Vision, Mission and Quality Policy of the College

Vision

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

Mission

- To strive for excellence in academics.
- To inculcate a positive attitude and to develop skill in students, to meet the challenges of the competitive world.
- To develop self-confidence through adequate interaction and relevant exposure.
- To promote ethical and social values in the students.
- 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."

Mission and Vision of the Department

VISION:

We envisage that our students have thorough knowledge in the field of their study by equipping them with sound theoretical base supplemented by practical orientation and thereby facilitating the research environment. We also inbibe in them the values of life for making them good citizens to serve the society for its upliftment..

MISSION

- To produce best quality professionals and researches in computer science professionals and researchers by providing adequate training to develop the skill set and creating a condusive research environment.
- To provide adequate knowledge through structured curriculum designed with the inputs of Industry, Alumni, Subject Experts and students.
- To train the students to develop their inner qualities to fine tune their personal conduct and to develop their problem solving skills with professionalism.
- To educate students to be successful, ethical, and effective solvers of their personal problems and life long learners who will contribute positively to the economic well-being of our region and nation.

Graduates Attributes

1. Communication

2. Domain knowledge

3. Technical skills

4. Knowledge inter-disciplinary in nature

5. Positive attitude

6. Critical thinking and problem solving skills

7. Dynamism and team building skills

8. Professional ethics and social values

9. Self-awareness and emotional intelligence

10. Entrepreneurship qualities

11. Responsibility towards society and environment

12. Thirst for knowledge through lifelong learning

Program Educational Objectives

PEO1: Core Competency: Graduate will solve real world problems appropriate to the discipline using strong foundation provided in Computer Science

PEO2: Breadth: Graduate will apply current industry accepted practices, new and emerging technologies to analyze, design, implement, and maintain state-of-art solutions.

PEO3: Learning Environment: Exhibit self- learning capabilities to assimilate and practice emerging theories and technologies.

PEO4: Professionalism: Graduates will pursue higher education and/or engage themselves in continuous professional development to meet global standards adapt to the changing environment due to automation.

PEO5: Preparation: Be successfully employed or accepted into a graduate program / higher studies, and demonstrate a pursuit of lifelong learning in advanced areas of computer science and related fields.

PEO6: Leadership : Graduates will work as a team in diverse fields and gradually move into leadership positions.

PO(PROGRAM OUTCOMES)

1. **Communication:** Demonstrate english language proficiency to an approriate level to perform effectively in the enterprise/industry/Community such as being able to comprehend and write effective reports and design documentation, make effective presentations and give and receive clear instructions.

2. **Domain knowledge:** Develop doamin knowledege relevant to the industry enabling to succeed in rapidly changing working environment.

3. **Technical skills:** Ability to apply the knowledge of computer system design principles in building system software and hardware.

4. **Knowledge inter-disciplinary in nature:** Acquiring adequate knowledge in interdisciplinary subjects much as Commerce,Mathematics and Statistics for enhanced applications of softwares developed.

5. **Positive attitude:** Developing positive attitude by instilling confidence with minds of students by suitable programs.

6. **Critical thinking and problem solving skills:** An abilility to make the students think out of the box and slove complex problems arrising in step floor situation.

7. **Dynamism and team building skills:** An ability to function effectively and proactively and in teams ,to accomplish a common goal.

8. **Professional ethics and social values:** Ability to carry out any task with professional ethics and with out deviating from social values

9. **Self-awareness and emotional intelligence:** An ability to recognize their own Strength and weekness and balance their own emotions at the time of crisis.

10. **Entrepreneurship qualities:** An ability to acquire entrepreneurship qualities and to take efforts to became entreprenurs.

11. **Responsibility towards society and environment:** Realizing the responsibilities towards the society and to protect the environment,use ours professional knowledge for providing better lining condition to the people.

12. **Thirst for knowledge through lifelong learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

MAPPING OF GRADUATE ATTRIBUTES WITH PROGRAMME OUTCOMES

S.No	Graduates Attributes	Program Outcomes
1	Communication	Demonstrate english language proficiency to an approriate level to perform effectively in the enterprise/industry/Community such as being able to comprehend and write effective reports and design documentation, make effective presentations and give and receive clear instructions.
2	Domain knowledge	Develop doamin knowledege relevant to the industry enabling to succeed in rapidly changing working environment.
3	Technical skills	Ability to apply the knowledge of computer system design principles in building system software and hardware.
4	Knowledge inter-disciplinary in nature	Acquiring adequate knowledge in interdisciplinary subjects much as Commerce,Mathematics and Statistics for enhanced applications of softwares developed.
5	Positive attitude	Developing positive attitude by instilling confidence with minds of students by suitable programs.

6	Critical thinking and problem solving skills	An abilility to make the students think out of the box and slove complex problems arrising in step floor situation.
7	Dynamism and team building skills	An ability to function effectively and proactively and in teams ,to accomplish a common goal.
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11	Responsibility towards society and environment	Realizing the responsibilities towards the society and to protect the environment,use ours professional knowledge for providing better lining condition to the people.
12	Thirst for knowledge through lifelong learning	Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

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 2018- 2019)

1. REGULATIONS

This regulation is effective from the academic year 2018 -'19.

1.1. Eligibility for Admission

Course	Eligibility Condition
B.Sc (CS)	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

1. 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.

2. 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.

3. 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 .

4. 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%.

5. 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

- 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.

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

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

1.6 The Evaluation System

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

1.6.1. Break Up of Continuous Internal Assessment (CIA) Marks

Theory (Languages, English, Core, Allied and Elective)

Content	Marks Awarded
Continues Internal Assessment Test - I	05
Continues 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
Continues Internal Assessment Test - I	25*
Continues Internal Assessment Test - II	
Internal Assessment Test III	25
Total	**50**

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

Internal Evaluation only

Practical

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

Project Viva Voce

Content	Marks Awarded

Review and content Presentation (3 Reviews)(3*20)	60
Project Record Work	20
Total	**80**

1.6.2. End Assessment Examinations (EAE)

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

- The exams 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)
- Question Paper Pattern: **(Value Based Education & Non Major Elective)**

Part A	50 Marks	Questions - either or type of question - 10 Marks each

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**	

- The marks secured in the extra credit course will get reflected in the mark sheet only if the candidate has secured 40% marks and above.
- The students will be allowed to choose only two papers per semester under the extra credit courses from third semester onwards.

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**

Project Viva Voce

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

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

The students who have opted for the languages other then 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.

For all the Non-Credit Courses result would be indicate as “Pass” or “Re-appearance” and not by marks or grades secured in the Grade Sheet.

There will be one independent valuation for all theory papers under parts I, II, III by External Examiner.

A candidate may request for re-totalling/revaluation of his/her answer script by submitting an application addressing to the Controller of Examination through the Principal, paying the

prescribed fee. This provision is available for all theory papers taken in the EAE. However there is no provision for revaluation of Practical papers.

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.

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] = $\sum_i C_i G_i / \sum_i C_i$

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

For the Entire Programme:

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

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

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

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 (Computer Science) (2018-2021)

Part	Sub Code	Study Components	Ins.Hrs/week	CIA	Uni.Exam	Total	Credits
		Semester -I					
I	18U1TALT01	Language 1: Paper I	5	25	75	100	3
II	18U1ENLT01	Language 2 : Functional English I	5	25	75	100	3
III	18U1CSCT01	**Core 1:** C Programming	5	25	75	100	4
	18U1CSCT02	**Core 2:** Digital Fundamentals and Architecture	5	25	75	100	4
	18U1CSCP03	**Core 3:C** Programming – Practical	4	40	60	100	3
	18U1CSAT01	**Allied 1:** Numerical Methods and Statistics	5	25	75	100	4
IV	18U1VBET01	**Value Based Education 1:** Environmental Studies	2	-	50	50	2
	18U1SBST01	**Skill Based Subject 1:** Mathematics for Competitive Examinations - I	2	50	-	50	2
		Sports	2	-	-	-	-
		Library Work	1	-	-	-	-
					Total Credits		**25**
		Semester : II					
I	18U2TALT02	Language 1 : Paper II	5	25	75	100	3
II	18U2ENLT02	Language 2 : Functional English II	5	25	75	100	3
III	18U2CSCT04	**Core 4:** C++ Programming	5	25	75	100	4
	18U2CSCT05	**Core 5:** Data Structures	5	25	75	100	4
	18U2CSCP06	**Core 6:** C++ Programming – Practical	4	40	60	100	3
	18U2CSAT02	**Allied 2:** Discrete Mathematics	5	25	75	100	4
IV	18U2VBET02	**Value Based Education 2:** Ethics and Culture	2	-	50	50	2
	18U2SBST02	**Skill Based Subject 2:** Mathematics for Competitive Examinations – II	2	50	-	50	2
		Sports	2	-	-	-	-
		Library Work	1	-	-	-	-
					Total Credits		**25**

		Semester : III					
I	18U3CSCT07	**Core 7:** Operating Systems	5	25	75	100	4
	18U3CSCT08	**Core 8:** Java Programming	6	25	75	100	4
	18U3CSCT09	**Core 9:** Data Communications and Networks	5	25	75	100	4
	18U3CSCP10	**Core 10:** Java Programming - Practical	6	40	60	100	3
	18U3CSAT03	**Allied 3:** Operations Research	5	25	75	100	4
IV	18U3NMET01	**Non Major Elective 1:** Food Science and Nutrition	2	-	50	50	2
	18U3SBST03	**Skill Based Subject 3:** Mathematics for Competitive Examinations - III	2	50	-	50	2
	18U3BTLT01	No Credit course1: Basic Tamil–1#	-	-	-	-	-
	18U3SBST04	**Skill Based Subject 4:** Communication Skills - I	2	50	-	50	2
		Sports	2	-	-	-	-
		Library Work	1	-	-	-	-
					Total Credits		**25**
		Semester: IV					
III	18U4CSCT11	**Core 11:** Web Designing	5	25	75	100	4
	18U4CSCT12	**Core 12:** Cyber Law and Security Policies	6	25	75	100	4
	18U4CSCT13	**Core 13:** Software Engineering	5	25	75	100	3
	18U4CSCP14	**Core 14:** Web Designing - Practical	6	40	60	100	3
	18U4CSAT04	**Allied 4:** Business Accounting	5	25	75	100	4
IV	18U4NMET02	**Non Major Elective 2:** Floriculture	2	-	50	50	2
	18U4SBST05	**Skill Based Subject 5:** Mathematics for Competitive Examinations - IV	2	50	-	50	2
	18U4SBST06	**Skill Based Subject 6:** Communication Skills - II	2	50	-	50	2
	18U3BTLT02	No Credit course1: Basic Tamil–2#	-	-	-	-	-
		Sports	2	-	-	-	-
		Library Work	1	-	-	-	-
						Total Credits	**24**

Semester: V							
III	18U5CSCT15	**Core 15:** ASP .NET and C#	5	25	75	100	4
	18U5CSCT16	**Core 16:** PHP & MYSQL	5	25	75	100	4
	18U5CSCP17	**Core 17:** ASP .NET and C# - Practical	6	40	60	100	4
	18U5CSCP18	**Core 18:** PHP & MY SQL - Practical	6	20	30	50	3
		Elective 1:	4	25	75	100	3
		Elective 2:	4	25	75	100	3
IV	18U5NCCT01	**Non Credit Course 3:** Aptitude and Softskills - I	3	-	-	-	-
		Sports	2	-	-	-	-
		Library Work	1	-	-	-	-
						Total Credits	**21**
Semester: VI							
III	18U6CSCT19	**Core 19:** Graphics & Multimedia	5	25	75	100	4
	18U6CSCP20	**Core 20:** Software Testing – Practical	5	20	30	50	3
	18U6CSCP21	**Core 21:** Graphics & Multimedia - Practical	6	40	60	100	3
	18U6CSCV22	**Core 22:** Project and Viva Voce	6	80	20	100	4
		Elective 3:	4	25	75	100	3
		Elective 4:	4	25	75	100	3
IV	18U6NCCT02	**Non Credit Course 4:** Apptitude and Softskills - II	3	-	-	-	-
		Sports	2	-	-	-	-
		Library Work	1	-	-	-	-
						Total Credits	**20**
						3800	**140**

****** Answer to the question 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 and 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 assessment: 80 marks (60 Marks for 3 reviews and 20 Marks for Record) and External assessment : 20 marks (Viva Voce).

