witold Pedrye	Software Engineering – An Engineering Approach	John Wiley and Sons, New Delhi	First Edition 2010
3	Ali Behforooz and Frederick J Hudson	Software Engineering Fundamentals	Oxford University Press, New Delhi,	First Edition 1997
4	Carlo Ghezzi, Mehdi Jazayari and Dino Mandrioli	Fundamentals of Software Engineering	Prentice Hall of India, New Delhi	Second Edition 2007
5	Pfleeger	Software Engineering	Pearson Education India, New Delhi,	Fourth Edition 2010

WEBSITE REFERENCE

1. http://dinus.ac.id/repository/docs/ajar/RPL7th_ed_software_engineering_a_practitioners_approach_by_roger_s._pressman_.pdf
2. https://edisciplinas.usp.br/pluginfile.php/2150022/mod_resource/content/1/1429431793.203Software%20Engineering%20by%20Somerville.pdf
3. https://www.slideshare.net/SaqibRaza21/introduction-to-software-engineering-71622253

Means Of Curriculum Delivery: Lecture, Group Discussion, Seminar,Assignment,Case studies and Google Classroom

SEMESTER-V

Programme Code	**B.Sc**	**Programme Title**	**Bachelor of Science (Information Technology)**	
Course Code	**19U5ITET1C**	**ELECTIVE 1: CYBER SECURITY**	**Batch**	**2019-2022**
			Semester	**V**
Hrs/week	**4 Hours**		**Credits**	**3**

COURSE OBJECTIVES

To enable the students to have
To learn about the overview of Information Security and Assurance
To learn about exposure to the spectrum of security activities, methods and methodologies
To understand on information security policies and procedures

COURSE OUTCOMES (CO)

On successful completion of the course, students would be able to

CO Number	CO Statement
CO1	Analyze and resolve security issues in networks and computer systems to secure an IT infrastructure.
CO2	Design, develop, test and evaluate secure software.
CO3	Develop policies and procedures to manage enterprise security risks
CO4	Evaluate and communicate the human role in security systems with an emphasis on ethics, social engineering vulnerabilities and training.
CO5	Interpret and forensically investigate security incidents.

MAPPING WITH PROGRAMME OUTCOMES

CO/ POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	-	ᛯ	ᛯ	-	ᛯ	-	-	-	-	-	-
CO2	-	ᛯ	ᛯ	-	ᛯ	-	-	-	-	-	-
CO3	-	ᛯ	ᛯ	-	ᛯ	-	-	-	-	-	-
CO4	-	ᛯ	ᛯ	-	ᛯ	-	-	-	-	-	-
CO5	-	ᛯ	ᛯ	-	ᛯ	-	-	-	-	-	-

Syllabus

UNIT I **(Hours: 12)**

Introduction to Computer Security: Definition, Threats to security, Government requirements, Information Protection and Access Controls, Computer security efforts, Standards, Computer Security mandates and legislation, Privacy considerations, International security activity.

UNIT II **(Hours: 12)**

Secure System Planning and administration, Introduction to the orange book, Security policy requirements, accountability, assurance and documentation requirements, Network Security, the Red book and Government network evaluations.

UNIT III **(Hours: 12)**

Information security policies and procedures: Corporate policies- Tier 1, Tier 2 and Tier3 policies - process management-planning and preparation-developing policies-asset classification policy-developing standards.

UNIT IV **(Hours: 12)**

Information security: fundamentals-Employee responsibilities- information classification-Information handling- Tools of information security- Information processing-secure program administration.

UNIT V **(Hours: 12)**

Organizational and Human Security: Adoption of Information Security Management Standards, Human Factors in Security- Role of information security professionals.

TEXT BOOKS

S.No.	Author Name	Title of the Book	Publisher&Edition
1.	Debby Russell and Sr. G.T Gangemi	Computer Security Basics (Paperback)	2ndEdition, O' Reilly Media, 2006.

REFERENCE BOOKS

S.No.	Author Name	Title of the Book	Publisher&Edition
1.	Thomas R. Peltier	Information Security policies and procedures: A Practitioner's Reference	2nd Edition Prentice Hall, 2004.
2	Kenneth J. Knapp	Cyber Security and Global Information Assurance: Threat Analysis and Response Solutions	IGI Global, 2009.
3	Thomas R Peltier, Justin Peltier and John blackley	Information Security Fundamentals	2nd Edition, Prentice Hall, 1996

WEBSITE REFERENCES

1. https://www.simplilearn.com/tutorials/cyber-security-tutorial
2. https://www.javatpoint.com/cyber-security-tutorial
3. https://tutorials.one/cybersecurity/
4. https://www.tutorialspoint.com/cyber_security_guide_for_absolute_beginners_2020/index.asp

Means of Curriculum Delivery : Lecture, Group Learning, Seminar, Assignment, Google Classroom

SEMESTER – V

Programme Code	**B.Sc IT**	**Programme Title**	**Bachlor of Science Information Technology**	
Course Code	**19U5ITET2A**	**ELECTIVE 2: Web Technology And Its Applications**	**Batch**	**2019-2022**
			Semester	**V**
Hrs/week	**4 Hours**		**Credits**	**3**

COURSE OBJECTIVES

On completion of this course,

- A student will be able to develop a web application using java technologies.
- The students will gain the skills and project-based experience needed for entry into web application and development careers.

COURSE OUTCOMES (CO)

On successful completion of the course, students would be able to

CO Number	CO Statement
CO1	Design a static webpage by applying HTML elements.
CO2	Apply CSS concepts for designing HTML web pages.
CO3	Develop DHTML pages by using JavaScript
CO4	Define the fundamental of scripting languages.
CO5	Describe about how to write a well formed / valid XML document

Mapping With Programme Outcomes

CO/POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	-	ᵡ	ᵡ	-	-	-	-	-	-	-	ᵡ
CO2	-	ᵡ	ᵡ	-	-	-	-	-	-	-	ᵡ
CO3	-	ᵡ	ᵡ	-	-	-	-	-	-	-	ᵡ
CO4	-	ᵡ	ᵡ	-	-	-	-	-	-	-	ᵡ
CO5	-	ᵡ	ᵡ	-	-	-	-	-	-	-	ᵡ

Syllabus

UNIT 1 **(HOURS: 12)**

Introduction to WWW : Protocols and programs, secure connections, application and development tools, the web browser, What is server, choices, setting up UNIX and Linux web servers, Logging users, dynamic IP.

UNIT II **(HOURS: 12)**

Web Design: Web site design principles, planning the site and navigation, Introduction to HTML : The development process, Html tags and simple HTML forms, web site structure ,Introduction to XHTML : XML, Move to XHTML, Meta tags, Character entities, frames and frame sets, inside browser

UNIT III **(HOURS: 12)**

Style sheets : Need for CSS, introduction to CSS, basic syntax and structure, using CSS, background images, colors and properties, manipulating texts, using fonts, borders and boxes, margins, padding lists, positioning using CSS, CSS2.

UNIT IV **(HOURS: 12)**

Javascript : Client side scripting, What is Javascript, How to develop Javascript, simple Javascript, variables, functions, conditions, loops and repetition

UNIT V **(HOURS: 12)**

XML : Introduction to XML, uses of XML, simple XML, XML key components, DTD and Schemas, Well formed, using XML with application.XML,

Text Books

S.NO	Author Name	Title of the Book	Publisher&Edition
1.	Craig D. Knuckles	Web Applications : Concepts and Real World Design	Wiley-India Thired Edition

Reference Books

Recent editions of the following books only are recommended

S.No.	Author Name	Title of the Book	Publisher&Edition
1.	Steven Holzner	”HTML Black Book”	Dremtech press,Sixth edition
2.	Kogent Learning Solutions Inc	Web Technologies, Black Book	Dreamtech Press

WEBSITE REFERENCES

1.https://www.juet.ac.in/Department/CSE/WTechLab.php
2.https://www.ntnu.edu/studies/courses/IT2805
3.vignan.ac.in/subjectspg/CS652.pdf
4.https://www.ur.edu.pl/file/42104/Internet%20Technologies.doc.

Means of Curriculum Delivery: Lecture, Group Learning, Seminar, Assignment, Google Classroom

SEMESTER-V

Programme Code	**B.Sc IT**	**Programme Title**	**Bachlor of Science (Information Technology)**	
Course Code	**19U5ITET2B**	**ELECTIVE 2: INTERNETWORKING WITH TCP / IP**	**Batch**	**2019-2022**
			Semester	**V**
Hours/week	**4 Hours**		**Credits**	**3**

COURSE 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.

COURSE OUTCOMES (CO):

On successful completion of the course, students should be able to

CO Number	**CO Statement**
CO1	Explain the computer networking, and basic network services
CO2	Define layers of the OSI model; identify the protocols, and services associated with each layer.
CO3	Recognize and describe logical and physical network topologies in terms of media and network hardware.
CO4	Justify information security issues in computer networks.
CO5	Describe current common protocols in terms of their function, routing, addressing schemes,interoperability, and naming conventions.

MAPPING WITH PROGRAMME OUTCOMES

CO/PO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**
CO1	-	✓	✓	-	-	-	-	-	-	-	-	-
CO2	-	✓	✓	-	-	-	-	-	-	-	-	-
CO3	-	✓	✓	-	-	-	-	-	-	-	-	-
CO4	-	✓	✓	-	-	-	-	-	-	-	-	-
CO5	-	✓	✓	-	-	-	-	-	-	-	-	-

UNIT I **(Hours: 10)**

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: 10)**

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.

UNIT III **(Hours: 10)**

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:10)**

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.

UNIT V **(Hours:10)**

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**.**

TEXT BOOKS

Recent editions of the following books only are recommended

S.No.	Author Name	Title of the Book	Publishers&Edition
1.	**DouglasE.Comer**	**Internetworking with TCP / IP – Principles,Protocol and Architecture**	**Pearson Education,Sixth Edition**

REFERENCE BOOKS

S.No.	Author Name	Title of the Book	Publishers&Edition
1.	**Achuyut S Godbole and Atul Kahate**	**Data Communications and Networks**	Tata McGraw Hill ,Second edition
2.	**Behrouz A. Forouzan**	**TCP / IP – Protocol Suite”**	**McGraw Higher Education ,**

WEBSITE REFERENCES

1.https://www.dr-ait.org/wp-content/uploads/2016/04/SCS22.pdf
2.https://www.techopedia.com/.../transmission-control-protocolinternet-protocol-tcpip
3.https://doc.lagout.org/.../Internetworking%20with%20TCP_IP%20%20Vol%20I.pd
4.https://dl.acm.org/citation.cfm?id=545854
5.https://www.researchgate.net/.../272829944_Internetworking_with_TCPIP_Vol1_Principle.

Means of Curriculum Delivery : Lecture, Group Learning, Seminar, Assignment, Google Classroom.

SEMESTER – V

Programme Code	**B.Sc IT**	**Programme Title**	**Bachlor of Science Information Technology**	
Course Code	**19U5ITET2C**	**ELECTIVE 2: Software Project Management**	**Batch**	**2019-2022**
			Semester	**V**
Hrs/week	**4 Hours**		**Credits**	**3**

COURSE OBJECTIVES

- To get knowledge of 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 how to make quality software products.
- To Appreciate management issues like team structure and group dynamics

COURSE OUTCOMES

On the successful completion of the course, students will be able to achieve the following outcomes

CO Number	**CO Statement**
CO1	Apply project management concepts and techniques to an IT project.
CO2	Identify issues that could lead to IT project success or failure.
CO3	Explain project management in terms of the software development process.
CO4	Describe the responsibilities of IT project managers.
CO5	Apply project management concepts through working in a group as team leader or active team member on an IT project

Mapping With Programme Outcomes

CO/ POs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**
CO1	-	✓		-	-	-	-	-	-	-	✓	-
CO2	-	✓		-	-	✓	-	-	-	✓	✓	-
CO3	-	✓		-	-	✓	-	✓	-	-	✓	-
CO4	-	✓		-	-	✓	-	✓	-	-	✓	-
CO5	-	✓		-	-	✓	-	✓	-	-	✓	-

SYLLABUS

UNIT I **Hours:10**

SOFTWARE PROJECT MANAGEMENT: Introduction, Need for Software Project Management – Software Project versus other projects – Overview of Project planning – SDLC Models –Waterfall model, Iterative model, Spiral model, V-model, Big Bang model.