List of Electives

List of Electives		
	Sub. Code	**Subjects**
Elective 1	**18U5CSET1A**	Data Mining and warehousing
	18U5CSET1B	Mobile Computing
	18U5CSET1C	Embedded Systems
Elective 2	**18U5CSET2A**	E-Commerce
	18U5CSET2B	Client Server Technology
	18U5CSET2C	Software Project Management
Elective 3	**18U6CSET3A**	Artificial Intelligence & Expert Systems
	18U6CSET3B	Software Testing
	18U6CSET3C	Enterprise Resource Planning
Elective 4	**18U6CSET4A**	Compiler Design
	18U6CSET4B	Android Operating System
	18U6CSET4C	Cloud Computing

EXTRA CREDIT COURSES		
Course Code	**Subjects**	**Credits**
2018ECC001	Rw;Wyh tsh;r;rp	2
2018ECC002	,jopay; fiy	2
2018ECC003	ehl;Lg;Gwtpay;	2
2018ECC004	fzpg;nghwpapy; jkpo;	2
2018ECC005	jkpof tuyhWk; kf;fs; gz;ghLk;	2
2018ECC006	jkpo; ,yf;fpa tuyhW	2
2018ECC007	New Media	2
2018ECC008	Proofreading And Copyediting	2
2018ECC009	Personality Development	2
2018ECC010	Technical Writing	2
2018ECC011	An Introduction To Psychology	2
2018ECC012	Astronomy	2
2018ECC013	Fuzzy Mathematics	2
2018ECC014	Operation Research	2
2018ECC015	Mathematics For Professional Courses	2
2018ECC016	Multimedia And Its Applications	2
2018ECC017	Management Information System	2
2018ECC018	Theory Of Computation	2
2018ECC019	Oops With Java Programming	2
2018ECC020	Programming In C	2
2018ECC021	Internet Of Things	2
2018ECC022	Web Technology And Its Applications	2
2018ECC023	Network Security	2

2018ECC024	Mobile And Wireless Technology	2
2018ECC025	Cloud Computing	2
2018ECC026	Cross Culture Management	2
2018ECC027	Indian Economy And Trade Dependencies	2
2018ECC028	Export Marketing	2
2018ECC029	International Trade & Forex	2
2018ECC030	Brand Management	2
2018ECC031	Stress Management	2
2018ECC032	Risk And Insurance In International Trade	2
2018ECC033	Retail Marketing	2
2018ECC034	Export And Import Procedures	2
2018ECC035	Logistics And Supplychain Management	2
2018ECC036	Quality Management	2
2018ECC037	Management Of Small And New Enterprises	2
2018ECC038	Tourism Management	2
2018ECC039	Event Management	2
2018ECC040	Hospitality Management	2
2018ECC041	Consumer Behaviour	2
2018ECC042	Human Resource Management	2
2018ECC043	Principles And Practice Of Marketing Services	2
2018ECC044	Consumer Marketing	2
2018ECC045	Marketing Of Health Services	2
2018ECC046	International Banking	2
2018ECC047	E-Commerce	2
2018ECC048	International Accounting	2
2018ECC049	Corporate Social Responsibility And Governance	2
2018ECC050	Enterprise Resource Planning	2

CURRICULUM STRUCTURE

S.No.	Courses	No.of.Papers	Credits
1	Language 1:Tamil/Hindi/Malayalam/French	02	06
2	Language 2: English	02	06
3	Core	22	80
4	Allied	04	16
5	Elective	04	12
6	Value Based Education	02	04
7	Skill Based Subject	06	12
8	Non Major Elective	02	04
9	Non Credit Course	04	-
Total Credits			**140**

SEMESTER – I

Programme Code :	B.Sc CS	Programme Title	**Bachelor of Computer Science**	
Course Code :	18U1TALT01	Title : Language 1:Tamil - I	Batch	2018-2021
			Semester	1
Hrs/week	5		Credits	3

நோக்கம்

- சமூகம் பற்றிய சிந்தனைகளைத் தமிழ்ப் படைப்பிலக்கியங்கள் மூலம் ஏற்படுத்துதல்
- புதுக்கவிதைகள் இ சிறுகதைகள் ஆகியவற்றைப் படிக்க வைத்தல்.்.எழுத வைத்தல்
- போட்டித் தேர்வுகளுக்கு மாணவர்களைத் தயார் செய்தல்;

Course Outcome (CO)

CO Number	CO Statement
CO1	தமிழ் மொழியின் வாயிலாக பண்பாடு, பகுத்தறிவு, கலை மற்றும் மரபு முதலியவற்றை அறிந்து வாழ்க்கையில் பயனடைதல்.
CO2	வாழ்வியல் நெறிமுறைகளை உணர்ந்து மனிதநேயத்துடனும் உயர்ந்த குறிக்கோளுடனும் சமுதாயத்தில் மதிக்கத்தக்கவர்களாக இருத்தல்.
CO3	இலக்கியங்களின் வாயிலாக வாழ்க்கை முறைகளைத் தெரிந்து கொள்ளுதல்.
CO4	அறத்தின் வழிநின்று பொருளீட்டி இன்பம் துய்ப்பது உன்னத வாழ்வின் அடிப்படை என்பதை திருக்குறள் மூலம் மாணவர்கள் உணர்தல்.
CO5	நாட்டுப்பற்று, சமூகம், பெண்ணியம் குறித்த விழுமியங்கள் சார்ந்த கவிதைகளும், கருத்து பரிமாற்றத்திறனுக்கு அடிப்படையாக உள்ள இலக்கணப் பகுதியும், தன் சுய சிந்தனையுடன் படைப்பாக்கத்திறனை வளர்த்தெடுக்கும் வகையில் சிறுகதைப்பகுதியும் காலவோட்டத்துடன் இணைந்து மாணவர்களுக்கு சிந்திக்கும் ஆற்றலைப் பெற வழி வகை செய்தல்.

MAPPING WITH PROGRAMME OUTCOMES

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

ghlj;jpl;lk;

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

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

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

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

அலகு – 3 சிறுகதைத் தொகுப்பு (20 மணிநேரம்)

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

அலகு – 4 தமிழ் இலக்கிய வரலாறு (15 மணிநேரம்)

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

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

அலகு – 5 இலக்கணம் (12 மணிநேரம்)

1. வேர்ச்சொல் அறிதல் இ அகர வரிசைப்படி சொற்களை மாற்றியமைத்தல்.
2. செய்வினைஇ செயப்பாட்டுவினைஇ உடன்பாடுஇ எதிர்மறைஇ கலவை வாக்கியங்களும் வாக்கிய வகைகளும்.
3. பெயர் இ வினைஇ இடைஇ உரிச்சொற்கள்.
4. லகர-ளகர-ழகரஇ ணகர-னகர – வேறுபாடுகள;.

TEXT BOOKS

S. No	Author Name	Title of the Book	Publisher	Year / Edition
1	தமிழ்த்துறை	பொதுத்தமிழ் - ஐ (செய்யுள் திரட்டு , சிறுகதைத் தொகுப்பு)	கோவை கலைமகள் கலை அறிவியல் கல்லூரி	2017

REFERENCE BOOKS

S. No	Author Name	Title of the Book	Publisher	Year / Edition
1	புலவர் வெற்றியழகன்(தொ. ஆ),	பாரதியார் கவிதைகள்	ராமையா பதிப்பகம், சென்னை.	முதற் பதிப்பு: ஏப்ரல் - 2008
2	தொ.பரமசிவன்(ப.ஆ)	பாரதிதாசன் கவிதைகள்	நியூ செஞ்சுரி புக் ஹவுஸ், சென்னை.	மூன்றாம் பதிப்பு: டிசம்பர் - 1998
3	வித்துவான் சிவ கன்னியப்பன்	மலரும் மாலையும்	பூம்புகார் பதிப்பகம், சென்னை.	முதற் பதிப்பு: செப்டம்பர் - 2002
4	கவியரசு கண்ணதாசன்	இயேசு காவியம்	கலைக்காவிரி பதிப்பகம், திருச்சி.	ஐந்தாம் பதிப்பு: 1997
5	புவியரசு	ஒரு முக்கிய அறிவிப்பு	விஜயா பதிப்பகம், கோவை.	இரண்டாம் பதிப்பு: டிசம்பர் - 2005.
6	அப்துல் ரகுமான்	ஆலாபனை	நேசனல் பப்ளி'ர்ஸ், சென்னை.	நான்காம் பதிப்பு: ஏப்ரல் - 2003
7	வைரமுத்து	கவிராஜன் கதை	திருமகள் பதிப்பகம், சென்னை.	பனிரெண்டாம் பதிப்பு: செப்டம்பர் -2007
8	சிற்பி	ஒரு கிராமத்து நதி	கவிதா பதிப்பகம் சென்னை.	எட்டாம் பதிப்பு: ஆகஸ்ட்டு- 2011
9	கலாப்பிரியா	கலாப்பிரியா கவிதைகள்	தமிழினி பதிப்பகம், சென்னை.	முதற் பதிப்பு: டிசம்பர் - 2001
10	இளம்பிறை	முதல் மனுீ	தமிழ் நெஞ்சம், மயிலாடுதுரை.	முதற் பதிப்பு: டிசம்பர் - 2003
11	சுஜாதா	விஞ்ஞானச் சிறுகதைகள்	உயிர்மை பதிப்பகம், சென்னை - 18.	நான்காம் பதிப்பு: ஜுலை - 2011
12	புதுமைப்பித்தன்	புதுமைப்பித்தன் கதைகள்	பூம்புகார் பதிப்பகம், சென்னை.	இரண்டாம் பதிப்பு: ஜுலை –2006.
13	முாதவன்	ஆ.மாதவன் கதைகள்	தமிழினி பதிப்பகம்,சென்னை.	முதற்பதிப்பு: டிசம்பர்- 2001.
14	ஜெயகாந்தன்	தேவன் வருவாரா	மீனாட்சி புத்தக நிலையம், மதுரை.	நான்காம் பதிப்பு: ஜுன் - 1996
15	அசோகமித்திரன்	அப்பாவின் சிநேகிதர்	நர்மதா வெளியீடு, சென்னை.	இரண்டாம் பதிப்பு: டிசம்பர் - 1996.
16	வண்ணதாசன்	கனிவு	சந்தியா பதிப்பகம், சென்னை	இரண்டாம் பதிப்பு: ஏப்ரல் - 2011
17	நாஞ்சில் நாடன்	சூடிய பூ சூடற்க	தமிழினி பதிப்பகம், சென்னை	மூன்றாம் பதிப்பு: 2010
18	எஸ்.ராமகிரு'ணன்	எஸ்.ராமகிரு'ணன் கதைகள்	கிழக்கு பதிப்பகம், சென்னை.	இரண்டாம் பதிப்பு: ஏப்ரல் - 2005.
19	வண்ணநிலவன்	வண்ணநிலவன் சிறுகதைகள்	நற்றிணை பதிப்பகம், சென்னை.	இரண்டாம் பதிப்பு: ஆகஸ்ட்டு - 2013.
20	அம்பை	காட்டில் ஒரு மான்	காலச்சுவடு பதிப்பகம், சென்னை.	மூன்றாம் பதிப்பு: டிசம்பர் - 2003.
21	வல்லிக்கண்ணன்	புதுக்கவிதையின்	அகரம் பதிப்பகம்,,	நான்காம் பதிப்பு: ஜுலை -

		தோற்றமும் வளர்ச்சியும்	கும்பகோணம்.	1999.
22	கா.கோ.வெங்கட்ராமன்	தமிழ் இலக்கிய வரலாறு	கலையக வெளியீடு, திண்டுக்கல்.	இரண்டாம் பதிப்பு: ஜூன் - 2002.
23	மது.ச.விமலானந்தம்	தமிழ் இலக்கியவரலாறு	முல்லை நிலையம், சென்னை.	2014.
24	மு.பரமசிவம்	நற்றமிழ் இலக்கணம்	சைவசித்தாந்த பதிப்பகம், திருநெல்வேலி.	முதற் பதிப்பு: 1995.

SEMESTER-I

Programme Code :	B.Sc CS	**Programme Title**	**Bachelor of Computer Science**	
Course Code :	**18U1FRLT01**	Title : Language 1 :French I	**Batch**	2018-2021
			Semester	1
Hrs/week	5		**Credits**	3

COURSE OBJECTIVES

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

COURSE OUTCOMES (CO)

In Successful Completion of the course the students will 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 critical 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 : ALORS I

Units : 1–5

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New Delhi – 110007.
Tel : 011 – 23852986 / 9650597000

Question Paper Pattern : Semester I

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

Maximum Marks: 75 Time: 3 hrs.

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

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

SECTION C (45)

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

SEMESTER I

Programme Code :	B.Sc CS	**Programme Title**	**Bachelor of Computer Science**	
Course Code :	**18U1HILT01**	Title : Language 1: Hindi I	**Batch**	2018-2021
			Semester	1
Hrs/week	5		**Credits**	3

COURSE OBJECTIVES

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

COURSE OUTCOMES (CO)

In Successful Completion of the course the students will 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 – Bharthiya Sanskurthi
Lesson 3 - Razia
Lesson 4 – Makreal
Lesson 5- Bahtha Pani Nirmala
Lesson 6 – Rashtrapitha Mahathma Gandhi
Lesson 9 – Ninda Ras.

Publisher: Sumitra Prakashan
Sumitravas, 16/4 Hastings Road,
Allahabad – 211 001.

2. NON DETAILED TEXT: KAHANI KUNJ.

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

3. GRAMMAR : SHABDHA VICHAR ONLY

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

4. TRANSLATION: English- Hindi only.

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

5. COMPREHENSION : 1 Passage from ANUVADH ABHYAS – III (16- 30)
DAKSHIN BHARATH HINDI PRACHAR SABHA
CHENNAI- 17.

SEMESTER – I

Programme Code :	B.Sc CS	Programme Title	**Bachelor of Computer Science**	
Course Code :	**18U1MLLT01**	Title : Language I :Malayalam I	Batch	2018-2021
			Semester	1
Hrs/week	5		Credits	3

COURSE OBJECTIVES

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

COURSE OUTCOMES (CO)

In Successful Completion of the course the students will 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 - Naalukettu – M.T. Vasudevan Nair
(D. C. Books, Kottayam, Kerala)

Unit III & IV - Nalinakanthi – T.Padmanabhan
(D. C. Books, Kottayam, Kerala)

Unit V - Expansion of ideas, General Essay and Translation of a simple passage from English about 100 words) to Malayalam

Reference books:

1. Kavitha Sahithya Charitram –Dr. M. Leelavathi (Kerala Sahithya Academy, Trichur)

2. Malayala Novel Sahithya Charitram – K. M.Tharakan (N.B.S. Kottayam)

3. Malayala Nataka Sahithya Charitram – G. Sankarapillai (D.C. Books, Kottayam)

4. Cherukatha Innale Innu – M. Achuyuthan (D.C. Books, Kottayam)

5. Sahithya Charitram Prasthanangalilude - Dr. K .M. George, (Chief Editor)

(D.C. Books, Kottaya**m**

SEMESTER-I

Programme Code	B.Sc CS	Programme Title	**Bachelor of Computer Science**	
Course Code:	18U1ENLT01	Language 2 -Functional English - I	Batch	2018-2021
			Semester	I
Hrs/ Week	5 Hrs		Credits	3

COURSE OBJECTIVES

To enable the students to understand the basic English grammar.

COURSE OUTCOMES (CO)

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

CO Number	**CO Statement**
CO1	Develop an interest in the minds of the students to enjoy and appreciate the literary works in English.
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

UNIT -I-POETRY

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

UNIT- II- PROSE

1. Sweets for Angels- R.K.Narayan
2. The Post Master- Rabindranath Tagore

3. The Golden Touch- Nathaniel Hawthorne

UNIT- III- GRAMMAR AND VOCABULARY

1. Subject Verb agreement
2. Articles, Preposition
3. Words Often Confused
4. Synonyms and Antonyms
5. Homophones

UNIT-IV- VERBAL APTITUDE

1. Cloze Test
2. Phrasal Verbs
3. One Word Substitutes
4. Eponyms

UNIT- V- DIALOGUE WRITING (CONVERSATION EXERCISES)

Greeting , Introducing , Requesting, Inviting & Congratulating

TEXT BOOKS:

S. No	Author Name	Title of the Book	Publisher	Year /Edition
1	A.G.Xavier	An Anthology of Popular Essays and Poems	Macmillan Indian Limited	1988
2	Prof. A.E.Subramanian	Gifts to Posterity- An Anthology of Modern Short Stories	Chitra Publications, Chennai	2003

REFERENCE BOOKS:

S. No	Author Name	Title of the Book	Publisher	Year /Edition
1	N.Krishnaswamy	Modern English- A Book of Grammar Usage and Composition	Macmillan Indian Limited	2007
2	Prof.K.Ramappa, Retd.	Essential English Grammar Usage & Composition	M. I. Publications	Fifth Revised Edition

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

SEMESTER-I

Programme code:	B.Sc CS	Programme Title	Bachelor of Computer Science	
Course Code:	18U1CSCT01	Title:Core 1:C PROGRAMMING	Batch	2018-2021
			Semester	I
Hrs/Week:	5 Hrs		Credits	4

COURSE OBJECTIVES

- To learn the fundamental programming concepts and methodologies.
- Able to develop logics which will help them to create programs, applications in C.
- To help students to develop the logic and ability to solve the problems efficiently using C programming.
- To learn various concepts and techniques for problem solving and to implement those ideas using C programs.
- To able to take up Systems programming or Advanced C programming course.

COURSE OUTCOMES

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

CO Number	CO Statement
CO1	Explain the fundamental structure of C program and to develop different programs in C language.
CO2	Give in detail about branching,looping and arrays in C program using the development environment.
CO3	Solve problems using Functions and Arguments
CO4	Analyze the Structures and pointers concepts by developing programs.
CO5	Evaluate the file management in C language.

MAPPING WITH PROGRAMME OUTCOMES

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

SYLLABUS

UNIT I **Hours:15**

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 - Arithmetic, Relational, Logical, Assignment, Conditional, Bitwise, Special, Increment and Decrement operators – **Arithmetic Expressions:** - Evaluation of expression - Procedure of arithmetic operators – Type conversion in expression - operator precedence & associative - Mathematical functions - Reading & Writing a character- Formatted input and output.

UNIT II **Hours: 15**

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?: operator - The GOTO statement -- Decision Making and Looping - The WHILE statement - The DO statement - The FOR statement – Jumps in Loop:, - **Arrays** - One Dimensional - Two Dimensional - Multidimensional arrays - Character string Handling - Declaring and initializing string variables - Reading strings from technical -- writing strings to Screen - Arithmetic operation on character – Putting strings together - comparison of two strings - String handling Functions - Table of Strings.

UNIT III **Hours: 15**

Funtions: User - defined Functions - Need for user Defined functions - A multi function program - The form of C functions - Return values and their types - Calling a function - Category of functions – **Arguments:** No Arguments and no return values - Arguments but no return values - Arguments with return values - Handling of non-integer functions. Nesting of functions - Recursion - Functions with arrays

UNIT IV **Hours: 15**

Structure : Structure definition - Giving values to members – Structure initialization - comparison of structure variables - Arrays of structures - Arrays within structures - Structures within structures- Structures and functions - unions - size of structures - Bit fields**. Pointers** - Understanding pointers - Accessing the Address of' a variable - Declaring and initializing pointers - Accessing a variable through its pointers - pointer expressions pointer increments and scale factor – pointers and arrays - pointers and character strings – pointers and functions – pointers and structures.

UNIT V **Hours: 15**

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

TEXT BOOKS: (Recent Edition of the following bools only are recommended)

S.No	Authors	Title	Publishers	Year of Publication
1.	E.Balagurusamy	**"**Programming in ANSI C **"**	Tata Mc.Graw Hill 5 th Edition,	2012

REFERENCE BOOKS

S.No.	Authors	Title	Publishers	Year of Publication
1.	Byron Gottfried	"Programming with C"	Tata Mcgraw Hill Publishing Ltd., New Delhi, 1st Edition.	1998
2	Ashok.N. Kamathane,	"Programming with ANSI and Turbo C"	Pearson EdUCAtion Asia , 1st Edition.	2002
3	Yeswanth Kanethkar	Let us C++	Tata Mc. Graw Hill	1992

WEBSITE REFERENCE

1.https://www.Springpoint.com/C-Programming

2.**https://www.w3schools.com**

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

SEMESTER – I

Programme code:	B.Sc CS	Programme Title	Bachelor of Computer Science	
Course Code:	18U1CSCT02	Title:Core 2:Digital Fundamentals And Architecture	Batch	2018-2021
			Semester	I
Hrs/Week:	5 Hrs		Credits	4

COURSE OBJECTIVES

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

COURSE OUTCOMES

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

CO Number	CO Statement
CO1	State the hardware, number system and arithmetic circuits involved in a computer
CO2	Compare the sequential and combinational logic circuits and their functioning in CPU
CO3	Show the input – output organization, memory and their functions
CO4	Explain the Microprocessor Architecture and I/O Organization
CO5	State the Memory Organization in system

MAPPING WITH PROGRAMME OUTCOMES

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

SYLLABUS

UNIT I **Hours: 15**

Number System and Binary Codes: Decimal, Binary, Octal, Hexadecimal – Binary addition, Multiplication, Division – Floating point representation, Complements, BCD, Excess3,

Gray Code. **Arithmetic Circuits**: Half adder, Full adder, Parallel binary adder, BCD adder, Halfsubtractor, Full subtractor, Parallel binary subtractor - Digital Logic: the Basic Gates – NOR, NAND, XOR Gates.

UNIT II **Hours: 15**

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

UNIT III **Hours: 15**

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

UNIT IV **Hours: 15**

Microprocessor Architecture -8085 MPU Architecture- **Input – Output Organization**: Input – output interface – I/O Bus and Interface – I/O Bus Versus Memory Bus – Isolated Versus Memory – Mapped I/O – Example of I/O Interface.

UNIT V **Hours: 15**

Asynchronous data transfer: Strobe Control and Handshaking – Priority Interrupt: Daisy-Chaining Priority, Parallel Priority Interrupt. Direct Memory Access: DMA Controller, DMA Transfer. Input – Output Processor: CPU-IOP Communication.**Memory Organization**: Memory Hierarchy – Main Memory- Associative memory: Hardware Organization, Match Logic, Read Operation, Write Operation.

TEXT BOOKS: (Recent Edition of the following books only are recommended)

S.No	Authors	Title	Publishers
1.	V.K. Puri	Digital Electronics Circuits and Systems	TMH
2	M. Morris Mano	Computer System Architecture	PHI

REFERENCE BOOKS

S.No	Authors	Title	Publishers
1.	Albert Paul Malvino, Donald P Leach,	Digital principles and applications	TMH, 1996.
2.	Carter	Computer architecture	TMH.

WEBSITE REFERENCE

1.https://www.Springpoint.com/Digital Fundamentals

2.**https://www.w3schools.com**

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

SEMESTER – I

Programme code:	B.Sc CS	Programme Title	Bachelor of Computer Science	
Course Code:	18U1CSCP03	Title:Core 3: C Programming Practical	Batch	2018-2021
			Semester	I
Hrs/Week:	4 Hrs		Credits	3

COURSE OBJECTIVES:

- To develop the applications using C Programming language. To apply the concepts like looping, functions, pointers and file concepts.

COURSE OUTCOMES:

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

CO Number	CO Statement
CO1	Observe C to demonstrate practical experience in developing solutions
CO2	Apply different functions, pointers, arrays and structures.
CO3	Distinguish about Compile and debug programs in C language

MAPPING WITH PROGRAMME OUTCOMES:

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	-	氷	氷	-	-	氷	-	氷	-	-	-	氷
CO2	-	氷	氷	-	-	氷	-	氷	-	-	-	氷
CO3	-	氷	氷	-	-	氷	-	氷	-	-	-	氷

PROGRAM LIST

1.To write a program using arithmetic Operations.
2.To write a program using Logical and Relational Operations.
3.To write a program using control statements .
4.To write a program using arrays (single and two dimensional).
5.To write a program using strings and array of strings.
6.To write a program using Functions.
7.To write a program using nested functions.
8.To write a program using function and arrays.
9.To write a program using structures.
10.To write a program using structure and functions.

11.To write a program using Recursive functions.
12.To write a program using Pointers.
13.To write a program using array of pointers.
14.To write a program using files.
15. To write a program using command line arguments.