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 BOOK

S.No.	Authors	Title	Publishers	Year of Publication
1.	Bob Hughes and Mike Cotterell,	Software Project Management	Tata McGraw Hill	Fifth Edtion
2	Dr. Gopalaswamy Ramesh	Managing Global Software Projects	TMH.	2001

REFERENCE BOOKS

S.No	Authors	Title	Publishers	Year of Publication
1.	Walker Royce	Software Project Management	Addison Wesley	1998
2.	Stellman & Greener	Applied software project management	SPD	nil

SEMESTER-VI

Programme Code	**B.Sc IT**	**Programme Title**	**Bachlor of Science. Information Technology**	
Course Code	**19U6ITET3A**	**Elective 3 : Artificial Intelligence and Expert System**	**Batch**	**2019-2022**
			Semester	**VI**
Hrs/week	**4 Hours**		**Credits**	**3**

COURSE OBJECTIVES

To enable the students

- To understand different planning problems and have the basic knowledge how to design and implement AI planning systems
- To understand the strengths and limitations of various state-space search algorithms and choose the appropriate algorithms for a problem.

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Explain the strengths and limitations of various state-space search algorithms and choose the appropriate algorithms for a problem
CO2	Learn the basics of the theory and practice of Artificial Intelligence as a discipline about intelligent agents capable of decision making.
CO3	Apply knowledge representation techniques and problem solving strategies to common AI applications
CO4	Design simple software to experiment with various AI concepts and analyze results
CO5	Build self-learning and research skills to be able to tackle a topic of interest on his/her own or as part of a team

Mapping With Programme Outcomes

CO PO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**
CO1	-			-	-	-	-	-	-	-	-	-
CO2	-			-	-	✓	✓	-	-	-	✓	✓
CO3	-			✓	-	✓	✓	-	-	-	✓	✓
CO4	-			✓	-	✓	✓	-	-	-	✓	✓
CO5	-			✓	-	✓	✓	-	-	-	✓	✓

SYLLABUS

UNIT - I **(Hours : 10)**

Artificial Intelligence : The AI Problems, What is an AI Technique, Criteria for success, Problem Characteristics, Issues in the design of search programs, Components of AI, AI Evolution, Application areas of AI, History of AI, The Turing Test, The Revised Turing Test.

UNIT -II **(Hours : 10)**

Knowledge Representation: Knowledge Representation Issues, Representations and Mappings, Approaches to Knowledge Representation, Issues in Knowledge Representation, The Frame problem, Procedural versus Declarative Knowledge, Matching, Control Knowledge.

UNIT -III **(Hours : 10)**

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 -IV **(Hours : 10)**

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 : 10)**

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 BOOKS

Recent editions of the following books are only recommended

S. No	Author Name	Title of the Book	Publishers**&Edition**
1.	Elaine Rich,Kevin Knight, Shivashankar B Nair	Artificial Intelligence	Tata McGraw Hill , 3rd Edition,2004
2.	Stuart Russell, Peter Norvig	Artificial Intelligence A Modern Approach	Tata McGraw Hill , 2nd Edition2004

REFERENCE BOOKS

S. No	Author Name	Title of the Book	Publishers**&Edition**
1.	V S Janakiraman K Sarukesi P Gopalakrishnan	Artificial Intelligence and Expert Systems	Macmillan India Ltd, 2014
2.	Elaine Rich, Kevin Knight,	Artificial Intelligence	Tata McGraw Hill , 2nd Edition 2012

WEBSITE REFERENCES

1. https://www.techopedia.com/definition/190/artificial-intelligence-ai
2. https://en.wikipedia.org/wiki/Artificial_intelligence
3. https://www.techopedia.com/definition/190/artificial-intelligence-ai\
4.https://www.tutorialspoint.com/artificial_intelligence/artificial_intelligence_overview.h
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Means of Curriculum Delivery : Lecture, Group Learning, Seminar, Assignment, Google Clas

SEMESTER VI

Programme Code	**B.SC IT**	**Programme Title**	**Bachelor of Science Information Technology**	
Course Code	**19U6ITET3B**	**Elective 3: Big Data Analytics**	**Batch**	**2019-2022**
			Semester	**VI**
Hrs/week	**4 Hours**		**Credits**	**3**

COURSE OBJECTIVES

To enable the students

- To study the basic technologies that forms the foundations of Big Data.
- To understand the specialized aspects of big data including big data application, and big data analytics
- To study different types case studies on the current research and applications of the Hadoop and big data in industry

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	**CO Statement**
CO1	Explain the building blocks of Big Data
CO2	Differentiate and identify right database models for real time applications
CO3	Analyze recent research trends related to Hadoop File System, MapReduce and Google File System etc
CO4	Analyze the analytical aspects of Big Data
CO5	Explain the detailed architecture, database properties and storage requirements

Mapping With Programme Outcomes

CO PO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**
CO1	-			-	-	-	-	-	-	-	-	-
CO2	-			-	-	-	-	-	-	-	-	-
CO3	-			-	-	-	-	-	-	-	-	-
CO4	-			-	-	-	-	-	-	-	-	-
CO5	-			-	-	-	-	-	-	-	-	-

SYLLABUS

UNIT I **(Hours : 12)**

Introduction to Big Data- Definition, Big Data and its importance, Four Vs, Drivers for Big data, Big data analytics, Big data applications, Characteristic Features – Evolution of Big data - Structure of Big Data - Challenges of Conventional Systems - Web Data – Evolution of Analytic Scalability, Processes, Tools and methods - Analysis vs Reporting

UNIT II **(Hours : 12)**

Data science process – roles, stages in data science project – working with data from files – working with relational databases – exploring data – managing data – cleaning and sampling for modeling and validation.

UNIT III **(Hours : 12)**

Hadoop Framework - Map Reduce Programming Model, Algorithms using map reduce and yarn, Matrix- Vector Multiplication by Map Reduce- Big data Business Analytics - State of the practice in analytics role of data scientists - Key roles for successful analytic project - Main phases of life - A General Overview of High-Performance Architecture – HDFS – MapReduce and YARN

UNIT IV **(Hours : 12)**

Data Analysis - Statistical Methods:Regression modelling, Multivariate Analysis - Classification: SVM & Kernel Methods - Rule Mining - Cluster Analysis, Types of Data in Cluster Analysis, Partitioning Methods,Hierarchical Methods, Density Based Methods, Grid Based Methods, Model Based Clustering Methods, Clustering High Dimensional Data - Predictive Analytics – Data analysis using R.

UNIT V **(Hours : 12)**

NoSQL Databases : Schema-less Model-Increasing Flexibility for Data Manipulation-Key Value Stores- Document Stores – Tabular Stores – Object Data Stores – Graph Databases Hive – Sharding-Hbase – Analyzing big data with twitter – Big data for E-Commerce Big data for blogs – Review of Basic Data Analytic Methods using R.

TEXT BOOKS

S.No.	Author Name	Title of the Book	Publisher&Edition
1.	Bill Franks	Taming the Big Data Tidal Wave: Finding Opportunities in Huge Data Streams with Advanced Analytics	Wiley and SAS Business Series, 2012.
2.	David Loshin	Big Data Analytics: From Strategic Planning to Enterprise Integration with Tools, Techniques, NoSQL, and Graph	2013

REFERENCE BOOKS

S.No.	Author Name	Title of the Book	Publisher&Edition
1.	Michael Berthold, David J. Hand	Intelligent Data Analysis, Springer	Second Edition, 2007
2	Michael Minelli, Michelle Chambers, and Ambiga Dhiraj	Big Data, Big Analytics: Emerging Business Intelligence and Analytic Trends for Today's Businesses	Wiley, 2013.
3.	P. J. Sadalage and M. Fowler	NoSQL Distilled: A Brief Guide to the Emerging World of Polyglot Persistence	Addison-Wesley Professional, 2012.
4.	Richard Cotton	Learning R – A Step-by-step Function Guide to Data Analysis	O‘Reilly Media, 2013.

WEBSITE REFERENCES

1. https://www.tutorialspoint.com/big_data_analytics/index.htm
2. https://www.javatpoint.com/what-is-big-data
3. https://www.w3schools.com/datascience/
4. https://www.guru99.com/nosql-tutorial.html

Means of Curriculum Delivery : Lecture, Group Learning, Seminar, Assignment, Google Classroom

SEMESTER – V

Programme Code	**B.Sc IT**	**Programme Title**	**Bachelor of Science (Information Technology)**	
Course Code	**19U6ITET3C**	**ELECTIVE3:Mobile and Wireless Technology**	**Batch**	**2019-2022**
			Semester	**VI**
Hrs/week	**4 Hours**		**Credits**	**3**

COURSE OBJECTIVES

To enable the students

- To understand mobile radio communication principles and to study the recent trends adopted in cellular systems and wireless standards.
- To understand the evolution of Mobile communication and cell concept to improve capacity of the system
- To understand the types of channel coding techniques, data transmission modes and services

COURSE OUTCOMES (CO)

On the successful completion of the course, students should be able to

CO Number	**CO Statement**
CO1	Analyze Cellular Systems, CDMA, FDMA, network planning and TDMA Concepts.
CO2	Learn the fundamentals of GSM. viz., channels, coding techniques, data transmission, services.
CO3	Learn the concepts of the Mobile radio propagation, fading, convergence and the channel modeling.
CO4	Differentiate various Wireless LANs and its concepts.
CO5	Design the applications of wireless systems and standards

Mapping With Programme Outcomes

CO/ POs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**
CO1	-	✓		-	-	-	-	-	-	-	✓	-
CO2	-	✓		-	-	✓	-	-	-	✓	✓	-
CO3	-	✓		-	-	✓	-	✓	-	-	✓	-
CO4	-	✓		-	-	✓	-	✓	-	-	✓	-
CO5	-	✓		-	-	✓	-	✓	-	-	✓	-

SYLLABUS

UNIT - I **(Hours : 10)**

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 .

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 : 10)**

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.

UNIT -IV **(Hours : 10)**

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

UNIT -V **(Hours : 10)**

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

S.No.	Author Name	Title of the Book	Publisher&Edition
1.	Asoke K Talukder and Roopa R Yavagal	Mobile Computing	Tata McGraw-Hill,,Eleventh Reprint 2009.
2.	John Schiller	Mobile communication	Pearson Edition ,2 nd Edition.

REFERENCE BOOKS

S.No.	Author Name	Title of the Book	Publisher&Edition
1.	William C.Y.Lee	Mobile Communication Design Fundamentals	John Wiley,1993
2	Ivan Stojmenoric	Wireless network & Mobile communication	1st Edition

WEBSITE REFERENCES

1. https://en.wikipedia.org/wiki/Mobile_technology
2. https://www.techopedia.com/7/.../what-is-the-difference-between-mobile-and-wireless
3. https://en.wikipedia.org/wiki/Mobile_technology
4. https://searchmobilecomputing.techtarget.com/tip/Mobile-and-wireless-protocols
5. https://www.researchgate.net/.../282392489_Enabling_5G_mobile_wireless_technologies

Means of Curriculum Delivery : Lecture, Group Learning, Seminar, Assignment, Google Classroom

SEMESTER – VI

Programme code:	**B.SC IT**	**Programme Title**	**Bachelor of Science Information Technology**	
Course Code:	**19U6ITET4A**	**ELECTIVE 4: COMPILER DESIGN**	**Batch**	**2019-2022**
			Semester	**VI**
Hrs/Week:	**4 Hours**		**Credits**	**3**

COURSE OBJECTIVES

To enable the students

- To learn the fundamentals of Compiler Designs and knowledge on High level Programming languages.

COURSE OUTCOMES (CO)

On successful completion of the course, students would be able to

CO Number	CO Statement
CO1	Understand the basics of compilation(computing)
CO2	Understand grammar of compilers
CO3	Understand the intermediate form of codes in compilers
CO4	Understand the code generation technique(Machine code)
CO5	Understand the optimization of code in compilers

MAPPING WITH PROGRAMME OUTCOMES

CO / POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	-	✓	✓	-	-	-	-	-	-	-	-
CO2	-	✓	✓	-	-	-	-	-	-	-	-
CO3	-	✓	✓	-	-	-	-	-	-	-	-
CO4	-	✓	✓	-	-	-	-	-	-	-	-
CO5	-	✓	✓	-	-	-	-	-	-	-	-

SYLLABUS

UNIT I **(Hours – 15)**

LEXICAL ANALYSIS : Introduction to Compiling- Compilers-Analysis of the source program-The phases- Cousins-The grouping of phases-Compiler construction tools. A Simple One-Pass Compiler. The role of the lexical analyzer- Input buffering-Specification of tokens-Recognition of tokens-A language for specifying lexical analyzer.

UNIT II **(Hours – 12)**

SYNTAX ANALYSIS AND RUN-TIME ENVIRONMENTS:Syntax Analysis- The role of the parser-Context-free grammars-Writing a grammar-Top- down parsing-Bottom-up Parsing-LR parsers-Constructing an SLR(1) parsing table. Type Checking- Type Systems-Specification of a simple type checker- Equivalence of type expressions- Type Conversions. Run-Time Environments-Source language issues-Storage organization-Storage-allocation strategies – Parameter passing – Symbol tables.