WEBSITE REFERENCE

1.*https://www.programiz.com/c-programming/examples*

2.***https://fresh2refresh.com/c-programming/c-programs***

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

SEMESTER -I

Programme Code :	B.Sc. CS	Programme Title	**Bachelor of Computer Science**	
Course Code :	18U1CSAT01	Title :Allied 1 : Numerical Methods and Statitics	Batch	2018-2021
			Semester	I
Hrs/week	5		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 and Integration 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 will 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	-	氷	氷	氷	-	氷	-	-	-	-	-	-
CO2	-	氷	氷	氷	-	氷	-	-	-	-	-	-
CO3	-	氷	氷	氷	-	氷	-	-	-	-	-	-
CO4	-	氷	氷	氷	-	氷	-	-	-	-	-	-
CO5	-	氷	氷	氷	-	氷	-	-	-	-	-	-

SYLLABUS

UNIT I **(12 Hrs)**

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

UNIT II **(18Hrs)**

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 **(18Hrs)**

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 **(15Hrs)**

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

UNIT V **(12Hrs)**

Correlation and Regression. No derivation required.

TEXT BOOKS **(Recent Edition of the following bools only are recommended)**

S. No	Author Name	Title of the Book	Publisher	Year / Edition
1	P.Kandasamy, K.Thilagavathy, K.Gunavathi	Numerical methods	S.Chand & Company	2005
2	P.A. Navanitham	Business Mathematics and Statistics	Jai publishers	2005

REFERENCE BOOKS

S. No	Author Name	Title of the Book	Publisher	Year / Edition
1	Dr.M.K. Venkataraman	Engineering MathematicsVolume II	National publishing company	2005
2	R.S.N. Pillai and V. Bhagavathi	Saltatistic Methods	Sultan chand and Sons company	2005
3	P.R.Vittal	Business Mathematics	Margham Publications	1999
4	A. Singaravelu	Numerical Methods	Meenakshi Publications	2001

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 Discussion, Seminar, Assignment, Google classroom.

SEMESTER - I

Programme Code	B.Sc CS	Programme Title	**Bachelor of Computer Science**	
Course Code:	18U1VBET01	Title: Value Based Education 1:ENVIRONMENTAL STUDIES	Batch	2018-2021
			Semester	I
Hrs/ Week	2 Hrs		Credits	2

COURSE OBJECTIVES

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

COURSE OUTCOMES (CO):

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

CO Number	**CO Statement**
CO1	understand the interdisciplinary nature of environmental issues.
CO2	understand the core concepts and methods from ecological and physical sciences and their application in environmental problem solving.
CO3	develop a sense of community responsibility by becoming aware of scientific issues in the larger social context.
CO4	develop the sense on ethical, cross cultural and historical context of environmental issues and the links between human and natural systems.

MAPPING WITH PROGRAMME OUTCOMES

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

SYLLABUS

UNIT I (6 hrs)

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 (6 hrs)

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 (6 hrs)

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 (6 hrs)

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 (6 hrs)

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

TEXT BOOKS: **(Recent Edition of the following bools only are recommended)**

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

REFERENCE BOOKS:

S. No	Author Name	Title of the Book	Publisher	Year /Edition
1	Ritu Bir	Environmental Studies	Vayu Education of India	2011
2	Erach Bharucha	Textbook for Environmental Studies	University Press India Pvt. Ltd	2006
3	Anubha Kaushik & C.P.Kaushik	Perspectives in Environmental Studies	New Age International Publishers	2006

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

SEMESTER -I

Programme Code :	B.Sc CS	Programme Title	**Bachelor of Computer Science**	
Course Code :	18U1SBST01	Title :Skill Based Subject 1:Mathematics For Competitive Examinations - I	Batch	2018-2021
			Semester	I
Hrs/week	2 Hours		Credits	2

COURSE OBJECTIVES

To enable the Students

- To understand the fundamental arithmetic skills and problem solving.
- To learn about the average and Problems on numbers.
- To solve problem related to Ages and Calander and Clocks.

COURSE OUTCOMES (CO)

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

CO Number	CO Statement
CO1	Recall the basic concepts of numerical computation.
CO2	Solve problems on ages, races and 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	-	✓	✓	✓	-	✓	✓	-	-	✓	-	✓
CO4	-	✓	✓	✓	-	✓	✓	-	-	✓	-	✓
CO5	-	✓	✓	✓	-	✓	✓	-	-	✓	-	✓

SYLLABUS

UNIT I (6 Hrs)

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

UNIT II (6 Hrs)

Square Roots and Cube Roots - Average – Problems on Numbers

UNIT III (6 Hrs)

Problems on Ages – Surds and Indices–Percentage

UNIT IV (6 Hrs)

Races and games of skill - Calendar

UNIT V (6 Hrs)

Clocks - Stocks and shares (Simple Problems only)

TEXT BOOK (Recent Edition of the following bools only are recommended)

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	7th Revised Edition –2007.

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	7th reprint-2003

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 – II

Programme Code :	B.Sc CS	Programme Title	**Bachelor of Computer Science**	
Course Code :	18U2TALT02	Title : Language 1:Tamil - II	Batch	2018-2021
			Semester	1
Hrs/week	5		Credits	3

நோக்கம்

- சங்க இலக்கியத்தின் மாண்புஇ இலக்கிய நயம்இ நீதி நெறிகள்இ பக்தியின் தன்மைஇ
- சங்ககால இலக்கண நெறிகள் ஆகியவற்றை அறிந்து கொள்ளுதல்
- வாழ்க்கையை வாழும் நெறிமுறைகள், வெற்றிக்கான உத்திகள், தமிழ் வளர்ச்சிக்கான நமது கடமைகள் ஆகியன குறித்து தெளிவு பெறுதல்

COURSE OUTCOME (CO)

CO Number	CO Statement
CO1	தமிழ் மொழியின் வாயிலாக பண்பாடு, பகுத்தறிவு, கலை மற்றும் மரபு முதலியவற்றை அறிந்து வாழ்க்கையில் பயனடைதல்.
CO2	வாழ்வியல் நெறிமுறைகளை உணர்ந்து மனிதநேயத்துடனும் உயர்ந்த குறிக்கோளுடனும் சமுதாயத்தில் மதிக்கத்தக்கவர்களாக இருத்தல்.
CO3	இலக்கியங்களின் வாயிலாக வாழ்க்கை முறைகளைத் தெரிந்து கொள்ளுதல்.
CO4	அறத்தின் வழிநின்று பொருளீட்டி இன்பம் துய்ப்பது உன்னத வாழ்வின் அடிப்படை என்பதை திருக்குறள் மூலம் மாணவர்கள் உணர்தல்.
CO5	நாட்டுப்பற்று, சமூகம், பெண்ணியம் குறித்த விழுமியங்கள் சார்ந்த கவிதைகளும், கருத்து பரிமாற்றத்திறனுக்கு அடிப்படையாக உள்ள இலக்கணப் பகுதியும், தன் சுய சிந்தனையுடன் படைப்பாக்கத்திறனை வளர்த்தெடுக்கும் வகையில் சிறுகதைப்பகுதியும் காலவோட்டத்துடன் இணைந்து மாணவர்களுக்கு சிந்திக்கும் ஆற்றலைப் பெற வழி வகை செய்தல்.

MAPPING WITH PROGRAMME OUTCOMES

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

பாடத்திட்டம்

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

1. குறுந்தொகை - முதல் 5 பாடல்கள் (கடவுள் வாழ்த்து உட்பட)
2. நற்றிணை - பிரசங்கலந்த வெண்சுவைத்தீம்பால் (பா.எண்-110) இ

விளையாடு ஆயமோடு (பா.எண்-68)
3. கலித்தொகை - சுடர்த் தொடீஇ கேளாய் (பா.எண்-51)
4. புறநானூறு - ஆவுமானிய பார்ப்பன மாக்களும் (பா.எண்-9)இ காய்நெல் லறுத்துக் கவளம்கொளினே (பா.எண்-184)
5. பத்துப்பாட்டு - குறிஞ்சிப்பாட்டு முழுவதும்

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

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

அலகு – 3 உரைநடை: கட்டுரைத் தொகுப்பு (15 மணிநேரம்)

1. இறையன்பு - கல்வியும் கடவுள் தன்மையும் (வாழ்க்கையே ஒரு வழிபாடு)
2. அகிலன் - பதினாறு பேறுகள் (வெற்றியின் ரகசியங்கள்)
3. முனைவர் பாஞ்.இராமலிங்கம் - மானிட உளவியல் (மானிட உளவியல்)
4. வ.செ.குழந்தைசாமி - தமிழ் வழிக்கல்வி-தயக்கங்கள்இ தடைகள் (தமிழ் வளர்ச்சி)
5. மணவை முஸ்தபா - தமிழுக்கு அறிவியல் அன்னியமா? (அறிவியல் நோக்கில் கம்பர்)
6. சுகி.சிவம் - வாழப்பழகுவோம் வாருங்கள் (வாழப்பழகுவோம் வாருங்கள்)
7. இரா. பிரேமா - பெண்ணியக் கோட்பாடுகளும் தமிழிலக்கிய ஆய்வில் அதன் தேவையும் பயனும் (பெண்ணியம் அணுகுமுறைகள்)

அலகு – 4 இலக்கிய வரலாறு (15 மணிநேரம்)

1. எட்டுத்தொகைஇ பத்துப்பாட்டு நூல்கள்
2. நீதி நூல்கள் - அறிமுகம்
3. நாயன்மார்கள் ஆழ்வார்கள் - அறிமுகம்
4. உரைநடையின் தோற்றமும் வளர்ச்சியும்

அலகு – 5 இலக்கணமும் பயன்பாட்டுத் தமிழும் (10 மணிநேரம்)

1. அகம்இ புறம் – திணைஇ துறை விளக்கங்கள்
2. முதல் இ கருஇ உரிப்பொருள்
3. மடல்கள்இ விண்ணப்பங்கள்
4. மொழிபெயர்ப்பு (அலுவலகப் பகுதிஇ பொதுப்பகுதி)

TEXT BOOKS

S.No	Author Name	Title of the Book	Publisher	Year / Edition
1	தமிழ்த்துறை	பொதுத்தமிழ் - ஐஐ (செய்யுள் திரட்டு , கட்டுரைத் தொகுப்பு)	கோவை கலைமகள் கலை அறிவியல் கல்லூரி	2017

REFERENCE BOOKS

S. No	Author Name	Title of the Book	Publisher	Year / Edition
1	-	குறுந்தொகை	கழக வெளியீடு	முதற் பதிப்பு: ஜூன் - 2000
2	புலவர் நா.இராமையாபிள்ளை (உ.ஆ)	நற்றிணை	வர்த்தமானன் பதிப்பகம், சென்னை.	முதற் பதிப்பு: 1999.
3	-	கலித்தொகை,	கழக வெளியீடு	முதற் பதிப்பு: டிசம்பர் - 1996.
4	-	புறநானூறு,	கழக வெளியீடு	முதற் பதிப்பு: டிசம்பர் - 1996.
5	புலவர் அ.மாணிக்கனார் (உ.ஆ)	பத்துப்பாட்டு – ஐஐ ஆம் தொகுதி	வர்த்தமானன் பதிப்பகம், சென்னை.	1999.
6	பேரா.அ.மாணிக்கம்(ப.ஆ)	நாலடியார்	மணிவாசகர் பதிப்பகம், சென்னை.	முதற் பதிப்பு: செப்டம்பர்- 1995.
7	பேரா.அ.மாணிக்கம்(உ.ஆ)	பன்னிரு திருமுறைகள் (தொகுதி 11)	வர்த்தமானன் பதிப்பகம், சென்னை.	பிப்ரவரி - 2009.
8	டாக்டர் கதிர்முருகு	நாச்சியார் திருமொழி	சாரதா பதிப்பகம், சென்னை.	முதற் பதிப்பு: ஜூன் - 2010.
9	வெ.இறையன்பு	வாழ்க்கையே ஒரு வழிபாடு	விஜயா பதிப்பகம், கோவை.	எட்டாம் பதிப்பு: டிசம்பர் - 2013.
10	அகிலன்	வெற்றியின் ரகசியங்கள்	தாகம் பதிப்பகம், சென்னை.	பதினொன்றாம் பதிப்பு: ஜனவரி – 2001.
11	முனைவர் பாஞ்.இராமலிங்கம்	மானிட உளவியல	சாரதா பதிப்பகம், சென்னை.	திருத்திய பதிப்பு: ஜூன்- 2007.
12	வ.செ.குழந்தைசாமி	தமிழ் வளர்ச்சி	பாரதி பதிப்பகம், சென்னை.	இரண்டாம் பதிப்பு: ஜூலை – 2007.
13	முணவை முஸ்தபா	அறிவியல் நோக்கில் கம்பர்	வானதி பதிப்பகம், சென்னை.	இரண்டாம் பதிப்பு: 2003.
14	சுகி.சிவம்	வாழப்பழகுவோம் வாருங்கள்	வானதி பதிப்பகம், சென்னை.	ஆறாம் பதிப்பு: நவம்பர் - 2003.
15	இரா.பிரேமா	பெண்ணியம் அணுகுமுறைகள்	தமிழ்ப் புத்தகாலயம், சென்னை- 17.	முதல் பதிப்பு: 1998
16	கா.கோ.வெங்கட்ராமன்	தமிழ் இலக்கிய வரலாறு	கலையக வெளியீடு, திண்டுக்கல்.	இரண்டாம் பதிப்பு: ஜூன் - 2002.
17	மது.ச.விமலானந்தம்	தமிழ் இலக்கிய வரலாறு	முல்லை நிலையம், சென்னை	2014.
18	மு.பரமசிவம்	நற்றமிழ் இலக்கணம்	சைவசித்தாந்த பதிப்பகம், திருநெல்வேலி.	முதற்பதிப்பு:1995.

SEMESTER–II

Programme Code :	B.Sc CS	Programme Title	**Bachelor of Computer Science**	
Course Code :	18U2FRLT02	Title : Language 1:French II	Batch	2018–2021
			Semester	1
Hrs/week	5		Credits	3

COURSE OBJECTIVES

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

COURSE OUTCOMES (CO)

In Successful Completion of the course the students will 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 critical 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 : ALORS I

Units : 6 - 10

Authors : Marcella Di Giura
Jean–Claude Beacco

Available at : Goyal Publishers Pvt Ltd
86, University Block
Jawahar Nagar (Kamla Nagar)

New Delhi - 110007.
Tel : 011 - 23852986 / 9650597000

Question Paper Pattern : Semester II
(ALL QUESTIONS TO BE SET ONLY FROM THE PRESCRIBED TEXT)

Maximum Marks: 75 Time: 3 hrs.

SECTION A (10)

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

SECTION B (20)

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

SECTION C (45)

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

SEMESTER –II

Programme Code :	B.Sc CS	Programme Title	**Bachelor of Computer Science**	
Course Code :	18U2HILT02	Title : Language 1 :Hindi II	Batch	2018–2021
			Semester	1
Hrs/week	5		Credits	3

COURSE OBJECTIVES

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

COURSE OUTCOMES (CO)

In Successful Completion of the course the students will 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 ; Draupadi by Narendra Sharma

PUBLISHER : Rajkamal Prakashan,
1B Nethaji Subash Marg,
New Delhi.

2. ONE ACT PLAY: EKANKÏ SANKALAN - Lesson ‘’Strike’ omitted

By Veerendra kumar mishra

PUBLISHER : VANI PRAKASHAM
NEW DELHI - 110 002.

3. TRANSLATION : HINDI - ENGLISH ONLY,
(ANUVADH ABYAS - III)
Lessons.1 - 15 only

PUBLISHER : DAKSHIN BHARATH HINDI PRACHAR SABHA
CHENNAI - 600 017.

4. LETTER WRITING : (Leave letter, Job Application, Ordering books, Letter to Publisher, Personal letter)

5. CONVERSATION : (Doctor & Patient, Teacher & Student, Storekeeper & Buyer, Two Friends, Booking clerk & Passenger at Railway station, Autorickshaw driver and Passenger)

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

SEMESTER–II

Programme Code :	B.Sc CS	Programme Title	**Bachelor of Computer Science**	
Course Code :	18U2MLLT02	Title :Language 1 :Malayalam II	Batch	2018–2021
			Semester	1
Hrs/week	5		Credits	3

COURSE OBJECTIVES

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

COURSE OUTCOMES (CO)

In Successful Completion of the course the students will 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

Unit I & II – Biography

Unit III, IV & V – Smaranakal

Text books prescribed:

Unit I & II – Kanneerum Kinavum– V.T.Bhatahirippad

(D.C. Books, Kottayam)

Unit III, IV & V – Balyakalasmaranakal - Madhavikkutty

(D.C. Books, Kottayam)

Reference books:

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

SEMESTER-II

Programme Code	B.Sc CS	Programme Title	**Bachelor of Computer Science**	
Course Code:	18U2ENLT02	Language 2-Functional English - II	Batch	2018-2021
			Semester	II
Hrs/ Week	5 Hrs		Credits	3

COURSE OBJECTIVES:

- To enable the students to understand the basic English grammar.

COURSE OUTCOMES (CO):

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

CO Number	CO Statement
CO1	develop an interest in the minds of the students to enjoy and appreciate the literary works in English.
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

UNIT -I-POETRY

Stopping By Woods On a Snowy Evening - Robert Frost

The Ballad of Father Gilligan - William Butler Yeats

The Daffodils - William Wordsworth

UNIT- II- PROSE

1. The Selfish Giant- Oscar Wilde
2. My lost Dollar- Stephen Butler Leacock

3. On The Rule of The Road- A.G. Gardiner

UNIT- III- GRAMMAR AND VOCABULARY

1. Tenses
2. Transformation of Sentences
3. Describing a Simple Process, Paraphrasing
4. Homonyms
5. Word Blends

UNIT-IV- VERBAL APTITUDE AND COMPOSITION

1. Common Errors
2. Reading Comprehension
3. Essay Writing
4. Letter Writing (Formal and In- Formal)

UNIT- V- DIALOGUE WRITING (CONVERSATION EXERCISES)

1. Suggestions , Sympathy, Complaining, Agreement & Apologising

TEXT BOOKS:

S. No	Author Name	Title of the Book	Publisher	Year /Edition
1	A.G.Xavier	An Anthology of Popular Essays and Poems	Macmillan Indian Limited.	1988
2	Prof. A.E.Subramanian	Gifts to Posterity- An Anthology of Modern Short Stories	Chitra Publications, Chennai.	2003

REFERENCE BOOKS:

S. No	Author Name	Title of the Book	Publisher	Year /Edition
1	N.Krishnaswamy	Modern English- A Book of Grammar Usage and Composition	Macmillan Indian Limited	2007
2	Prof.K.Ramappa, Retd.	Essential English Grammar Usage & Composition	M. I. Publications	Fifth Revised Edition

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

SEMESTER – II

Programme code:	B.Sc CS	Programme Title	Bachelor of Computer Science	
Course Code:	18U2CSCT04	Title:Core 4: C++ Programming	Batch	2018-2021
			Semester	II
Hrs/Week:	5 Hrs		Credits	4

COURSE OBJECTIVES

- To provide knowledge on object oriented programming concepts using C++.
- To learn about the concepts like Abstraction, Encapsulation, Inheritance and Polymorphism.
- To enhance the students knowledge in writing C++ programs and the concepts of File Handling.

COURSE OUTCOMES

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

CO Number	CO Statement
CO1	Observe the fundamental concepts of oops languages and control structure
CO2	Interpret about classes , functions and constructor
CO3	Solve real world problems by using inheritance concepts
CO4	Classify the Arrays and pointers concepts by developing programs.
CO5	Assess about the Concept Exception handling mechanism

MAPPING WITH PROGRAMME OUTCOMES

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

SYLLABUS

UNIT I **Hours: 13**

Introduction of C++ - Key Concepts – OOP advantage – OOP language – I/O in C++- C++ declarations.Control Structures : Decision Making statements: if , else ,jump, goto, break, continue, Switch case statements. Loops in C++ : for ,While, do, while loops. Functions in C++ -

inline function.

UNIT II **Hours: 16**

Classes and objects: Declaring Objects – defining member functions – static member Variables and functions – arrays of objects – friend fuctions – overloading member functions – Bit fields and classes - Constructors And Destructors with static members.

UNIT III **Hours: 16**

Operator overloading: overloading unary, binary operators – overloading friend function – type conversion. Inheritance: Types of Inheritances – single, multilevel, multiple , hierachical, hybrid, Multipath inheritance – virtual base classes – abstract classes.

UNIT IV **Hours: 15**

Pointers – Declarations – Pointer to class , object – this pointer – pointer to derived classes and base classes – Arrays – characteristics – arrays of classes – Memory modals – new and delete operators – dynamic objects – Binding , Polymorphism and virtual Functions.

UNIT V **Hours: 15**

Files – File Stream classes – File modes – Sequential Read / Write operations – Binary and ASCII files – Random access operation – Templates – Exception handling – Strings – declaring and initializing string objects – string attributes – miscellaneous functions.

TEXT BOOKS: (Recent Edition of the following bools only are recommended)

S.No.	Authors	Title	Publishers	Year of Publication
1.	Ashok N Kamthane,	Object oriented Programming with Ansi and Turbo C++	Pearson Education Publications First Edition	2003
2	Herbert Schildt	Teach Yourself C++	Tata Mcgraw Hil Third edition	2000

REFERENCE BOOKS

S.No.	Authors	Title	Publishers	Year of Publication
1.	E.Balagurusamy	Object Oriented Programming with C++	Tata Mcgraw Hill Publishing Ltd.,	2002

			New Delhi	
2	Robert Lafore	Object Oriented Programming with C++	Galgotia	1994
3	Yeswant Kanetkar	Let us C++	BPB Publications,	1999
4	John R.Hubbard	Programming with C++	Schaum's Outline Series	1996

WEBSITE REFERENCE

1.https://www.Springpoint.com/Programming with C++

2.**https://www.w3schools.com**

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

SEMESTER – II

Programme code:	B.Sc CS	Programme Title	Bachelor of Computer Science	
Course Code:	18U2CSCT05	Title:Core 5:Data Structures	Batch	2018-2021
			Semester	II
Hrs/Week:	5 Hrs		Credits	4

COURSE OBJECTIVES

- TTo make the students to understand the basic concepts of Data Structures and Algorithms.
- To understand the concepts of stack, Queue and Linked List.
- To enhance the students knowledge in developing Algorithms using stack , queues, lists, matrices , searching and sorting.

COURSE OUTCOMES

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

CO Number	Statement
CO1	Recall the algorithms with basic techniques and recursive methods and familiar in the space and time complexity of the algorithms.
CO2	Intrepret the operations of Stack,Queue and Linked list
CO3	Demonstrate specific search, sort , Tree and Graph algorithms using data structures given specific user requirements.
CO4	Identify suitable algorithms with appropriate data structures for real time software requirements .
CO5	Demonstrate file concepts using data structures programming.

MAPPING WITH PROGRAMME OUTCOMES

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	-	氷	氷	-	-	氷	-	氷	-	-	-	氷
CO2	-	氷	氷	-	-	氷	-	氷	-	-	-	氷
CO3	-	氷	氷	-	-	氷	-	氷	-	-	-	氷
CO4	-	氷	氷	-	-	氷	-	氷	-	-	-	氷
C05	-	氷	氷	-	-	氷	-	氷	-	-	-	氷

SYLLABUS

UNIT I **Hours: 15**

Introduction - Overview - How To Create Programs Analyse Them**.** Arrays - Structures - Ordered Lists- Representation of Arrays - Simple Applications-Stacks and Queues - Fundamentals – Structure-Operations - Multiple Stacks and Queues. Applications Evaluation of Expressions.

UNIT II **Hours: 15**

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

UNIT III **Hours: 15**

Trees:Binary Tree-Binary Tree representation-Binary Tree Traversal.Graphics:Introduction-Definition and terminology-Graph representation-Traversals,Connected Component and Spanning Tree.Activity Networks Topological Sort and Critical Paths.

UNIT IV **Hours: 15**

Searching and Sorting: Binary, Sequential, And Fibonacci - Internal Sorting Insertion, Quick, Merge, Heap, Radix Sorts - External Sorting - Sorting With Disks – K-way Merging-Sorting With Tapes - Balanced Merge - Polyphase Merge.