UNIT III **(Hours – 9)**

INTERMEDIATE CODE GENERATION : Intermediate languages-Declarations-Assignment statements - Boolean expressions- Case statements- Backpatching-Procedure calls.

UNIT IV **(Hours – 12)**

CODE GENERATION: Issues in the design of a code generator- The target machine-Run-time storage management-Basic blocks and flow graphs- Next-use information-A simple code generator-Register allocation and assignment-The dag representation of basic blocks - Generating code from dags.

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UNIT V **(Hours – 12)**

CODE OPTIMIZATION :Introduction-The principle sources of optimization-Peephole optimization- Optimization of basic blocks-Loops in flow graphs- Introduction to global data-flow analysis-Code improving transformations.

TEXT BOOKS

S. No	Author Name	Title of the Book	Publisher&Edition
1.	Alfred V. Aho, Jeffrey D.Ullman,	"Compilers- Principles, Techniques, and Tools"	Pearson Education Asia, 2007

REFERENCE BOOKS

S. No	Author Name	Title of the Book	Publisher&Edition
1.	David Galles,	Modern Compiler Design	Pearson Education Asia, 2007.
2.	Steven S. Muchnick,	Advanced Compiler Design & Implementation	Morgan Kaufmann Pulishers, 2000
3.	C. N. Fisher and R. J. LeBlanc	Crafting a Compiler with C	Pearson Education, 2000

WEBSITE REFERENCES

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2. https://www.tutorialspoint.com/compiler_design
3. https://www.javatpoint.com/compiler-tutorial
4. https://www.guru99.com/compiler-design-tutorial.html
5. ecomputernotes.com/compiler-design

Means of Curriculum Delivery: Lecture, Group Learning, Seminar, Assignment, Google Classroom

SEMESTER – VI

Programme code:	**B.SC IT**	**Programme Title**	**Bachelor of Science InformationTechnology**	
Course Code:	**19U6ITET4B**	**ELECTIVE 4: MOBILE OPERATING SYSTEM**	**Batch**	**2019-2022**
			Semester	**VI**
Hrs/Week:	**4 Hrs**		**Credits**	**3**

COURSE OBJECTIVES

To enable the students

- To understand the process of developing software for the mobile and create mobile applications on the Android Platform

COURSE OUTCOMES (CO)

On successful completion of the course, students would be able to

CO Number	CO Statement
CO1	Understand the limitations and challenges of working in a mobile and wireless environment.
CO2	Describe and apply the different types of application models/architectures used to develop mobile software applications.
CO3	Describe the components and structure of a mobile development frameworks (Android SDK and Eclipse Android Development Tools
CO4	To learn how and when to apply the different components to develop a working system
CO5	Design, implement and deploy mobile applications using an appropriate software development environment.

MAPPING WITH PROGRAMME OUTCOMES

COs/ POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	-	✓	✓	-	-	-	-	-	-	-	-
CO2	-	✓	✓	-	-	-	-	-	-	-	-
CO3	-	✓	✓	✓	✓	-	-	-	-	-	-
CO4	-	✓	✓	✓	✓	-	-	-	-	-	-
CO5	-	✓	✓	✓	✓	-	-	-	-	-	-

SYLLABUS

UNIT - I **(Hours : 10)**

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 : 10)**

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 : 10)**

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 : 10)**

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

S. No	Author Name	Title of the Book	Publisher&Edition
1.	Reto Meier:	Professional Android 2 Application Development	Wiley
2	Ed Burnette	Hello, Android	Shroff
3	Pradeep Kothari	Android Application Development	Dreamtech

REFERENCE BOOKS

S. No	Author Name	Title of the Book	Publisher&Edition
1.	Mark L Murphy	Beginning Android	Wiley India Pvt Ltd,
2	Sayed Y Hashimi and Satya Komatineni	Professional Android	Wiley India Pvt Ltd.
3	Marko Garaenta	Learning Android	O'ReillyPublication

WEBSITE REFERENCES

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3. https://www.webopedia.com/TERM/M/mobile_operating_system.html
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5. https://searchmobilecomputing.techtarget.com/definition/mobile-operating-system

Means of Curriculum Delivery: Lecture, Group Learning, Seminar, Assignment,Google Classroom

SEMESTER VI

Programme Code :	**B.Sc IT**	**Programme Title**	**Bachelor of Science (Information Technology)**	
Course Code :	**19U6ITET4C**	**Elective 4:CLOUD COMPUTING**	**Batch**	**2019-2022**
			Semester	**VI**
Hrs/week	**4 Hours**		**Credits**	**3**

COURSE OBJECTIVES

To enable the students :

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

COURSE OUTCOMES (CO)

On successful completion of the course, students would be able to

CO Number	CO Statement
CO1	Understand History and Benifits in cloud computing
CO2	Analyse the Cloud Computing Architecture and Models
CO3	Identify the cloud data center and visualization technologies.
CO4	Analyse the visualization technology and security issues of cloud Computing
CO5	Evaluate various advanced cloud computing platforms

MAPPING WITH PROGRAMME OUTCOMES

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	-	✓	✓	-	-	-	-	-	-	-	-	-
CO2	-	✓	✓	-	-	✓	✓	-	-	✓	✓	✓
CO3	-	✓	✓	-	-	✓	✓	-	-	✓	✓	✓
CO4	-	✓	✓	-	-	✓	✓	-	-	✓	✓	✓
CO5	-	✓	✓	-	-	✓	✓	-	-	✓	✓	✓

SYLLABUS

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

Overview of the computing-History of Cloud Computing-Benifits of Cloud Computing-How to delvelop Cloud Infrastrucure-Vendors of Cloud Computing-Elastic Computing-Social Networking-Enterprice Cloud Computing.

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

Cloud Computing Architecture:Introduction-Grid Framework Overview-Grid Architecture-Cloud Computing Architecture-Key Design aspects of Cloud Architecture,Cloud Services and Cloud Applications-Similarities and Difference between Grid and Cloud Computing-Charecteristics of Cloud Computing.**Models of Cloud Computing** :Introduction-Cloud Service Modles-Cloud Computing Sub Service Modles-Cloud Deployement Models-Alternative Delopyment Model.

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

Cloud Data Center: Introduction- Cloud Data Center core elements-Storage Network Technologies and Virutalization-Object Based Storage Technology-Cloud Backup-Information Life Cycle Management-Cloud Analytics-Computing on Demand.**Virtualization Technologies**:Introduction-Virtualization Reference Model-Advantages of Virtualization-Server/Compute Virtualization-Need of Server/Compute Virtualization-Virtual Clusters-Advantages of Server/Compute Virtulalization-Virtual Machine and Hardware Components-Types of Virtualization.

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

Virtualization Technology at Desktop and Application:Introduction-Understanding Desktop Virtulization -Drivers used in Virtualization -Techniques used for desktop virtulization-Components for Desktop Virtulization-Application Virtulization-Hardware Virtual Machine-Understanding Machine Imaging-Porting Applications-Virtual Machine Provisioning.**Security Issues of Cloud Computing**:Introduction-Security concerns of Cloud Computing-Cloud Information security objectives-Cloud security design principles-Security services-Secure Cloud Software Testing-Software Requirement Practices-Risk Issues-VM Security.

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

Cloud Computing Platforms-Advanced Technologies in Cloud Computing:Introduction-Cloud Computing Trends-Understanding Cloud Computing Tools-Security Cloud-Green Computing-Intercloud-Bigtable-Cloud Usage for Big Data Analytics and Internet of Things. .

TEXT BOOKS

S. No	Author Name	Title of the Book	Publisher	Year/Edition
1.	Shailendra Singh	Cloud Computing	Oxford Univeristy Press	2018-First Edition

REFERENCE BOOKS

S. No	Author	Title of the Book	Publisher	Year/Edition
1.	Arshdeep Bahga	Cloud Computing: A Hands-On Approach	Paperback-Import,	9 Dec 2013.
2	Anthony T. Velte	Cloud Computing A Practical Approach	Tata Mcgraw Hill Education Private Limited	1st Edition 2009

WEBSITE REFERENCES

1. https://en.wikipedia.org/wiki/Cloud_computing
2. https://searchcloudcomputing.techtarget.com/definition/cloud-computing
3. https://www.salesforce.com/what-is-cloud-computing/
4. https://aws.amazon.com/what-is-cloud-computing
5. https://www.techopedia.com/definition/2/cloud-computing

Means of Curriculum Delivery: Lecture, Group Learning, Seminar, Assignment, Case studies, Google Classroom

Extra Credit Course

Programme Code :	B.Sc IT	Programme Title	Bachelor of Science (Information Technology)	
Course Code :	2019ECC001	Title : சுற்றுலா வளர்ச்சி	Batch	2019-2022
			Credits	2

பாடத்திட்டம் :

அலகு ஐ

1. சுற்றுலா – ஒரு விளக்கம்
2. உலக நாடுகளில் சுற்றுலா வளர்ச்சி
3. பாரதத்தில் சுற்றுலா வளர்ச்சி

அலகு ஐஐ

1. தமிழ்நாட்டில் சுற்றுலா வளர்ச்சி
2. பன்னாட்டு பலவகைப் பயணிகள்
3. சுற்றுலாவின் சமுக பொருளாதார விளைவுகள்

அலகு ஐஐஐ

1. சுற்றுலாப் பயணிகள் பற்றிய புள்ளி விவரங்கள்
2. சுற்றுலாவைத் திட்டமிடுதலும் மேம்படுத்தலும்
3. சுற்றுலா விடுதிகள்

அலகு ஐஏ

1. சுற்றுலாப் பயணிகளின் பல்வேறு போக்குவரத்துகள்
2. சுற்றுலாக் கழகங்கள்
3. சுற்றுலாப் பயண முகவர்கள்

அலகு ஏ

1. சுற்றுலாவின் வணிகச் சந்தைகள்
2. சுற்றுலாவின் வழிகாட்டிகள்
3. தமிழ் இலக்கியத்தில் பயணநூல்கள்

பாடநூல் : சுற்றுலா வளர்ச்சி

ஆசிரியர் - வெ. கிருட்டிணசாமி

மணிவாசகர் பதிப்பகம்

சென்னை, ஆகஸ்டு – 2009

Extra Credit Course

Programme Code :	B.Sc IT	Programme Title	Bachelor of Science (Information Technology)	
Course Code :	2019ECC002	Title : ,தழியல் கலை	Batch	2019-2022
			Credits	2

பாடத்திட்டம் :

அலகு ஐ இதழியல் - இயல்பும் பரப்பும்

1. இதழியல் விளக்கம்.
2. இதழ்களின் பணிகள், கடமைகள், பொறுப்புகள்.
3. இதழ்கள் வகைகளும் இயல்புகளும்.
4. மக்களாட்சியில் இதழியல்.
5. இதழ்களின் சுதந்திரம்.
6. இதழியல் நடத்தையறக் கட்டளைகள்.
7. இதழியல் தொழில் வாய்ப்புகள்.

அலகு ஐஐ இதழியல் தோற்றமும் வளர்ச்சியும்

1. இதழியல் வளர்ச்சி
2. தமிழகத்தில் இதழியல் வளர்ச்சி
3. பத்திரிக்கைச் சட்டங்கள்
4. பத்திரிக்கை மன்றம்

அலகு ஐஐஐ இதழ்களின் அமைப்பு முறை

1. இதழ்கள் தொடங்குவதற்கான வழிமுறைகள்
2. செய்தித்தாள் நிர்வாக அமைப்பு

அலகு ஐஏ செய்திகள், சேகரித்தல், எழுதுதல்

1. செய்தியாளர்
2. செய்தி
3. செய்தியின் உள்ளடக்கங்கள்
4. செய்தி திரட்டுதல்
5. செய்தி நிறுவனங்கள்
6. பேட்டி
7. குற்றச் செய்திள்
8. பல்வேறு வகையான செய்திகள்
9. செய்திகளும் சிறப்புத்தனி இயல்புகளும்
10. படங்களும் இதழ்களும்

அலகு ஏ செப்பனிடுதல் (பதிப்பித்தல்)

1. செய்திகளைச் செப்பனிடுதல் - நுட்பங்கள்
2. ஆசிரியர்
3. செய்தி ஆசிரியர்
4. துணை ஆசிரியர்
5. செய்தியின் கட்டமைப்பு
6. பக்க வடிவமைப்பு
7. அச்சுப்படி திருத்துதல்
8. இதழியல் கலைச் சொற்கள்

பாடநூல் : இதழியல் கலை

ஆசிரியர் : டாக்டர் மா.பா. குருசாமி

ஸ்ரீ சக்தி ∴பைன் ஆர்ட்ஸ், சிவகாசி, ஜனவரி – 2009.

Extra Credit Course

Programme Code :	B.Sc IT	Programme Title	Bachelor of Science (Information Technology)	
Course Code :	2019ECC003	Title : ,தழியல் கலை	Batch	2019-2022
			Credits	2

பாடத்திட்டம் :

அலகு ஐ

நாட்டுப்புற இயல் என்றால் என்ன?

நாட்டுப்புற இயலின் வரலாறு

நாட்டுப்புற அயல் கல்வி – ஒரு விளக்கம்

அலகு ஐஐ

நாட்டுப்புற ஆடல்கள்

நாட்டுப்புற கூத்துகள்

நாட்டுப்புற கைவினைக் கலைகள்

அலகு ஐஐஐ

நாட்டுப்புற விளையாடல்கள்

நாட்டுப்புற மருத்துவம்

நாட்டுப்புற நம்பிக்கைகள்

அலகு ஐஏ

நாட்டுப்புற வழிபாடுகள்

நாட்டுப்புறக் கதைகள்

நாட்டுப்புறப் பாடல்கள்

கதைப்பாடல்கள

அலகு ஏ

விடுகதைகள்

பழமொழிகள்

புராணங்கள்

பாடநூல் : நாட்டுப்புறவியல்

ஆசிரியர் : சு. கண்முக சுந்தரம்

காவ்யா பதிப்பகம்,

ஏப்ரல் - 2017.

Extra Credit Course

Programme Code :	B.Sc IT	Programme Title	Bachelor of Science (Information Technology)	
Course Code :	2019ECC004	Title : கணிப்பொறியில் தமிழ்	Batch	2019-2022
			Credits	2

பாடத்திட்டம் :

அலகு ஐ

கணிப்பொறியில் தமிழ்

விசைப்பலகை அமைப்பு முறைகள்

எழுத்துருவின் வகைகள்

அலகு ஐஐ

தமிழ் எழுத்துருக்கள்

எழுத்துரு ∴ விசைப்பலகை இயக்கியை நிறுவுதல்

அலகு ஐஐஐ

தமிழில் தட்டச்சு செய்யும் முறை

சிக்கல்களும் தீர்வுகளும்

அலகு ஐஏ

இணையத்தில் தமிழ்

தமிழ் இணையப் பல்கலைக்கழகம்

மின்னஞ்சல்

அலகு ஏ

யூனிக்கோடு

விண்டோஸ் எக்ஸ்பீயில் தமிழ்

தமிழ் இணையதளங்கள்

ஆசிரியர் : த. பிரகாஷ்

பெரிகாம் நூல் வெளியீடு மற்றும் விற்பனை

ஆகஸ்டு – 2007.

Extra Credit Course

Programme Code :	B.Sc IT	Programme Title	Bachelor of Science (Information Technology)	
Course Code :	2019ECC005	Title : தமிழக வரலாறும் மக்கள் பண்பாடும்	Batch	2019-2022
			Credits	2

பாடத்திட்டம் :

அலகு ஐ

1. தமிழக வரலாற்றுக்கான அடிப்படை ஆதாரங்கள்
2. தமிழகத்தின் இயற்கை அமைப்புகள்.
3. வரலாற்றுக் காலத்துக்கு முந்திய தமிழகம்.
4. சிந்து வெளி அகழ்வாராய்ச்சி.

அலகு ஐஐ

1. பண்டைய தமிழரின் அயல்நாட்டு தொடர்புகள்
2. தமிழ் வளர்த்த சங்கம்
3. சங்க இலக்கியம்
4. பண்டைய தமிழரின் வாழ்க்கை

அலகு ஐஐஐ

1. களப்பிரர்கள்
2. பல்லவர்கள்
3. தமிழகத்தில் நான்காம் நூற்றாண்டு முதல் ஒன்பதாம் நூற்றாண்டு வரையில் சமூக நிலை.

அலகு ஐஏ

1. சோழப் பேரரசின் தோற்றம்.
2. சோழப் பேரரசின் வளர்ச்சியும் வீழ்ச்சியும்.
3. சோழர் காலத்தில் தமிழரின் சமுதாயம்.
4. பாண்டியரின் ஏற்றமும் வீழ்ச்சியும்.

அலகு ஏ

1. மதுரை நாயக்கர்கள்.
2. தமிழகத்தில் 13 முதல் 18 ஆம் நூற்றாண்டு வரை சமூகநிலை
3. ஐரோப்பியரின் வரவு.
4. 19 ஆம் நூற்றாண்டின் அரசியலும் தமிழகத்தின் சமூக நிலையும்.
5. 20 ஆம் நூற்றாண்டில் தமிழகம் மேற்கோள் நூல்கள்.

பாடநூல் : தமிழக வரலாறும் மக்கள் பண்பாடும்

ஆசிரியர் - கே. கே. பிள்ளை. உலகத் தமிழாராய்ச்சி நிறுவனம். செப்டம்பர் - 2016.

Extra Credit Course

Programme Code :	B.Sc IT	Programme Title	Bachelor of Science (Information Technology)	
Course Code :	2019ECC006	Title : தமிழ் இலக்கிய வரலாறு	Batch	2019-2022
			Credits	2

பாடத்திட்டம் :

அலகு ஐ

1. காலப்போக்கில் கன்னித்தமிழ் ஒரு கண்ணோட்டம்
2. தமிழ்ச்சங்கம் 3. அகத்தியர்
4. தொல்காப்பியர் 5. சங்க இலக்கியம்
6. பதினெண் கீழ்கணக்கு

அலகு ஐஐ

1. இரட்டைக் காப்பியங்கள் 2. நாயன்மார்கள் 3. ஆழ்வார்கள்
4. சமயமும் தமிழும் (பௌத்தம், சமணம், சைவம், வைணவம்)
5. கன்னித் தமிழ் காப்பிய வளர்ச்சி 6. புராணங்களும் பிறவும்.

அலகு ஐஐஐ

1. சிற்றிலக்கியங்கள். 2. பதினெண் சித்தர்கள். 3. உரையாசிரியர்கள்.
4. பிற்காலப் புலவர்கள். 5. கிருத்துவமும் தமிழும். 6. இஸ்லாமியமும் இன்தமிழும்.

அலகு ஐஏ

1. சோழப் பேரரசின் வளர்ச்சியும் வீழ்ச்சியும். 2. கவிஞர் பெருமக்கள்.
3. புதக்கவிதை. 4. உரைநடை இலக்கியம், சிறுகதை இலக்கியம்.

அலகு ஏ

1. தமிழ் நாவல் இலக்கியம். 2. தாளிகைகள்.
3. இசைத்தமிழ் வரலாறு. 4. நாடகத் தமிழ் வரலாறு
5. 20 ஆம் நூற்றாண்டில் இன்தமிழ் வளர்ச்சி. 6. பிற நாடுகளில் பைந்தமிழ்

பாடநூல் : தமிழ் இலக்கிய வரலாறு

ஆசிரியர் : பேராசிரியர் மது.சா. விமலானந்தம்

முல்லைநிலையம்,

சென்னை, 2018

EXTRA CREDIT COURSE

NEW MEDIA

Course Code: 2019ECC007 **No. of Credits: 2**

Course Objectives :

To enable the students to understand the new age media sources.

UNIT I:

Spread of Internet; Salient features and advantage over traditional media;
History and spread of internet in India, reach and problem of access; Internet and Knowledge Society; Convergence and Multi-media: Print, radio, TV, internet and mobile.

UNIT II:

Online journalism; Earlier websites of newspapers, E-books and E-publishing
Status of online journalism today.

UNIT III:

Digital storytelling: Tools of multimedia journalists; Learn to report, write and produce in a manner that is appropriate for online media; Feature writing for online media: Story idea, development and news updates.

UNIT IV:

Open source journalism: Responding to the audience, Annotative reporting; Citizen Journalists, Problem of verification, accuracy and fairness.

UNIT V:

Use of blogs, tweets, etc. for story generation and development; Protecting copyright, Exploring Cyberspace: Individual Blog; Group weblog

TEXT BOOKS:

Recent editions of the following books only are recommended

1.Jagdish Chakravarthy, Net, Media and the Mass Communication,Authors press, New Delhi,2004.

2. Gopal Bhargava ,Mass Media and Information Revolution,Isha Books, New Delhi ,2004.

REFERENCE BOOKS:

1.Nath, Shyam ,Assessing the State of Web Journalism ,Authors Press, New Delhi,2002.

2.Narayana Menon, The Communication Revolution.National Book Trust ,1976.

EXTRA CREDIT COURSE

PROOFREADING AND COPYEDITING

Course Code: 2019ECC008 **No. of Credits: 2**

Course Objectives

To enable the students to proofread and edit texts.

UNIT I:

Introduction to Proofreading and Copyediting, The use of style sheets and style guides in Proofreading and copyediting, finding the appropriate style guides, how to create and use a style sheet.

UNIT II:

Proofreaders' marks and how they are used to copyedit and proofread, your job as a proofreader.

UNIT III:

How to proofread, Proofreading practice.

UNIT IV:

The job of copyediting, how to copyediting, copyediting practice.

UNIT V:

How to copyedit or proofread one's own Work, copyediting or proofreading as a career.

TEXT BOOKS:

Recent editions of the following books only are recommended

1. Laura Anderson ,Proofreading Handbook ,McGraw-Hill ,2nd Edition2006.
2. Elsie Myers Stainton, The Fine Art of Copyediting ,Columbia University Press ,2002.

REFERENCE BOOKS:

1. Suzanne Gilad ,Copyediting and Proofreading For Dummies ,1st Edition 2011
2. Peter Ginna ,What Editors Do: The Art, Craft, and Business of Book Editing (Chicago Guides to Writing, Editing, and Publishing) ,University of Chicago Press ,2017

EXTRA CREDIT COURSE

PERSONALITY DEVELOPMENT

Course Code: 2019ECC009 **No. of Credits: 2**

Course Objectives :

To make students groom their personality and prove themselves as good Samaritans of the society

UNIT I:

Introduction to Personality Development ; The concept of personality, Theories of Freud & Erickson, Significance of personality development; The concept of success and failure: What is success-Hurdles, What is failure- Causes of failure.

UNIT II:

Attitude & Motivation, Factors affecting attitudes-Positive attitude, Advantages, Negative attitude Disadvantages - Concept of motivation - Significance – Internal and external motives -Importance of self- motivation-Factors leading to de-motivation

UNIT III:

Term self-esteem, Symptoms, Advantages - Do's and Don’ts to develop positive self-esteem, Low selfesteem, Symptoms - Personality having low self esteem - Positive and negative self esteem. Interpersonal Relationships.

UNIT IV:

Other Aspects of Personality Development, Body language - Problem-solving - Conflict and Stress Management - Decision-making skills -Leadership and qualities of a successful leader – Character building -Team-work – Time management - Work ethics –Good manners and etiquette.

UNIT V:

Employability Quotient , Resume building- The art of participating in Group Discussion – Facing the Personal (HR & Technical), Interview, Psychometric Analysis, Mock Interview Sessions.

TEXT BOOKS:

Recent editions of the following books only are recommended

1.E.B. Hurlock ,Personality Development ,Tata McGraw Hill ,28th Reprint. New Delhi: 2006

2. Stephen P. Robbins and Timothy A. Judge ,Organizational Behavior ,Prentice Hall. 16th Edition, 2014.

REFERENCE BOOKS:

1. Sudhir Andrews , How to Succeed at Interviews, New Delhi.Tata McGraw-Hill ,21st (rep.) 1988

2. Heller, Robert., Effective leadership, Essential Manager series. Dk Publishing,2002.

EXTRA CREDIT COURSE

TECHNICAL WRITING

Course Code: 2019ECC010 **No. of Credits: 2**

Course Objectives :

- To enable the students to practice professional writing.

UNIT I:

Technical Writing Basics, Technical Communication: Definition & Purpose.

UNIT II:

Characteristics of Technical Communication, Audience, Centered Communication.

UNIT III:

Legal and Ethical Communication: Description & Importance, Implicit and Explicit Rules of Communication: Definitions & Examples.

UNIT IV:

Types of Technical Documents.

UNIT V:

The Technical Writing Process: Prewriting, Writing & Rewriting, Spread of Internet; Salient features and advantage over traditional media.

TEXT BOOKS:

Recent editions of the following books only are recommended

1. Kieran Morgan , Technical Writing Process: The simple, five-step guide that anyone can use to create technical documents such as user guides, manuals, and procedures , Better on paper publications ,2015

2. Thomas Arthur Rickard ,A Guide to Technical Writing ,Bibliolife, 2008.

REFERENCE BOOKS:

1. Gerald J. Alred, Charles T. Brusaw & Walter E. Oliu , Handbook of Technical Writing ,Bedford/St. Martin's ,2008.

2. Mike Markel, Technical Communication, Palgrave MacMillan ,2012

EXTRA CREDIT COURSE

AN INTRODUCTION TO PSYCHOLOGY

Course Code: 2019ECC011 **No. of Credits: 2**

Course Objectives :

- To enable the students to articulate how psychological research adheres to ethical and scientific principles, and communicate the difference between personal views and scientific evidence in understanding behavior.