UNIT V **Hours: 15**

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

TEXT BOOKS: (Recent Edition of the following bools only are recommended)

S.No	Authors	Title	Publishers	Year of Publication
1.	Ellis Horowitz & Sartaj Sahani	“Fundamentals of data structure"	Galgothia book source, 1999, Latest Edition.	2011
2	Ashok N Kamthane	“Programming and Data Structures”,	PearsonEducation, Latest Edition	2004,

REFERENCE BOOKS

S.No	Authors	Title	Publishers	Year of Publication
1.	Malik,D,S.,	Data structures using C++ [1st Edition]	Cengage learning	2003
2	Vaugha H.Patil,	Data Structures Using C++[1st Edition]	Oxford Higher Educatio	2012

WEBSITE REFERENCE

1.https://www.Springpoint.com/Data structures using C++

2.**https://www.w3schools.com**

SEMESTER – II

Programme code:	B.Sc CS	Programme Title	Bachelor of Computer Science	
Course Code:	18U2CSCP06	Title:Core 6:C++ Programming - Practical	Batch	2018-2021
			Semester	II
Hrs/Week:	4 Hrs		Credits	3

COURSE OBJECTIVES

- To develop the applications using C++ Programming language.
- To apply the concepts like looping, control statements arrays, function overloading and file concepts.

COURSE OUTCOMES

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

CO Number	CO Statement
CO1	Choose the loops and decision making statements to solve the problem in C++
CO2	Estimate C++ to demonstrate practical experience in developing solutions
CO3	Manipulate about Compilation and debug programs in C++ language

MAPPING WITH PROGRAMME OUTCOMES

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	-	氷	氷	-	-	氷	-	氷	-	-	-	氷
CO2	-	氷	氷	-	-	氷	-	氷	-	-	-	氷
CO3	-	氷	氷	-	-	氷	-	氷	-	-	-	氷

PROGRAM LIST

1. To write a program using looping and control statements
2. To write a program using Arrays
3. To write a program using inline functions
4. To write a program using Class and Array of objects
5. To write a program using Objects as function arguments and Function that return objects
6. To write a program using Friend function
7. To write a program using Function Overloading
8. To write a program using constructors
9. To write a program using operator overloading

10. To write a program for Overloading friend functions
11. To write a program using inheritance
12. To write a program using virtual function.
13. To write a program using run time polymorphism
14. To write a program using Pointer to members
15. To write a program using Files.

WEBSITE REFERENCE

1.*https://www.programiz.com/c++-programming/examples*

2.*https://fresh2refresh.com/c++-programming/c++-programs*

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

SEMESTER–II

Programme Code :	B.Sc. CS	Programme Title	Bachelor of Computer Science	
Course Code :	18U2CSAT02	Title : Allied 2:Discrete Mathematics	Batch	2018–2021
			Semester	II
Hrs/week	5 Hrs		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 will 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 **(12Hrs)**

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 **(15Hrs)**

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

UNIT III **(18Hrs)**

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

UNIT IV **(18Hrs)**

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

UNIT V **(12Hrs)**

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 **(Recent Edition of the following bools only are recommended)**

S. No	Author Name	Title of the Book	Publisher	Year / Edition
1	J.K. Sharma	Discrete Mathematics	Macmillan India Ltd	2007

REFERENCE BOOKS

S. No	Author Name	Title of the Book	Publisher	Year / Edition
1	J. P Tremblay R Manohar	Discrete Mathematics Structures with Applications to Computer Science	Mc Graw Hill International Publications	2006
2	Dr.M.K.Venketaramen,Dr.N.Sridharan, N.Chandarasekaran	DiscreteMathematics	The National publishing Company	2006
3	V.Sundaresan	Discrete Mathematics	A.R.Publications	2001
4	M.K.Chandborthy	Introduction to Discrete Mathematics	Books and Allied Pvt.Ltd.	2005

WEBSITE REFERENCE

1.www.coursera.com

2.www.tutorialpoint.com

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

SEMESTER –II

Programme Code :	B.Sc CS	Programme Title	Compuer	
Course Code :	18U2VBET02	Title :Value Based Education II (mwtpaYk; gz;ghLk;)	Batch	2018-2021
			Semester	1
Hrs/week	2		Credits	2

நோக்கம்

ஒவ்வொருவரும் தன்னை உயர்த்திக் கொண்டுஇ சமுதாய மக்களுடன் இணக்கமாக வாழ்ந்து சமுதாயத்தையும் உயர்த்த வேண்டும். உன்னத இலட்சியத்திற்காக வாழ்ந்து நமது வாழ்க்கையை அர்த்தமுள்ளதாக ஆக்கிக் கொள்ள வேண்டும்.

கவலைக்கு ஆதாரமான ஆசை மற்றும் சினம் ஆகியவற்றைத் தவிர்ப்பதன் மூலம் கவலையை ஒழிப்பதற்கான பயிற்சி பெறுதல்

கல்வி, அரசியல், பொருளாதாரம் மற்றும் விஞ்ஞானம் ஆகியவற்றுக்கும் சமுதாயத்திற்கும் உள்ள தொடர்பினை அறிந்து கொள்ளுதல்

COURSE OUTCOME (CO)

CO Number	CO Statement
CO1	தன்னை உள்நோக்க அறிவால் ஆராய்ந்து தன்னிடமுள்ள உணர்ச்சி வயப்பட்ட குணங்களை எல்லாம் மாற்றியமைத்துக் கொள்ளச் செய்தல்.
CO2	தனி மனித ஒழுக்கங்களை அறிந்து, முறைப்படி வாழ்ந்து சமுதாயத்தில் தங்களை உயர்த்திக் கொள்ளச் செய்தல்.
CO3	வாழ்க்கையின் இலக்கை அடையத் தேவையான தகுதியை வளர்த்துக் கொள்ளச் செய்தல்.
CO4	சமுதாயத்தோடு இணக்கமாக வாழவும், சுயசிந்தனை, ஆற்றலை வளர்த்து பிரச்சினைகளுக்குத் தீர்வுகாணவும் வழி வகுத்தல்.
CO5	போட்டிகள் நிறைந்த இவ்வுலகில் சமுதாயம், அரசியல், பொருளாதாரம் ஆகிய சூழல்களைத் துணிச்சலாக எதிர்கொள்ள தன்னம்பிக்கையை வழங்குதல்.

MAPPING WITH PROGRAMME OUTCOMES

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

பாடத்திட்டம்

myF	Content

அலகு–1	(5 மணிநேரம்) மனிதவள மாண்பின் அவசியம் - குறிக்கோள் இ மதிப்புகள் - வாழ்வின் நோக்கமும் தத்துவமும் - வாழ்க்கைத் தேவைகள் இ காப்புகள் - அறநெறிகள் இ அறிவின் நிலைப்படிகள்.
அலகு–2	(5 மணிநேரம்) எண்ணம் ஆராய்தல் - எண்ணம் எழக்காரணங்கள் - எண்ணம் ஆராய்தல் பயிற்சி – ஆசை சீரமைத்தல் - ஆசை சீரமைத்தல் பயிற்சி.
அலகு–3	(5 மணிநேரம்) சினம் தவிர்த்தல் - சினத்தின் விளைவுகள் - சினம் தவிர்த்தல் பயிற்சி – கவலை ஒழித்தல் - கவலையின் வகைகளும் விளைவுகளும் - கவலை ஒழித்தலுக்கான பயிற்சி.
அலகு–4	(5 மணிநேரம்) மனிதனின் பரிணாமம் - பிரபஞ்ச தன்மாற்றம் - உயிரினத் தன்மாற்றம் - ஆறாம் அறிவின் மேம்பாடு – மனித வேறுபாட்டிற்கான காரணங்கள் - ஏழு சம்பத்துகள் - பதினாறு காரணங்கள் - மனத் தூய்மை தரும் சமுதாய நலன்.
அலகு–5	(5 மணிநேரம்) கல்வியும் சமுதாயமும் - கல்வியின் சமுதாய நோக்கங்கள் - கல்வியின் சமுதாயப் பணிகள் - அரசியலும் சமுதாயமும் - பொருளாதாரமும் சமுதாயமும் - விஞ்ஞானமும் சமுதாயமும்.

TEXT BOOKS

Recent editions of the following books only are recommended

S. No.	Author Name	Title of the Book	Publishers
1	-	தனிமனித விழுமியங்கள்	என்.ஜி.எம். கல்லூரிஇ பொள்ளாச்சி.
2	-	சமுதாய விழுமியங்கள்	என்.ஜி.எம். கல்லூரிஇ பொள்ளாச்சி.

REFERENCE BOOKS

S. No.	Author Name	Title of the Book	Publishers
1	-	வாழ்வியல் விழுமியங்கள்,	வேதாத்திரி பதிப்பகம் இ ஈரோடு.
2	-	மனவளக்கலை யோகா	வேதாத்திரி பதிப்பகம் இ ஈரோடு.

SEMESTER–II

Programme Code :	B.Sc CS	Programme Title	Bachelor of Computer Science	
Course Code :	18U2SBST02	Title : Skill based Subject 2:Mathematics for Competitive Examinations - II	Batch	2018–2021
			Semester	II
Hrs/week	2 Hours		Credits	2

COURSE OBJECTIVES

To enable the Students

- To know about concept of Interest and Profit and loss.
- To develop the ability in solving Permutation , Combinations and Bankers Discount.
- To Solve Problems of Permutations and combinations.

COURSE OUTCOMES (CO)

On successful completion of the course, students will 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 (6Hrs)

Profit and Loss - Ratio and Proportion

UNIT II (6Hrs)

Partnership - Chain Rule

UNIT III (6Hrs)

Time and Distance - Time and work

UNIT IV (6Hrs)

Permutation & Combinations

UNIT V (6Hrs)

True Discount- Bankers Discount

(Simple Problems only)

TEXT BOOKS **(Recent Edition of the following bools only are recommended)**

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	7th Revised Edition -2007

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	7th reprint-2003

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 CS**	**Programme Title**	**Bachelor of Computer Science**
Course Code:	**18U3CSCT07**	Title: **CORE 7: OPERATING SYSTEMS**	Batch:2018-2021 Semester: III
Hrs/Week:	5 Hrs		Credits: 4

COURSE OBJECTIVES :

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

COURSE OUTCOMES

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

CO Number	**CO Statement**
CO1	To learn the fundamentals of Operating Systems.
CO2	To learn the mechanisms of OS to handle processes and threads and their communication
CO3	To learn the mechanisms involved in memory management in contemporary OS
CO4	To gain knowledge on distributed operating system concepts that includes architecture, Mutual exclusion algorithms, deadlock detection algorithms and agreement protocols
CO5	Explain the file system in operating system

MAPPING WITH PROGRAMME OUTCOMES

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

UNIT I
Hours:15

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

UNIT II **Hours:15**

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

UNIT III **Hours:15**

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

UNIT IV **Hours:15**

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

UNIT V **Hours:15**

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

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

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

S.No	Authors	Title	Publishers
1.	Andrew S. Tanenbaum	**Modern Operating Systems**	Prentice Hall of India Pvt. Ltd, 2003

Refrence books:

S.No	Authors	Title	Publishers
1.	Harvey M. Deitel	**Operating Systems**	Second Edition, Pearson Education Pvt. Ltd, 2002
2.	Abraham Silberschatz, Peter Baer Galvin and Greg Gagne	**Operating System Concepts**	Edition, John Wiley & Sons (ASIA) *Pvt. Ltd, 2003.*

WEBSITE REFERENCE

http://faculty.salina.k-state.edu/tim/ossg/Introduction/OSrole.html

https://en.wikipedia.org/wiki/Operating_system

http://www.cs.nchu.edu.tw/~hwtseng/OS/os.pdf

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

SEMESTER-III

Programme code:	B.Sc CS	Programme Title	Bachelor of Computer Science	
Course Code:	**18U3CSCT08**	Title:Core 8:JAVA PROGRAMMING	Batch	2018-2021
			Semester	III
Hrs/Week:	6 Hrs		Credits	4

COURSE OBJECTIVES

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

COURSE OUTCOMES

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

CO Number	CO Statement
CO1	Explain the fundamental structure of java program and to develop different programs in java language.
CO2	Understand in detail about branching,looping and arrays in java program using the development environment.
CO3	Solve problems using methods and interface
CO4	Identify the errors and develop the Applet program
CO5	Evaluate the file management in java language.

MAPPING WITH PROGRAMME OUTCOMES

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

SYLLABUS

UNIT I **Hours:20**

Fundamentals of Object-Oriented Programming : Object-Oriented Paradigm – Basic Concepts of

Object-Oriented Programming – Benefits of Object-Oriented Programming – Application of Object-Oriented Programming. Java Evolution: History – Features – How Java differs from C and C++ – Java and Internet – Java and www –Web Browsers. Overview of Java: simple Java program – Structure – Java Tokens – Statements – Java Virtual Machine.