UNIT I:
Introducing Psychology, Psychological Science, Brain, Body and Behavior.
UNIT II:
Sensing and Perceiving Remembering and Judging, Intelligence and Language.
UNIT III:
States of Consciousness, Growing and Developing, Learning.
UNIT IV:
Emotions and Motivation, Personality
UNIT V:
Defining Psychological Disorders, Treating Psychological Disorders, Psychology in Our Social Lives.

TEXT BOOKS:

Recent editions of the following books only are recommended

1. David Myer , David Myer's Psychology , Worth Publishers ,(7th ed.) 2004.
2. Daniel Kahneman, Thinking Fast and Slow , Farrar , Straus and Giroux , 2011

REFERENCE BOOKS:

1. Roger R. Hock, Forty Studies That Changed Psychology , Prentice hall ,2008.

2. Robert Feldman, Understanding psychology, McGraw Hill Education, 2017

3.Thomas E. Ludwig , Psychsims ,WortSh Publishers ,2004

EXTRA CREDIT COURSE

ASTRONOMY

Course Code: 2019ECC012 **No. of Credits: 2**

Course Objectives:

- On successful completion of this course the students should gain knowledge about Astronomy.

UNIT I:

General description of the Solar system. Comets and meteorites – Spherical trigonometry.

UNIT II:

Celestial sphere – Celestial co – ordinates – Diurnal motion – Variation in length of the day.

UNIT III:

Dip – Twilight – Geocentric parallex.

UNIT IV:

Refration – Tangent formula – Cassinis formula.

UNIT V:

Kepler's laws – Relation between true eccentric and mean anamolies.

TEXT BOOK

Recent editions of the following books only are recommended

"ASTRONOMY" by S.Kumaravelu and Susheela Kumaravelu.

EXTRA CREDIT COURSE

FUZZY MATHEMATICS

Course Code: 2019ECC013 **No. of Credits: 2**

Course Objective:

- To know the basic concepts of fuzzy stes and its characteristics.
- To understand the concept of various operations on fuzzy sets.
- To learn the concept of fuzzy relations and its applications.

UNIT 1 From classcal sets to Fuzzy sets: Introduction-Crisp Sets: An over vieww-Fuzzy set: Basic

types-Fuzzy sets: Basic Concepts-Characteristics and significance of the paradigm Shift

UNIT 2

Fuzzy sets of versus crisp sets: Addtional properties of □- Cuts- Representations of fuzzy sets-Extension Principle of Fuzzy sets.

UNIT 3

Operations on fuzzy sets: Types of Operations-Fuzzy complements-Fuzzy Intersections: t-Norms-Fuzzy unions: t-conorms

UNIT 4

Fuzzy Arithmetic: Fzzy Numbers-Lnguistic Variables-Arithmetic Operations on intervals

UNIT 5

Fuzzy Relations: Crisp versus Fuzzy Relations-Projections and Cylndric Extensions-Binary Fuzzy Relations-Binary relations on a single set-Fuzzy Equvalence Relations-Fuzzy Compatibility Relations.

TEXT BOOK:

Fuzzy Sets Uncertanity and Information, George, J.Klir and Tina A, Folger, Printice Hall of India

Pvt Ltd, New Delh, 2006

UNIT 1: Page no: 1-30 **UNIT 2:** Page no: 35-48

UNIT 3: Page no: 50-96

UNIT 4: Page no: 97-102

UNIT 5: Page no: 119-135

Reference Book:

1. Fuzzy Logic Intellegence, Control and information, John Yuan, Reza Langari, Pearson Education, New Delh, 1999
2. Fuzzy logc and Neural Networks, M.Amirthavalli, Scitech Publications Pvt Ltd, Chennai and Hydrabad, 2007
3. Fuzzy Lgic with Engineering Applications, Timothy , Jo Ross, McGraw-Hill INC, New York, 1996.

EXTRA CREDIT COURSE

OPERATION RESEARCH

Course Code: 2019ECC014 **No. of Credit :2**

Course Objectives:

- To understand the basic concepts of Operations Research and Solving LPP
- To solve Transportation and Assignment problems
- To understand the concept of Game theory , Queuing theory PERT and CPM.

UNIT I

Introduction to Operations Research - Meaning - Scope – Models - Limitation. Linear Programming - Formulation – Graphical method only.

UNIT II

Transportation (Non- degenerate only) - Assignment problems - Problems.

UNIT III

CPM - Principles - Construction of Network for projects – Types of Floats – Slack- crash programme.

UNIT IV

PERT - Time scale analysis - critical path - probability of completion of project - Advantages and Limitations.

UNIT V

Game Theory: Graphical Solution – mx2 and 2xn type. Solving game by Dominance property fundamentals - problems . Replacement problem – Replacement of equipment that deteriorates gradually (value of money does not change with time).

Text Book:

Recent editions of the following books only are recommended

Prof. V. Sundaresan., K.S. Ganapathy Subaramanian ., K.Ganesan: Resource Management Techniques (Operations Research) A.R.Publications- 2002

Unit I : Chapter 1 – Section 1.1,1.2,1.4,1.9, Chapter 2 – Section 2.1- 2.5
Unit II : Chapter 7 – Section 7.1- 7.2, Chapter 8 – Section 8.1 ,8.2,8.4,8.5
Unit III : Chapter 15 – Section 15.1,15.2,15.5,15.8
Unit IV : Chapter 15 – Section 15.6
Unit V : Chapter 16 – Section 16.6, 16.7, Chapter 11 – Section 11.1, 11.2

ReferenceBook :

1. Kanti Swarup, Gupta P.K, Man Mohan : Operations Research, Sultan Chand & Sons- 1997
2. P.R. Vittal and V.Malini : Operations Research, Margham Publications -2011.
3.P.K.Gupta.,ManMohan: Problems in Operations Research,Sultan Chand &sons-2004
4.V.K.Kapoor: Operations research, Sultan Chand&sons-2007

EXTRA CREDIT COURSE

MATHEMATICS FOR PROFESSIONAL COURSES

Course Code: 2019ECC015 **No. of Credits: 2**

COURSE OBJECTIVES

- To understand the fundamental concepts of Set Theory and Linear Equations.
- To solve the problems in Mathematics of Finance, sequence and series.
- To acquire the knowledge of correlation, regression and problem solving.

UNIT 1:

Sets, Functions and Relations -Equations Linear equations–Homogeneous linear equations .

UNIT 2:

Sequence and Series–Arithmetic progression-Geometric progression; Mathematics of Finance: Simple interest-Compound interest.

UNIT 3:

Limits ─ Basic concepts of Differentiation - Integration

UNIT 4:

Measures of Central Tendency and Dispersion, Arithmetic Mean, Median – Mode, Geometric Mean and Harmonic Mean, Standard deviation, Quartile deviation

UNIT 5:

Correlation and Regression.

TEXT BOOKS:

Recent editions of the following books only are recommended

1. Discrete Mathematics, B.S. Vatssa, Wishwa Prakashan Private Limited, 3rd Edition.
2. Business Mathematicsc and Statistics, P.A. Navanitham, Jai Publisher, June 2004.

Reference Book:

1 .Dr.M.K.Venketaramen,Dr.N.Sridharan,N.Chandarasekaran: DiscreteMathematics,The National publishing Company – 2006.

2.P.R.Vittal :Business Mathematics and Statistics, Margham Publications.-2011

3. Sanchetti, D.C and Kapoor, V.K: Business Mathematics, Sultan chand Co & Ltd-2002.

Unit 1: Chapter 2 and 3, chapter 7, 7.1-7.4 (Text Book 1)
Unit 2: Chapter 1 and 2 (Text Book 2, Part 1)
Unit 3: Chapter 5, 6 and 8 (Text Book 2, Part 1)
Unit 4: Chapter 7 (Text Book 2, Part 2)
Unit 5: Chapter 12 and 13 (Text Book 2, Part 2
Chapter 3 , Section 3.1-3.4 and Chapter 6, Section 6.1-6.3 (Text Book 3)

EXTRA CREDIT COURSE

MULTIMEDIA AND ITS APPLICATIONS

Course Code: 2019ECC016 **No.of Credits: 2**

Course Objectives:

- To enable the students learn the overview of Multimedia systems.
- To provide knowledge about the Basic concepts of Sound and Image Processing.
- To enhance the knowledge about the Multimedia Applications.

UNIT I

Media and Data Streams : Medium – Main Properties of a Multimedia Systems – Multimedia – Traditional Data Streams Characteristics – Data Streams characteristics for continuous media.

UNIT II

Sound / Audio: Basics sound Concepts – Music – Speech . Video and Animation : Basics concepts – Television – Computer Based Animations.

UNIT III

Images and Graphics : Basics concepts – Computer Image Processing – Data Compression : Storage space – coding requirement – source entropy and hybrid coding – some basic compression techniques – JPEG – MPEG – DVI.

UNIT VI

Multimedia Communication system : Application subsystem – Transport subsystem – quality of services and resource management.

UNIT V

Multimedia Applications : Introduction – Media Preparation – Media Composition – Media Integration – Media Communication – Media Entertainment.

Reference Books:

1. Ralf Steinmetz and Klara Nahrstedt , Multimedia : Computing , Communication & Applications. ,Pearson Education.

EXTRA CREDIT COURSE

MANAGEMENT INFORMATION SYSTEM

Course Code: 2019ECC017 **No. of Credits: 2**

Course 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:

Recent editions of the following books only are recommended

1. Gorden 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

THEORY OF COMPUTATION

Course Code: 2019ECC018 **No. of Credits: 2**

CourseObjectives:

- 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-Defininig 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-roblems

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 BOOKS:

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:

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

EXTRA CREDIT COURSE

OOPS WITH JAVA PROGRAMMING

Course Code: 2019ECC019 **No. of Credits: 2**

Course Objectives :

- To 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

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

UNIT II

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

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

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

UNIT V

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:

Recent editions of the following books only are recommended

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

Reference Books:

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

EXTRA CREDIT COURSE

PROGRAMMING IN C

Course Code: 2019ECC020 **No. of Credits: 2**

Course 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.

UNIT I

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 .

UNIT II

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

Arrays - One Dimensional - Two Dimensional - Multidimensional arrays - Character string Handling - Declaring and initializing string variables - String:Introduction- Standard Functions. Funtions: User - defined Functions - Need for user Defined functions - Types of Functions :No Arguments and no return values - Arguments with return values - Recursion.

UNIT IV

Structure : Structure definition - Giving values to members – Structure initialization - comparison of structure variables - Structures within structures- size of structures.

UNIT V

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

TEXT BOOKS:

Recent editions of the following books only are recommended

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.

EXTRA CREDIT COURSE
INTERNET OF THINGS

Course Code: 2019ECC021 **No. of Credits: 2**

Course 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

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

UNIT II

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

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

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

UNIT V

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 BOOKS:

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 Madisetti 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.

EXTRA CREDIT COURSE

WEB TECHNOLOGY AND ITS APPLICATIONS

CourseCode: 2019ECC022 **No. of Credits: 2**

Course **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

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

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

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

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

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:

Recent editions of the following books only are recommended

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.

EXTRA CREDIT COURSE

NETWORK SECURITY

Course Code: 2019ECC023 **No. of Credits: 2**

Course Objectives: To enable the students

- To know about cryptography and its various functions.
- To understand the concepts of hashes and public key algorithm.
- To have a knowledge on different types of authentication.
- To know about the standards, IP security and their applications**.**

UNIT I

Cryptography - Introduction – Primer on Networking –Active and Passive Attacks –Layers and Cryptography – authorization Viruses, worms, Trojan Horses – The Multi level Model of Security. Cryptography – Breaking an Encryption Scheme – Types of Cryptographic functions – secret key Cryptography – Public key Cryptography – Hash algorithms.

UNIT II

Secret Key Cryptography - Secret Key Cryptography – Generic Block Encryption – Data Encryption Standard – International Data Encryption Algorithm (IDEA) – Advanced Encryption Standard.

UNIT III

Hashes and Public Key Algorithms - Hashes and Message Digests: Introduction – Things to do with hash – MD2 – MD4 – MD5. Public Key Algorithms: Modular arithmetic – RSA – Diffie-Hellman – Digital Signature Standard – Elliptic Curve Cryptography.

UNIT IV

Authentication - Overview of Authentication Systems: Password-Based Authentication – Address-Based Authentication – Cryptographic Authentication Protocols –Eavesdropping and Server Database Reading – Trusted Intermediaries – Session Key Establishment.

UNIT V

Standards, IP Security and Applications - Standards: Kerberos V4: Introduction – Tickets and Ticket-Granting Tickets – Configuration – Logging into the Network – Replicated KDCs. IP Security: Overview of IPSec – IP and IPv6 – Authentication Header – ESP.