UNIT II **Hours: 20**

Constants, Variables, Data Types - Operators and Expressions – Decision Making and Branching: if, if ..else, nested if, switch, ? : Operator - Decision Making and Looping: while, do, for – Jumps in Loops - Labeled Loops – Classes, Objects and Methods.

UNIT III **Hours: 20**

Arrays, Strings and Vectors – Interfaces: Multiple Inheritance – Packages: Putting Classes together – Multithreaded Programming.

UNIT IV **Hours: 15**

Managing Errors and Exceptions – Applet Programming – Graphics Programming.

UNIT V **Hours: 15**

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

TEXT BOOKS: (Recent Edition of the following bools only are recommended)

S.No	Authors	Title	Publishers	Year of Publication
1.	E.Balagurusamy	**PROGRAMMING WITH JAVA**	3rd Edition, TMH.	

REFERENCE BOOKS

S.No.	Authors	Title	Publishers	Year of Publication
1.	Patrick Naughton& Hebert Schildt	THE COMPLETE REFERENCE JAVA 2	3rd Edition,TMH	1998
2	John R. Hubbard	PROGRAMMING WITH JAVA	2nd Edition, TMH	2002

WEBSITE REFERENCE

1.https://www.Springpoint.com/Java-Programming

2.**https://www.javapoint.com**

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

SEMESTER-III

Programme code:	B.Sc CS	Programme Title	Bachelor of Computer Science	
Course Code:	**18U3CSCT09**	Title:CORE 9: DATA COMMUNICATONS AND NETWORKS	Batch Semester	2018-2021 III
Hrs/Week:	5 Hrs		Credits	4

Course Objectives

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

- Build an understanding of the fundamental concepts of computer networking.
- Familiarize the student with the basic taxonomy and terminology of the computer networking area.
- Introduce the student to advanced networking concepts, preparing the student for entry Advanced courses in computer networking.
- Allow the student to gain expertise in some specific areas of networking such as the design and maintenance of individual networks.

Course Outcomes

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

CO Number	CO Statement
CO1	Independently understand basic computer network technology. And Understand and explain Data Communications System and its components.
CO2	To Apply the different types of network topologies and protocols.
CO3	Analyse the layers of the OSI model, TCP/IP and the function(s) of each layer.
CO4	To Evaluate and building the skills of subnetting and routing mechanisms.
CO5	To Create the basic protocols of computer networks and how they can be used to assist in network design and implementation.

Mapping **Outcome**

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

Syllabus

UNIT I **Hours : 14**

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

UNIT II **Hours:16**

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

UNIT III **Hours:15**

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

UNIT IV **Hours:15**

NETWORK LAYER-Network Layer services - Packet switching – Network layer performance – IPV Address – Forwarding of IP packets – Network layer protocols : Internet protocol (IP) – ICMPv4 – Mobile IP – Next generation IP :IPv6 Adressing – The IPv6 Protocol – The ICMPv6 Protocol – Transition from IPv4 to Ipv6.

UNIT V **Hours:15**

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

Text Books **(Recent Edition of the following bools only are recommended)**

S.No	Authors	Title	Publishers
1.	Behrouz A. Forouzan	Data Communications and Networking	Fifth Edition, McGraw Hill Education pvt ltd

Reference Books

S.No	Authors	Title	Publishers
1.	Achyut S Godbole	Data Communications and Networks	Tata McGraw Hill Education pvt Ltd
2.	Uyless d. Black	Data Communications and Networks	Tata McGraw Hill Education pvt Ltd

SEMESTER – III

Programme code:	B.Sc CS	Programme Title	Bachelor of Computer Science	
Course Code:	**18U3CSCP10**	Title:Core 10: Java Programming Practical	Batch Semester	2018-2021 III
Hrs/Week:	6 Hrs		Credits	3

COURSE OBJECTIVES:

- To develop the applications using Java Programming language.
- To apply the concepts like looping, methods, interface, applets and file concepts.

COURSE OUTCOMES:

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

CO Number	CO Statement
CO1	Observe Java to demonstrate practical experience in developing solutions
CO2	Evaluating different methods, interface, applets and file concepts.
CO3	Distinguish about Compile and debug programs in Java language
CO4	Evaluating different controls in java
CO5	Evaluating the file handling functions

MAPPING WITH PROGRAMME OUTCOMES:

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

PROGRAM LIST

1. Write a Java program to generate a Pascal Triangle.
2. Program for counting letter frequencies in a given string
3. Write a Java Program to implement the concept of multiple inheritance using Interfaces.

4. Write a Java Program to create an Exception called payout-of-bounds and throw the exception.
5. Program that counts the number of lines, words and characters in a given text file
6. Write a Java Program to implement the concept of multithreading with the use of any three multiplication tables and assign three different priorities to them.
7. Write a Java Program to draw several shapes in the created windows.
8. Write a Java Program to demonstrate the Multiple Selection List-box.
9. Write a Java Program for creating your own package
10. Write a Java Program to create Menu Bars and pull down menus.
11. Program that generates a human face using applet
12. Create an applet that accepts two numbers in two textfields. Add a button labeled "equals" which when pressed should add the two numbers and display the result in the third text field
13. Write a Java Program to create frames which respond to the mouse clicks. For each events with mouse such as mouse up, mouse down, etc., the corresponding message to be displayed.
14. Write a Java Program to draw circle, square, ellipse and rectangle at the mouse click positions.
15. Write a Java Program which open an existing file and append text to that file.

WEBSITE REFERENCE

1.*https://www.programiz.com/java-programming/examples*

2.https://fresh2refresh.com/java-programming/java-programs

SEMESTER III

Programme Code	B.Sc CS	Programme Title	Bachelor of Computer Science	
Course Code :	18U3CAAT03	Title : Operations Research	Batch Semester	2018-2021 III
Hrs/week	5		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

COURSE OUTCOME

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
CO1	-	-	-	✓	-	✓	-	-	-	-	-
CO2	-	-	-	✓	-	✓	-	-	-	-	-
CO3	-	-	-	✓	-	✓	-	-	-	-	-
CO4	-	-	✓	✓	-	✓	-	-	✓	✓	✓
CO5	-	-	✓	✓	-	✓	-	-	-	✓	✓

Syllabus

UNIT I (Hours:15)

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

UNIT II (Hours:15)

The Transportation Problems- Initial Basic Feasible Solution by North West Corner

rule-Least Cost Method-Vogel's Approximation Method-The Assignment Problems-Assignment Algorithm-Optimum Solution-Unbalanced Assignment problem-Travelling Salesman Problem.

UNIT III (15 Hrs)

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

UNIT IV (15 Hrs)

(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 (15 Hrs)

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:

Recent editions of the following books only are recommended

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

REFERENCE BOOK

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

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 Learning, Seminar, Assignment, Google

classroom.

SEMESTER : III

Programme Code:	**B.Sc CS**	**Programme Title**	**Bachelor of Computer Science**	
Course Code :	18U3NMET01	Non Major Elective 1 : Food Science and Nutrition	Batch	2018-2021
			Semester	III
Hrs/week	2 Hrs		Credits	2

COURSE OBJECTIVE

- 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 OUTCOME (CO)

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

CO Number	**CO Statement**
CO1	identify the properties of various food components.
CO2	Explain the role of nutrition in the maintenance of good health.
CO3	Explain about clasification, sources, functions, requirements, health hazards due to deficiency and excess of these vitamins.
CO4	Explain the problem of malnutrition and measures to overcome the same.
CO5	Explain the various laws, available for food safety and find out whether the food is adulterated.

MAPPING WITH PROGRAMME OUTCOMES

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

SYLLABUS

Unit	Content
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:

Recent editions of the following books only are recommended

S. No	Author Name	Title of the Book	Publisher
1	Dr.A.Indhuleka	Healthy Vittles and Bits	

REFERENCE BOOKS:

S. No	Author Name	Title of the Book	Publisher
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 Discussion, Seminar, Assignment, Google Classroom

SEMESTER III

Programme Code :	**B.Sc CS**	**Programme Title:**	**Bachelor of Computer Science**	
Course Code :	18U3SBST03	Skill based subject 3: Mathematics for competitive Examinations III	Batch Semester	2018-2021 III
Hrs/week	2 Hours		Credits	2

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**
C01	Several tricks and formulas for pipes and cisterms are available which reduces the effort to solve the problem.
C02	Solve the problems on time and distance train, boats and stream.
C03	Apply the concept of Alligation and height & distance to solve problem.

MAPPING WITH PROGRAMME OUTCOMES

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

SYLLABUS

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

Recent editions of the following books only are recommended

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-III

Programme Code:	**B.Sc CS**	**Programme Title**	**Bachelor of Computer Science**	
Course Code:	18U3SBST03	Communication Skills- I	Batch	2018-2021
			Semester	III
Hrs/ Week	2 Hrs		Credits	2

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 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

MAPPING WITH PROGRAMME OUTCOMES

Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**
CO1	✓	-	-	-	-	-	-	-	-	-	✓
CO2	✓	-	-	-	✓	-	-	-	-	-	✓
CO3	✓	-	-	-	-	-	-	-	-	-	-

SYLLABUS

UNIT –I- COMMUNICATION

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

UNIT- II- LISTENING SKILLS

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

UNIT- III- SPEAKING

Group Discussion

Speaking at Different Types of Interviews

Making Effective Telephone Calls

Telephone Etiquette

TEXT BOOKS:

Recent editions of the following books only are recommended

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.

அடிப்படைத் தமிழ்

பகுதி – ஐஏ : தமிழ்த்தாள் - 1 - மூன்றாம் பருவம்

(12-ம் வகுப்பு வரை தமிழ் மொழிப்பாடம் பயிலாதவர்களுக்கு)

Subject Code : 18U3BTLT01 Total Hrs: 20

அகமதிப்பீட்டுத் தேர்வு மட்டும்

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 – IV

Programme code:	B.Sc CS	Programme Title	Bachelor of Computer Science	
Course Code:	18U4CSCT11	Title:Core 11:WEB DESIGNING	Batch	2018-2021
			Semester	IV
Hrs/Week:	5 Hrs		Credits	4

COURSE OBJECTIVES

- To get practiced with creating the schemas, HTML and XML Document.
- To acquire knowledge on creating web page to deploy the web applications.
- To understand scripting language in java script

COURSE OUTCOMES

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

CO Number	CO Statement
CO1	Observe the fundamental concepts of network and internet
CO2	Develop the web page by using HTML elements
CO3	Develop the web page by using HTML with Style sheet
CO4	Classify the XML and DTD concepts by developing webpages.
CO5	Assess about the Concept object oriented mechanism

MAPPING WITH PROGRAMME OUTCOMES:

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

SYLLABUS

UNIT I **Hours:15**

Internet : Introduction to the Internet – Internet Technologies-Browser-**HTML:** HTML command tags- Head and Body section – Tags with Automatic Line Breaks – Values – Designing web pages – Formatting Text in html – Text color – Ordered and Unordered Lists Creating Liks – Table Handlin – DHTML and Style sheets – frames.

UNIT II **Hours:15**

Cascading Style sheets : Introduction to CSS – Creating Style Sheets- Commen Tasks with

CSS - Colours – The Font Family – Assigning Classes – The Layer Tag – Css Tags

UNIT III **Hours:15**

Extensive Markup Language (XML) : Introduction – Features of XML – Support and usage – Compatability of XML with others:-CSS and XSL-Xlinks and Xpointers-URLs Verurs URIs-XMl and SGML .

UNIT IV **Hours:15**

Structure of a XML Documnets - Common Errors - Structure in XML:- well formed Xml Documents-Logical Structures-Physical structures-Mark-Up and Character data-White spaces-Xml Declaration-Tags and Elements-Tag Name-Creating Document Type Declaration.