Reference Books:

1.Charlie Kaufman, Radia Perlman and MikeSpeciner : “Network Security Private Communication in a Public World”, Pearson Education, New Delhi, 2nd Edition,2008 .

2.Stallings William : “Cryptography and Network Security Principles and Practices”, Prentice Hall India, New Delhi, 4th Edition 2007.

3.Stallings William : “ Network Security Essentials Applications and Standards “ Prentice Hall India, New Delhi, 2004.

4.Atul Kahate : “Cryptography and Network Security “ Tata Mc.Graw Hill , 2nd Edition, 2008.

EXTRA CREDIT COURSE

MOBILE AND WIRELESS TECHNOLOGY

Course Code: 2019ECC024 **No. of Credits: 2**

Course Objectives:

- To learn the wireless communication on digital mobile communication system and integration of services and applications from fixed networks into networks supporting mobility of end user and wireless access.

UNIT - I

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

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

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

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

UNIT -V

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:

Recent editions of the following books only are recommended

1. Asoke K Talukder and Roopa R Yavagal ,Mobile Computing,Tata McGraw-Hill,,Eleventh Reprint 2009.
2.John Schiller , Mobile communication, Pearson Edition ,2 nd Edition.

REFERENCE BOOKS:

1. William C.Y.Lee, Mobile Communication Design Fundamentals ,John Wiley,1993
2. Ivan Stojmenoric , Wireless network & Mobile communication,1st Editio

EXTRA CREDIT COURSE

CLOUD COMPUTING

Course Code: 2019ECC025 **No. of Credits: 2**

Course Objectives:

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

UNIT - I **(12 Hours)**

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 **(12 Hours)**

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 schedulesm managing projects, presenting on road.

UNIT -III **(12 Hours)**

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 **(12 Hours)**

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 **(12 Hours)**

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:

Recent editions of the following books only are recommended

1. Michael Miller, Cloud Computing, Pearson Education, New Delhi,2009.

2.Anthony T. Velte, Cloud Computing A Practical Approach, Tata Mcgraw HillEducation Private Limited,1st Edition2009

REFERENCE BOOKS:

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

EXTRA CREDIT COURSE

CROSS CULTURE MANAGEMENT

Course Code: 2019ECC026 **No. of Credits: 2**

Course Objective:

- To provide a thorough understanding
- The impact of an international context on management practices based on culture.
- Frameworks for guiding cultural and managerial practice in international business.

UNIT-I

Basic framework of Cross Cultural Management: Factors influencing Decision Making – Using Culture – Cross Cultural and International Management – Implications for the Manager. Comparing Cultures. Shifts in the Culture – Organizational Culture – Culture and Communication –Needs and Incentives – Dispute Resolution and Negotiation.

UNIT-II

Structure of Cross Cultural Management: Formal Structures – Functions – Bureaucracy – Culture and Bureaucracy – Implications. Informal Systems – Informal Relationships – Patronage, Society and Culture –Government-Business Patronage – Guanxi – Managing Informal Systems –Implications.

UNIT-III

Globalization & Cross Cultural Management: Planning Change: Meaning – Planning for Change – Planning in Different Culture – Planning in an Unstable Environment – Implications. International Strategies –Globalization and Localization – Defining Globalization – Roots – Global-Local Contradictions – Implications.

UNIT-IV

Models of Cross Cultural Management: Family Companies: The Anglo Model: Environment, Culture and Management. The Chinese Model: Environment and Culture. The Chinese Model: Management. Changes in the Chinese model – Implications.

UNIT-V

Strategy of Cross Cultural Management: Designing and Implementing Strategy: Formal Strategy Planning – Analyzing Resources and the Competition – Positioning the Company – Implementation – Emergent Strategy – Implications. Head Quarters and Subsidiary: Risk for the Multinational – Control – Implications.

TEXT BOOK:

Recent editions of the following books only are recommended

Jean-Francois Chanlat, Cross Culture Management, T&F publication, Edition-2013.

REFERENCE BOOKS:

1. Neal Mark, The Culture Factor: Cross-national Management and Foreign Venture, Macmillan, Edition-1998.
2. Prashant Faldu, Cross Culture Management, Presence Institute of Image Consulting Pvt.Ltd., Edition-2015.
3.Dipak Kumar, Cross Culture Management: Text and Case, PHI Publication, Edition-2010.
4.Richard R.Gesteland, Cross-Culture Business Behaviour, Copenhagen Business School Press, Edition-1999.

EXTRA CREDIT COURSE

INDIAN ECONOMY AND TRADE DEPENDENCIES

Course Code: 2019ECC027 **No. of Credit :2**

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

- The diversity of issues prevalent in the Indian Economy.
- Trade related issues of the Indian Economy.
- The importance of trade in the present globalized era.

UNIT- I

Introduction to Indian Economy : Alternative Development Strategies – Trends in National Income, Growth and Structure since 1991 - New Industrial Policy 1991 – Recent changes in Trade Policy - Competition Policy - Public Sector Reform - Privatization and Disinvestments – Progress of Human Development in India.

UNIT-II

Planning and Economic Development : Redefining the Role of the State –Human Capital Formation in India – Problem of Foreign Aid – Economic Reforms and Reduction of Poverty – Measures to Remove Regional Disparities.

UNIT-III

Indian Industries : Review of Industrial Growth under 10^{th} and 11^{th} Five year plan - Growth and present state of IT industry in India – Outsourcing, Nationalism and Globalization – Small Sector Industrial Policy.

UNIT-IV

Foreign Trade: Trends of Exports and Imports of India – Composition of India's Foreign Trade - Direction of India's Foreign Trade – Growth and Structure of India's Foreign Trade since 1991 – Balance of Payments since the New Economic Reforms of 1991. Foreign Capital : Need for Foreign Capital – Foreign Investment Inflows –Role of Special Economic Zones (SEZ)

UNIT-V

India in the Global Setting : India in Global Trade – Liberalization and Integration with the Global Economy – Globalization Strategies – India's Foreign Exchange Reserves –Convertibility of the Rupee – WTO and India.

TEXT BOOK:Recent editions of the following books only are recommended

1.Ramesh Singh, Indian Economy, Mcgraw Hill Education, Edition-7, 2015.

REFERENCE BOOKS:1.P.Arunachalam-Indian Economy and Trade, Serial Publication, Edition-1,2011.

2.Sankarganesh,Indian Economy Key concepts, Kavin Mukhil Publications, Edition-4,2016

3.Gaurav Kumar, Indian Economy, Kd Publication, Edition-1, 2016.

4.Puri Misra, Indian Economy, Himalaya Publication, Edition-26, 2008.

EXTRA CREDIT COURSE

EXPORT MARKETING

Course Code: 2019ECC028 **No. of Credits: 2**

Course Objectives:

- To gain knowledge on Export distribution channels.
- To enable the students to understand Export and Import Procedures.
- To create awareness regarding the export promotion and export finance.

UNIT I

Export marketing – an overview -export marketing – meaning difference between export marketing and domestic marketing – basic function of export marketing.

UNIT II

Export distribution channels – direct export – indirect export – channel; small manufacturer.

UNIT III

Export promotion – characteristics of foreign buyers – forms of export promotion-importance of Promotional Activities.

UNIT IV

Export and Import Procedure Documents used in Foreign Trade.

UNIT V

Export Finanace- Needs- Short terms, Medium and long term Source of Finance types of Credit.

Text Book

1.Rathor. BS-Export Marketing - Himalaya publishing House 2006

EXTRA CREDIT COURSE

INTERNATIONAL TRADE & FOREX

Course Code: 2019ECC029 **No. of Credits: 2**

Course Objectives:

- To learn the overview of International Trade and Globalisation.
- To make the students to understand the concepts of foreign exchange management.
- To gain the knowledge on the basic regulation of FEMA.

UNIT I

International trade- Meaning- Scope- Challanges- Theories of International Trade- Balance of Payment- Trade Barriers

UNIT II

Competition Law and International Trade- Competition and Consumer Protection- Regulation of anti competition activity

UNIT III

Export Policy and Procedure- features- Export Promation Schemes- SEZs , EOU- Deemed Export- Export Promotion Council

UNIT IV

Import Policy and Procedure- Import of Gifts- Import on Import basis- Procedure for customer clearance- Warehousing- Canalised import

UNIT V

Introduction to FEMA- Forex Management-Nature- Forex Manager- Foreign Exchanfge Market- Foreign Exchange Rate- Types- Present status of Foreign exchange Market in India

TEXT BOOKS:

Recent editions of the following books only are recommended

1. Francis cherunilam -International trade-Himalaya publication House 2010

EXTRA CREDIT COURSE

BRAND MANAGEMENT

Course Code: 2019ECC030 **No. of Credits: 2**

Course Objective:

- 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 BOOKS:

Recent editions of the following books only are recommended

1.Keller/ Parameswaran & Jacob, Strategic Brand Management: Building, Measuring, and
2.Managing Brand Equity, Pearson Education India; 4 Edition 2015.

REFERENCE BOOKS:

1.Y.L.R. Moorthi, Brand Management, Vikas Publishing House, 1st 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, 1st Edition 2009.

EXTRA CREDIT COURSE
STRESS MANAGEMENT

Course Code: 2019ECC031 **No. of Credits: 2**

Course 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:

Recent editions of the following books only are recommended

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.

Barun Mitra, Personality Development and Soft Skills, Oxford University Press, Second Edition 2017.

EXTRA CREDIT COURSE

RISK AND INSURANCE IN INTERNATIONAL TRADE

Course Code: 2019ECC032 **No. of Credit :2**

Course Objective: On successful completion of this course, the students should have understood basic principles of insurance and risk management

- Understanding contemporary issues related to insuranance

UNIT-I

Nature and History of Insurance Business - Insurance Business in India Europe, UK and USA - insurance Act 1938 -General insurance business -Nationalisation - Insurance as a social security tool – Insurance and economic development - IRDA- Entry of private players into Insurance business -Actuarial profession -Global Trends and developments in Insurance Business

UNIT-II

Principles of Legal aspects of Insurance - Principles of Insurable Interest – Principles of Utmost Good Faith – Principles of Indemnity - Principles of Subrogation -Doctrine of Proximate Clause - Tariff Advisory Committee – Legal Aspects of Life Assurance - Global Insurance Regulatiory Frame work.

UNIT-III

Global Non-life Insurance: Principles & Practices Fire insurance – Standard fire policy; Marine - Cargo and Hull insurance – Types; Motor insurance – Liability insurance, Types of policies; Engineering insurance – Electronic equipment insurance, Burglary insurance – Underwriting Practices – Claims settlement in International Perspectives.

UNIT-IV

Risk management process – Risk identifications: perception of risk, Threat analysis, Even analysis, Safety Audit – Risk evaluation – Concept of probability –Statistical methods of risk evaluation – Value at Risk (VaR)

UNIT-V

Risk Management Methods – Contingency Planning – Risk Transfer – Captive Insurance agreements – Reinsurance – Catastrophe covers – Legal Aspects of Reinsurance – Reinsurance Markets – Lloyds Markets – Risk Management techniques for global insurance market players.

TEXT BOOK:

Recent editions of the following books only are recommended

1.Mishra, M.N,Insurance principles and practices, S. Chand and Co, Delhi, Edition 4, 2007 .

REFERENCE BOOKS:

1.Tripathy N.P,Insurance principles and practices,Prentice Hall India Learning Private Limited Edition 3, 2009

2.Ghanashyam Panda & Monika Mahajan,Principles and Practice of Insurance,Kalyani Publishers Edition 4, 2011.

3.Insurance Regulatory and Development Authority Act, 1999 ,Universal Law Publishing - An imprint of LexisNexis Edition 1, 2016.

4.S K Sarvaria,Commentary on the Insurance Regulatory and Development ,Universal Law Publishing - An Imprint of Lexis Nexis; Edition 1, 2016

EXTRA CREDIT COURSE

RETAIL MARKETING

Course Code: 2019ECC033 **No.of Credits: 2**

Course Objective:

- To enable the students to understand about Global Retailing.
- To provide knowledge on Visual Merchandise Management.
- To familiarise the students with the Retail shoppers' behaviour**.**

UNIT I

An overview of Global Retailing – Challenges and opportunities – Retail trends in India – Socio economic and technological Influences on retail management – Government of India policy implications on retails.

UNIT II

Organized and unorganized formats – Different organized retail formats – Characteristics of each format – Emerging trends in retail formats – MNC's role in organized retail formats.

UNIT III

Choice of retail locations - internal and external atmospherics – Positioning of retail shops – Building retail store Image - Retail service quality management – Retail Supply Chain Management – Retail Pricing Decisions. Merchandising and category management – buying.

UNIT IV

Visual Merchandise Management – Space Management – Retail Inventory Management – Retail accounting and audits - Retail store brands – Retail advertising and promotions – Retail Management Information Systems - Online retail – Emerging trends .

UNIT V

Understanding of Retail shopper behavior – Shopper Profile Analysis – Shopping Decision Process - Factors influencing retail shopper behavior – Complaints Management - Retail sales force Management – Challenges in Retailing in India.

TEXT BOOKS:
Recent editions of the following books only are recommended

1**.** A.Sivakumar, Retail Marketing, Excel Books, Edition-1, 2007.
2.David Gilbert, Retail Marketing Management, Pearsons Education, Edition-2006.

REFERENCE BOOKS:

1**.** Dr.L.Natarajan, Retail Marketing, Margham Publications, Edition-1,2013.
2.S.Banumathi, Retail Marketing, Himalaya Publishing House, Edition-2015.
3.B.B.Mishra, Retail Marketing, Vrinda Publication, Edition-2010

EXTRA CREDIT COURSE

EXPORT AND IMPORT PROCEDURES

Course Code: 2019ECC034 **No.of Credits: 2**

Course Objective:

- To enable the students to understand about export and import procedures
- To provide adequate knowledge on export and import documentation.
- To impact knowledge on export and import procedures.

UNIT I

Introduction to Export Management : Meaning – objectives – scope – Need for and importance of export trade – Distinction between internal trade and international trade – Problems faced by exporters.

UNIT II

Features and Functions of export marketing – Sources of market information – Product planning – Quality control – Export pricing – Export marketing channels – Strategy formulation.

UNIT III

Steps involved in export – Confirmation of order – Production of goods – Shipment – Negotiation – Documents used for export – Commercial documents
– Regulatory documents – ISO Certificate.

UNIT IV

Import Trade law in India – Preliminaries for star ting Import Business – Registration of Importers – arranging finance for Import – Arranging letter of Credit for Imports – Balance of Payments – Liberalization of Imports.

UNIT V

Retirement of Import Documents and RBI's directives for making payment for Imports – Customs clearance of Imported Goods and payments of customs Duty – Imports under special schemes.

TEXT BOOKS:

Recent editions of the following books only are recommended

1.Subramanian Balagopal.T.A.S", Export Marketing",Himalaya Publication House,Mumbai,Edition 1,2010.
2.Francis Cherunilam,"International Trade & Export Management",Himalaya Publication House,Mumbai,Edition 1,2012.

REFERENCES BOOKS :

1.Veera Reddy.P,"Import made Easy",Commercial Law Publication,New Delhi",Edition 5,2001.
2.Mahajan.M.I,"Export Policy Procedure & Documentation",Snow White Publication,Mumbai,Edition 24,2011.
3.A Nabhi : "How to Import 2005-2006",A Nabhi Publications, 1st Edition 2006.

EXTRA CREDIT COURSE

LOGISTICS AND SUPPLYCHAIN MANAGEMENT

Course Code : 2019ECC035 **No. of Credits: 2**

Course Objective: The objective of the subject is to explore

- The interlinking between Logistics and supply chain management.
- The course seeks to provide the key concepts and solution in the design, operation, control and management of supply chain as integrated systems.
- The impact of supply chain in gaining competitive advantage.

UNIT I

Introduction to logistics – Business logistics – marketing logistics – objectives –importance – logistics and customer services – physical supply and distribution –elements and evolution of purchasing and integrated logistics – Integrated logistical activities – strategic integrated logistics management.

UNIT II

Transportation – types – transportation decision making service selection – sea transport, Air, Courier, road and pipe lines – infrastructure – vehicle routing and scheduling – MTO / Intermodal transportation – regulation.

UNIT III

Warehousing – concepts & development – types – operations location analysis –storage – need – functionality and principles – materials handling considerations – packaging – perspectives – purposes – functions – design and costs –Traffic inventory management models – pull and push methods – EOQ – assumptions –policies and control – methods of improved inventory management.

UNIT IV

Logistics information system – system design – Information functionality and principles of information architecture – application of new information technology – EDI standards.

UNIT V

Future management of logistics – logistics and outsourcing – Benefits – third party logistics – value added services – reverse logistics.

TEXT BOOKS:

Recent editions of the following books only are recommended

1.Donald J. Bowersox & David J. Closs, Supply Chain Logistics Management, McGraw Hill Education , 3rd Edition 2016.

REFERENCE BOOKS:

1.Raghuram, Logistics And Supply Chain Management: Cases and Concepts, Laxmi Publications, Edition 2015.
2.Janat Shah, Supply Chain Management, Pearson Education, 1st Edition 2009
3.Ballou, Business Logistics/Supply Chain Management, Pearson Education India, 5th Edition 2007
4. Chopra & Kalra, Supply Chain Management, Pearson Education India; 6th Edition 2016.

EXTRA CREDIT COURSE

QUALITY MANAGEMENT

Course Code : 2019ECC036 **No. of Credits: 2**

Course Objective: On successful completion of the course the students should have understood

- To introduce the fundamental concepts of total quality management, statistical process control, six sigma and the application of these concepts
- To provide a basic understanding of "widely-used" quality analysis tools and techniques.

UNIT I

Definitions – TOM framework, benefits, awareness and obstacles. Quality – vision, mission and policy statements. Customer Focus – customer perception of quality, Translating needs into requirements, customer retention. Dimensions of product and service quality. Cost of quality.

UNIT II

Overview of the contributions of Deming, Juran Crosby, Masaaki Imai, Feigenbaum, Ishikawa, Taguchi techniques – introduction, loss function, parameter and tolerance design, signal to noise ratio. Concepts of Quality circle, Japanese 5S principles and 8D methodology.

UNIT III

Meaning and significance of statistical process control (SPC) – construction of control charts for variables and attributed. Process capability – meaning, significance and measurement – Six sigma concepts of process capability. Reliability concepts – definitions, reliability in series and parallel, product life characteristics curve. Total productive maintenance (TMP) – relevance to TQM, Terotechnology. Business process re-engineering (BPR) – principles, applications, reengineering process, benefits and limitations.

UNIT IV

Quality functions development (QFD) – Benefits, Voice of customer, information organization, House of quality (HOQ), building a HOQ, QFD process. Failure mode effect analysis (FMEA) – requirements of reliability, failure rate, FMEA stages, design, process and documentation. Seven old (statistical) tools. Seven new management tools. Bench marking and POKA YOKE.

UNIT V

Introduction to IS/ISO 9004:2000 – quality management systems – guidelines for performance improvements. Quality Audits. TQM culture, Leadership – quality council, employee involvement, motivation, empowerment, recognition and reward.

TEXT BOOK:

Recent editions of the following books only are recommended

1.R. Janakiraman and R,K Gopal, Total Quality Management, PHI Learning, 1st Edition 2009.

REFERENCE BOOKS:

1. Howard S.Taylor and Francis, Quality Management Systems, New century Publications, Edition 2000
2. L.Suganthi Anand Samuel, Total Quality Management,PHI learing, 1st Edition 2009,
3.Joseph M.Juran, Quality Handbook, Mc Grawhill,6th Edition .
4.Bell Desmond Heivemann, Managing Quality,Butterworth Publications, Edition 1994.

EXTRA CREDIT COURSE

MANAGEMENT OF SMALL AND NEW ENTERPRISES

Course Code : 2019ECC037 **No. of Credits: 2**

Course Objective: On successful completion of the course the students should have understood

- Identification, organization and building of new enterprise
- To prepare, analyze and execute business plan
- The logical decision making in business

UNIT I

Entrepreneurship: Small Scale Introduction Institutional- Small scale Enterprises – Infrastructure-Entrepreneurial Competencies for Small Scale Enterprises -Institutional Interface

UNIT II

Establishing small scale enterprises -opportunities scanning—choice of enterprise - market assessment for sse - choice of technology and selection of site

UNIT III

Small scale enterprises — getting organized- financing the new/small enterprise - preparation of the business plan - ownership structure and organization framework

UNIT IV

Operating the small scale enterprise - financial management issues in SSE -operations management issues in SSE- Marketing management issues in SSE - organizational relations in SSE

UNIT V

Performance appraisal and growth strategies - management performance lessons growth and Assessment and control from stabilization - strategies for stabilization and successful strategies Growth entrepreneurs of small - managing family enterprises

TEXT BOOK:

Recent editions of the following books only are recommended

1.Prof.Nirali Pandt, Management of new and small Enterprise, Dotcom Publications, 5th Edition,2016.

REFERENCE BOOKS:

1.C.S.Prasad, Small and Mdium Enterprise in global Perspective, New Century Publications, I Edition, 2009
2.Taxmann, Small and Medium Enterprises in India, Tax mann Publication, Edition 2013.
3.Karen Patten Ayman, Information Technology for small business, Sprnger publications, Edition 2012.
4.Sarika Lohana, Medium,Micro and Small Enterprises, New century Publications, 1st Edition 2014.

EXTRA CREDIT COURSE

TOURISM MANAGEMENT

CourseCode : 2019ECC038 **No. of Credits: 2**

Course Objective: On successful completion of the course the students should have understood

- The handling of human resource in the context of complex work situations of the tourism industry.
- The complexities of marketing the tourism product
- The challenges and rewards of Tourism industry

UNIT I

History of Tourism both International and National, Definition, nature, importance, components and typology of tourism.

UNIT II

Concepts of domestic and international tourism, recent trends. Organization of both national and international in world in promotion and development – WTO, IATA, UPTAA, AI, IATO, etc.

UNIT III

Growth and development of tourism in India, National Action Plan 1992.

UNIT IV

Impacts of tourism-economics, social, physical and environmental, Tourism trends world over and its futuristic study.

UNIT V

Emerging trends in tourism—health tourism, adventure tourism, ecotourism .

TEXT BOOKS:

Recent editions of the following books only are recommended

1. Rajan chauhan, Tourism Management, APH Publishing Corporation- Edition-2012.

REFERENCE BOOKS:

1.David Weaver Laura Lawton, Tourism Management, Jhon Wiley & Sons Inc., Edition-2, 2006.
2. Ratandeep Singh, Tourism and Transport Management, Kanishka Publishiners, Edition-1, 2008.
3.Atul Shrivastava, Tourism Planning & Management, Anmol Publications Pvt., Ltd., Edition-2010.
4. Vandhana Joshi, Achana Biwal, Tourism Operations & `Management, Oxford University Press, Edition-1, 2009.

EXTRA CREDIT COURSE

EVENT MANAGEMENT

Course Code: 2019ECC039 **No. of Credits: 2**

Course Objective: On successful completion of the course the students should have understood Organization and management of events

- The management of accounting and financial aspects in organizing an event
- Planning the logistics and coordinating the technical aspects

UNIT I

Why Event Management, Requirement of Event Manager, Analyzing the events, Scope of the Event, Decision-makers, Technical Staff, Developing Record-Keeping Systems, Establishing Policies & Procedures

UNIT II

Preparing a Planning Schedule, Organizing Tasks, Assigning Responsibility, and Communicating, Using the Schedule Properly, The Budget, Overall Planning tips, Checklists, Expert Resources, Computer Software Required.

UNIT III

Who are the people on the Event, Locating People, Clarifying Roles, Developing content Guidelines, Participant Tips, Reference Checks, Requirement Forms, Introduction, Fees & Honorariums, Expense Reimbursement, Travel Arrangements, Worksheets.

UNIT IV

Types of Events, Roles & Responsibilities of Event Management in Different Events, Scope of the Work, Approach towards Events

UNIT V

Introduction to PR – Concept, Nature, Importance, Steps, Limitations, Objectives Media – Types of Media, Media relations, Media Management PR strategy and planning – identifying right PR strategy, Brain Storming sessions, Event organization, writing for PR

TEXT BOOKS:

Recent editions of the following books only are recommended

1.Sita Ram Singh , Event Management, Aph Publishing Corporation , Edition 2009.

REFERENCE BOOKS:

1.Wagen, Event Management, Pearson, 1st edition 2005.
2.C.P. Harichandan, Event Management, Global Vision Publishing House, 1st edition 2010.
3.Tony Rogers, A Global Industry (Events Management), S.Chand (G/L) & Company Ltd, 3rd Edition 2013.
4. D. G. Conway, The Event Manager's Bible: The Complete Guide to Planning and Organising a Voluntary or Public Event, Viva Books 1st Edition 2010.

EXTRA CREDIT COURSE

HOSPITALITY MANAGEMENT

CourseCode: 2019ECC040 **No. of Credits: 2**

Course Objective : On successful completion of the course the students should have understood

- To plan and execute hospitality events in coordination with back-of-the-house managers
- To Design and evaluate a hospitality operations plan, employing control systems and technologies, with guest preferences
- To Supervise and coordinate personnel, demonstrating clear communication and cultural sensitivity
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UNIT I

The World of Hospitality: Introduction to Hotel, Travel and tourism Industry - Nature of Hospitality: Communication, Turnover, Demands and Rewards - Economic and Other Impacts of Hotel, Tourism, and Travel Industry - Early History of Lodging - Globalization of the Lodging Industry - Franchising

UNIT II

The Organization and Structure of Lodging Operations : Size and Scope of the Industry - Classifications of Hotels - Hotel Market Segments - Organization of Hotels - Food Service Industry : Composition and Size of Food Service Industry - Organization of Hotel and Restaurant Food Service - Management and Operation of Food Services

UNIT III

The Rooms Division: The Front Office Department - The Reservation Department - The Telecommunications Department - The Uniformed Service Department

UNIT IV

Functional areas: Engineering and Maintenance Division - Marketing and Sales Division - Accounting Division - Human Resources Division - Security Division

UNIT V

Hospitality Marketing: Distinctive characteristics - Seven Ps of Marketing – Segmentation., Targeting and Positioning - Future trends in Hospitality Industry: Usage of CRS in Hotel Industry, Chain of hotels- Role of Associations in hospitality management

TEXT BOOKS:

Recent editions of the following books only are recommended

1.Jhon R.Walker, Introduction to Hospitality Management, Pearson India, Edition-2, 2008.

REFERENCE BOOKS:

1.Teason.D, Principles of Management for Hospitality Industry, Routledge, Edition 2009.
2. Dr.Saurabh Dixit, Tourism & Hospitality Management, APH Publishing Corporation, Edition-2013.
3. Gajanan Shirke, Hospitality Management, Shorff Publishers, Edition-2011.
4. Aadesh Sinha, Hospitality Operation Management, Centrum Press, Edition-2012

EXTRA CREDIT COURSE

CONSUMER BEHAVIOUR

Course Code : 2019ECC041 **No. of Credits: 2**

Course Objective: On successful completion of the course the students should have understood

- Consumer motivation and perception
- Learning and attitude
- Consumer decision making

UNIT-I

Introduction - Consumer Behaviour — definition - scope of consumer behaviour — Discipline of consumer behaviour — Customer Value Satisfaction — Retention — Marketing ethics.

UNIT –II

Consumer research — Paradigms — The process of consumer research - consumer motivation — dynamics — types — measurement of motives — consumer perception

UNIT – III

Consumer Learning — Behavioural learning theories — Measures of consumer learning — Consumer attitude — formation — Strategies for attitude change

UNIT – IV

Social class Consumer Behaviour — Life style Profiles of consumer classes — Cross Cultural Customers Behaviour Strategies.

UNIT-V

Consumer Decision Making — Opinion Leadership — Dynamics — Types of consumer decision making — A Model of Consumer Decision Making

TEXT BOOKS:

Recent editions of the following books only are recommended

1. Leon G. Schiffman, Joseph Wisenblit, Consumer Behaviour, Pearson publication, 11th Edition, 2015.

REFERENCE BOOKS:

1. Sathis K Batra, Shhkazmi, Consumer Behaviour, Excel publication, 2nd Edition, 2008.
2. Suja R.Nair, Consumer Behaviour, Himalaya publication, 1st Edition, 2016.
3. Majumdar, Ramanuj, Consumer Behaviour, Prentice Hall India Learning Pvt Ltd, 7th Edition, 2009.
4. Rajneesh Krishna, Consumer Behaviour, Oxford University Press,1st Edition, 2014.

EXTRA CREDIT COURSE

HUMAN RESOURCE MANAGEMENT

Course Code : 2019ECC042 **No. of Credits: 2**

Course 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:

Recent editions of the following books only are recommended

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

CourseCode: 2019ECC043 **No. of Credits: 2**

Course 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

CONSUMER MARKETING

Coursecode: 2019ECC044 **No. of Credits: 2**

Course 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 Loyality- Brand Extention- Conditioning Theories- Cognitive Learning Theory- Attitude and Attitribute theory- Cognitive Dissonance- Self Concept- Development of Self- Fashion – Cosmetics- and Conspicious Consumption

UNIT IV

Perception- Thershold of perception- Sublinieal 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:

Recent editions of the following books only are recommended

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

MARKETING OF HEALTH SERVICES

CourseCode: 2019ECC045 **No. of Credits: 2**

Course Objectives:

- To enable the students understand about health services.
- To make the students aware of different marketing mix in health industry.
- To confer knowledge about online health services .

UNIT – I

Marketing plans for services: process, strategy formulation, resource allocation and monitoring services communications- customer focused services- service quality- SERV QUAL model

UNIT – II

Hospital services- Selecting Health Care Professionals- Emerging trends in Medicare- Marketing Medicare – Thrust areas for Medicare services.

UNIT – III

Marketing Mix for Hospitals- Product Mix- Promotion Mix- Price Mix- Place Mix- Strategic Marketing for Hospitals.

UNIT – IV

Online Health Services- Organization of Online Health Care Business- On-line Marketing and On-line financial & clinical transaction.

UNIT – V

Legal system: Consumer Rights & Protection, medicine safety rules- Food & Nutrition Security in India - Health Promotion Agencies

Note: Question paper shall cover 100% Theory

REFERENCE BOOKS:

1. Richard K. Thomas, Health Services Marketing, A Practitioner's Guide, Edition-2, 2008.

2. Zeithaml, Services Marketing, Mcgraw Hill Education, Edition-6, 2013.

3. Lovelock, Services Marketing, Pearson India, Edition-7, 2011.

4. Er.I.C. N.Berkowitz, Essentials of Health care Marketing , Jones & Bartlett Learning, Edition-3, 2010.

EXTRA CREDIT COURSE

INTERNATIONAL BANKING

Course Code: 2019ECC046 **No. of Credits: 2**

Course Objectives:

- The course aims to provide the students with a sound grasp of the practices of modern international banking the central themes and issues will be examined in an international and comparative context.

UNIT-I

Global trends and development in international banking – Outline of international banking and finance. Wholesale banking – Retail banking – Private banking – Interbank business – Regulatory framework – BASEL-II.

UNIT-II

International financial centers – Offshore banking units – Special Economic Zones – Foreign exchange management control – International loan agreements – International debt management.

UNIT-III

Asset liability management – Profitability of international banking operations – Investment banking – Correspondent banking – Bank Regulation: Regulation and prudential supervision of banks in the UK and EU. International regulatory and supervisory convergence. Regulating the multifunctional bank.

UNIT-IV

International financial institutions – IMF, IBRD, BIS, IFC, ADB, WTO – international competitiveness – implications and effectiveness and country risk.

UNIT-V

Treasury and risk management – bank risk management – letters of credit mechanism – buyers and sellers credit – bilateral and counter trade.

TEXT BOOKS:

Recent editions of the following books only are recommended

1.Indian Institute of Banking and Finance, International Banking, Macmillan, Edition-2011.

REFERENCE BOOKS:

1.Ruonarayan Bose, Fundamentals of International Banking, Laxmi Publications, Edition-2014.
2.Indaian Institute of Banking and Finance, International Banking Operations, Macmillan, Edition-2017.
3.Yoon S. Park, International Banking and Financial Centers, Springer Publications, Edition-2011.
4.Emmanuel N Roussakis, International Banking, Greenwood Press, Edition-1983.

EXTRA CREDIT COURSE

E-COMMERCE

Course Code: 2019ECC047 **No. of Credits: 2**

Course 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.
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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:

Recent editions of the following books only are recommended

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

INTERNATIONAL ACCOUNTING

CourseCode: 2019ECC048 **No. of Credits: 2**

Course Objective: To make the students understand

- the concept and nuances of international accounting standards and practices for international business firms
- the importance of financial reporting in international environment.

UNIT-I

Objective of International Financial Reporting – Concept International Accounting Practices, introduction to inter corporate investments – inter company transaction – Global Joint Venture Accounting, Foreign Currency Translation accounting

UNIT-II

Financial instruments – Presentation and disclosure – Convertible securities – recognition and measurement of financial instruments –comprehensive income – settlement Date Vs Trade Date Accounting.

UNIT-III

Inter corporate investment – Temporary and Portfolio investments –Business combination and reporting methods – consolidation procedures –Financial statements disclosure.

UNIT-IV

Global mergers & acquisitions accounting – consolidating wholly, non wholly owned subsidiary under equity and cost recording – Inter company revenue, expenses & inter company profile profit & expenses.

UNIT-V

Financial reporting in an international environment – Integrated Vs Self Sustaining foreign subsidiary – GAAP for public sector organizations.

TEXT BOOKS:

Recent editions of the following books only are recommended

1. A. K. Das Mohapatra,International Accounting,Prentice Hall India Learning Private Limited , Edition 2, 2012.

REFERENCE BOOKS:

1. Med ,Accounting and Finance for Bankers,Macmillan Education Edition 3, 2012.
2. Timothy Doupnik,International Accounting,McGraw-Hill Higher Education; Edition 3, 2011
3. Frederick D.S. Choi,International Accounting,Pearson Education; Edition 5, 2007
4. Shirin Rathore ,International Accounting,PHI, Edition 2,2011.

EXTRA CREDIT COURSE

CORPORATE SOCIAL RESPONSIBILITY AND GOVERNANCE

Course Code: 2019ECC049 **No. of Credits: 2**

Course Objectives:

- To make the students to understand the concepts of corporate governance
- To gain knowledge on legislative framework of corporate governance and Corporate Social Responsibility and good corporate citizenship.
- To understand the Business Ethics and Genesis**.**

UNIT-I:

Evolution -Concept-Principles and development-Management structure for corporate governance-Board structure-Stake holder's relationship committee-Appraisal of Board performance-Transparency and disclosure.

UNIT-II:

Legislative framework of corporate governance:UK,USA,India-Corporate communication-Art and Craft of investors relation-Shareholders activism-Investor protection-changing role of Institutional Investors

UNIT-III:

Corporate social responsibility and good corporate citizenship:Various governance forums-Common Wealth Association for Corporate Governance-Organization for Economic Cooperation Development (OECD)-International Corporate Governance Network (ICGN)-National Foundation for Corporate Governance(NFCG)

UNIT-IV:

Business Ethics-Business dilemma versus decision-Dilemma resolution process-Business ethics as a strategic management tool-stakeholders protection-corporate leadership

UNIT-V:

Genesis-Meaning-Nature-Objectives-Scope of Corporate Sustainability.Legal framework -conventions and treaties on environmental- Health and safety-Social security issues.

TEXT BOOKS:

1. Corporate Governance in India : An Evaluation by Das,Subash Chandra.
2. Baxi CV-Corporate Social Responsibility And Governance – Excel books 2006.

EXTRA CREDIT COURSE

ENTERPRISE RESOURCE PLANNING

Course Code: 2019ECC050 **No.of Credits: 2**

Course Objectives:

- To enable the students undrstand about the different organizational processes and work flows in ERP.
- To bestow knowledge on ERP services and Business Process Re-engineering .
- To give knowledge on ERP project and its implementation.

UNIT 1

ERP: Introduction : Define – Functional Module in ERP System – Evolution of ERP Systems - Characteritics of ERP – Process Intergration With ERP Systems. Benefits of ERP Applications – Technology Behind ERP Systems. **ERP Market and Vendors:** ERP Market – ERP Vendors – Service Oriented Architecture - ERP Package features.

UNIT II

Extended ERP Services: Defining Extended ERP – SCM and ERP – ERP and BI – ERP and E-Commerce. **Business Process Re-engineering And ERP:** Defining Business Process Reengineering- Enterprise redesign principles – Business process reengineering - BPR and Change Management – Different Approaches BPR Implementaion – Methodology for BPR Implementaion – Role of IT in BPR – BPR and EPR Systems – BPR sucess / failure factors.

UNIT III

Planning for ERP – Planning for ERP Implementaion – Understanding Organizational Requirements. - Understanding Economic and Strategies Justification – Analysing Project Scope – Determing Resources – Creating Budget for ERP Implementaion – Selecting the Right ERP Package- Preparing Organizations for ERP Implementaion. **Implementation of ERP:** Designing for ERP systems – ERP implementaion approaches – ERP implementaion Life cycle.

UNIT IV

Managing ERP Projects: Risk Failure factors in ERP Implementaion – Examples of ERP Failure- Mitigating implementaion risks – Management and complexity of Large scale ERP Projects- Training users to use ERP Systems. - Evaluating ERP Projets.

UNIT V

ERP Going live and post implementaion: Preparing to go live – Strategies for migration – to new ERP systems – Go live performance surprises – Managing ERP after go live – Maintenance of ERP Systems. **Expanding ERP Boudaries:** Service oriented architecture – Enterprises application integration – Application Services provider – Model for ERP implementaion.

TEXT BOOKS:

Recent editions of the following books only are recommended

1. Ashim raj singla – Enterprise Resource Planning – Cengage Learning india Pvt . Ltd 2008