UNIT V **Hours:15**

Java Script: Introduction – operators – starting with Java Scripts – Statements in Javavscripts – Working with objects – properties – Browser objects – data objects – math objects – string objects – defining objects – Handling Events in JavaScripts – Event handling Attributes Window Events – Form Elements – User Actions – Frame Objects – Document Object - Document Objects – Navigation Objects – Screen objects – Images and Animation

TEXT BOOKS: (Recent Edition of the following bools only are recommended)

S.No.	Authors	Title	Publishers	Year of Publication
1.	C Xavier	World Wide Web Design with HTML	Tata McGraw Hill Education Private Limited,New Delhi	2006
2	Ramesh Bangia	Web Technology (Including HTML, CSS,XML,ASP,JavaScript,VB Script),	Firewall Media	2008

REFERENCE BOOKS

S.	Authors	Title	Publishers	Year of Publication
1.	L.Mathu Krithigha Venkatesh	Web Technology	Margham Publications.	2002

WEBSITE REFERENCE

1.https://www.w3schools.com/Html

2. .https://www.w3schools.com/**Xml/Dtd**

3..https://www.w3schools.com/CSS

SEMESTER – IV

Programme code:	B.Sc CS	Programme Title	Bachelor of Computer Science	
Course Code:	18U4CSCT12	Core 12: CYBER LAWS AND SECURITY POLICIES	Batch	2018-2021
			Semester	IV
Hrs/Week:	6 Hrs		Credits	4

COURSE OBJECTIVES

- Understand the Basics of Cyber Law and Cyber Security.
- Identify how intruders escalate privileges and what steps can be taken to secure a system.
- Introduce and demonstrate hacking tools for penetration testing purposes only.

COURSE OUTCOMES

Upon the completion of this course, the students will be able to

CO Number	CO Statement
CO1	Predict the basic concepts of Cyber Law & Ethics of Cyber Law
CO2	Indicate the various Data Encryption Methodologies
CO3	Enumerate about the Cyber Crime factors & Preventive Measures
CO4	Demonstrate the Digital Signatures & Certificates in Human life
CO5	Recognize and Detection of Cyber Attacks.

Mapping Outcome

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

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.

REFERENCES: **(Recent Edition of the following bools only are recommended)**

S.NO	Authors	Title	Publishers	Year of Publication
1.	Debby Russell and Sr. G.T Gangemi	Computer Security Basics (Paperback)	2ndEdition, O'Reilly Media,	2006
2.	Thomas R. Peltier	Information Security policies and procedures: A Practitioner's Reference	2nd Edition Prentice Hall	2004
3.	Kenneth J. Knapp	Cyber Security and Global Information Assurance: Threat Analysis and Response Solutions	IGI Global	2009
4.	Thomas R Peltier, Justin Peltier and John blackley	Information Security Fundamentals	2nd Edition, Prentice Hall	1996

SEMESTER - IV

Programme code:	**B.Sc CS**	**Programme Title**	**Bachelor of Computer Science**
Course Code:	18U4CSCT13	Title: Core 13:Software Engineering	Batch:2018-2021
			Semester: IV
Hrs/Week:	5 Hrs		Credits: 3

COURSE OBJECTIVES

- To learn the basics Concepts of Software Engineering .
- To Understand the SCM process.
- To learn about various Software Enineering concepts.

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,Software estimation and analysis method
CO3	Apply Project Management and Requirement analysis, Verification and validation
CO4	Analyze the cost estimate and problem complexity using various estimation techniques.
CO5	Generate test cases using the techniques involved in selecting SCM and testing methods

MAPPING WITH PROGRAMME OUTCOMES

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

SYLLABUS

UNIT I **Hours:15**

Introduction to Software Engineering : Introduction-Basic definitions- Distribution of effort- Project Size Categories – Managerial Issues -Quality and Productivit Factors – Software Cost Factors. **Planning a Software Project:** Introduction – Software life Cycle Models – Waterfall Model – Work Products and Reviews – Prototype Model – Spiral Model – Concurrent Development Model – Component Assembly Model – Rapid Application Development Model – The incremental Model .

UNIT II **Hours:15**

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

UNIT III **Hours:15**

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

UNIT IV **Hours:15**

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

UNIT V **Hours:15**

Software Testing Methods: Flowgraph and Graph Matrix- Software Testing Methods – White box testing – White Box Testing.

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

S. No	Authors	Title	Publishers
1.	A.K.R.S. Anusha	Software Engineering	CharulathaPublications, december 2016.

REFERENCE BOOKS

S.No.	Authors	Title	Publishers	Year of Publication
1.	Richard Fairley,	Software Engineering Concepts	Latest Edition. TMH.	2008
2	Eve Anderson, Philip Greenspun, Andrew Grumet,	Software Engineering for Internet Applications	PHI	2006
3	Jeff Tian,	Software Quality Engineering	Student edition, Wiley India	2006

WEBSITE REFERENCE

1.https://www.w3schools.com/softwareengineering

2.https://www.bestcomputersciencedegrees.com

SEMESTER – IV

Programme Code:	B.Sc CS	Programme Title	Bachelor of Computer Science	
Course Code:	18U4CSCP14	Title:Core 14:WEB DESIGNING PRACTICAL	Batch	2018-2021
			Semester	IV
Hrs/Week:	6 Hrs		Credits	3

COURSE OBJECTIVES

- To develop the webpage using HTML,CSS ,XML with DTD and Java Script
- To apply the concepts like looping, control statements and document object

COURSE OUTCOMES

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

CO Number	CO Statement
CO1	Choose HTMl elements to develop the static webpage
CO2	Estimate HTML, CSS, Xml with DTD to demonstrate practical experience in web developing solutions
CO3	Manipulate about dynamic webpage in javascript language
CO4	Estimate HTML controls using web developing applications
CO5	Manipulate about XLINK in DTD

MAPPING WITH PROGRAMME OUTCOMES

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

PROGRAM LIST

1. Create Tables using colspan and rowspan

2. Linking using Image map
3. Embedding flash file in Html
4. Create web page in Html using frames
5. Apply effects to text and image using CSS
6. Change the font text color and background picture.
7. Changing the background color using onmouseover, on click, on change events.
8. Displaying the radio button and combo box elements in the text box
9. Moving text or image with mouse
10. Checking the shift key, Right mouse button, Left mouse button is pressed or not and finding X, Y co,ordinates.
11. Changing the background of the button in the tables using mouse over.
12. Displaying the text in the status bar
13. Movement of text of different boxes into single text box
14. Program For Personal Details using XML and DTD
15. Program For State Details using XML and CSS
16. Program For College Details using XLINK

WEBSITE REFERENCE

1.https://www.w3schools.com/Html

2. https://www.w3schools.com/Xml/Dtd

https://www.w3schools.com/

SEMESTER – IV

Programme Code :	**B.Sc CS**	Programme Title	Bachelor of Computer Science	
Course Code :	18U4ITAT04	Title: ALLIED 4: BUSINESS ACCOUNTING	Batch	2018-2021
			Semester	IV
Hrs/week	**6 Hrs**		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:15)

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

UNIT - II

(Hours:15)

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:15)

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

UNIT - IV

(Hours:15)

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:15) 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:

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

SEMESTER - IV

Programme Code	B.Sc CS	Programme Title	Bachelor of Computer Science	
Course Code:	16U4NMET04	NON MAJOR ELECTIVE 2 : FLORICULTURE	Batch	2018-2021
			Semester	IV
Hrs/ Week	2 Hrs		Credits	2

COURSE OBJECTIVE

- To make the students know what is floriculture, its status, scope and development.
- To make the students to know how to cultivate various types of cut flowers, arranging bouquets and scope of loose flowers to trade.
- To make the students understand how to make various designs such as vase design, basket/mug design etc.,
- To make the students clear about how to propogate various varieties of flowers which are Annuals & Perennials and their growing techniques.
- The students will be made to understand whether floriculture can be taken,as their career and the opportunities available.

COURSE OUTCOME (CO)

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

CO Number	CO Statement
CO1	Explain the scope, status and development of floriculture in India.
CO2	To make use of cut flowers in arranging bouquets and explain the significance of loose flowers to trade.
CO3	Demonstrate how to make vase design, basket / mug design creatively by using flowers.
CO4	Explain the varieties of flowers which are annuals and perennials and their growing techniques.
CO5	Make floriculture to be taken as their career by knowing the government incentives, subsidies and other supporting agencies.

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	Content
Unit-I	**(6 Hours)** Floriculture – Definition, Introduction and Scope of Floriculture. Status of floriculture in India. Development of Floriculture
Unit-II	**(6 Hours)** 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	**(6 Hours)** Design- Types of design Flower choice for design, Corsages/Boutonnières, Vase design, Basket/mug design.
Unit-IV	**(6 Hours)** Propagation-Types of propagation, Annuals & Perennials, Varieties, Growing seasons, Potting techniques.
Unit-V	**(6 Hours)** Careers in Floriculture. Export/Import and marketing in floriculture. Government Incentives and Schemes. The role of supporting agencies.

TEXT BOOKS

Recent editions of the following books only are recommended

S. No.	Author Name	Title of the Book	Publishers
1	Dr.S.N.Suresh	Introduction to Floriculture	

REFERENCE BOOKS

S. No.	Author Name	Title of the Book	Publishers
1	Jacob Varghese Kunthara	Know your Garden Plants	
2	Dr. B. Hemlanaik	Production Technology of Ornamental Crops and Landscape Gardening	

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

SEMESTER-IV

Programme Code:	B.Sc CS	Programme Title	Bachelor of Computer Science	
Course Code:	**18U4SBST05**	**Skill Based Subject 5:** Mathematics for Competitive Examinations -IV	Batch	2018-2021
			Semester	IV
Hrs/ Week	2 Hrs		Credits	2

COURSE OBJECTIVES

To enable the Students

- To make the students to know the concept of Problems of Interest and Venn 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 Number	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.

MAPPING WITH PROGRAMME OUTCOMES

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

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	7th Revised Edition - 2007

REFERENCE BOOK

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	ata Mc-Graw Hill Publishing Company	7th reprint-2003

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 CS	Programme Title	Bachelor of Computer Science	
Course Code:	18U4SBST06	Skill Based Subject 6: Communication Skills- II	Batch	2018-2021
			Semester	IV
Hrs/ Week	2 Hrs		Credits	2

COURSE OBJECTIVES:

- To know clearly the use of various symbols for pronunciating the words with proper sounds.
- To make aware of various techniques of reading and writing different reports.

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 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

- Resume Preparation
- Report Writing
- Minutes of a Meeting
- Data Representation and Interpretation
- Memos

UNIT- II : SOUNDS & SYMBOLS

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

TEXT BOOKS:

Recent editions of the following books only are recommended

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 Classroom

Programme Code :	B.Sc CS	Programme Title	**Bachelor of** Computer Science	
Course Code :	18U4BTLT02	Non Credit Course 2: Basic Tamil–II #	Batch	2018–2021
			Semester	IV
Hrs/week	–		Credits	–

அடிப்படைத் தமிழ்

பகுதி – ஐஏ : தமிழ்த்தாள் - 2 – நான்காம் பருவம்

(12-ம் வகுப்பு வரை தமிழ் மொழிப்பாடம் பயிலாதவர்களுக்கு)

ளுரடிதநஉவ ஊழனந : 18ரு4டீவுடுவு02
வுழவயட ர்சள: 20

அகமதிப்பீட்டுத் தேர்வு மட்டும்

நீதி நூல்கள் : ஆத்திச்சூடி (முதல் 12) ‘‘அறம் செய விரும்பு’’, முதல் ‘‘ஒளவியம் 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 V

Programme Code :	B.Sc CS	Programme Title	**Bachelor of Computer Science**	
Course Code :	18U5CSCT15	Title :Core15: ASP .NET and C#	Batch	2018-2021
			Semester	V
Hrs/week	5 hrs		Credits	4

COURSE OBJECTIVES

To enable the students

- To understand .NET framework and C#.
- To understand Object oriented concepts of C#.
- To understand and design Application using C#
- To understand Web based application development.
- To understand in depth concepts of .NET framework

COURSE OUTCOMES (CO)

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

CO Number	CO Statement
CO1	Understand the .NET workflow in detail
CO2	Demonstrate .Net framework and web based Design
CO3	Demonstrate the Model and Data base applications using C#
CO4	Understand Object oriented concepts of C#
CO5	Understand the C# programming with control structures

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)

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 : 16)

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 : 14)

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

UNIT –IV (Hours : 15)

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

UNIT –V (Hours : 15)

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

TEXT BOOKS **(Recent Edition of the following bools only are recommended)**

S. No	Author Name	Title of the Book	Publisher	Year/Edition
1.	Dave Marcer	ASP .NET – A Beginner's Guide	McGraw Hill Education India Private Limited.	2002 3rd Edition
2.	E. Balagurusamy	Programming in C# - A Primer	McGraw Hill Education India Private Limited.	2010 3rd Edition

REFERENCE BOOKS

S. No	Author Name	Title of the Book	Publisher	Year/Edition
1.	Karli Watson, Christian Nagel, Jacob Hammer Pedersen, Jon Reid, and Morgan Skinner	BEGINNING VISUAL C# 2010	Wiley Publishing, Inc.	2008 2nd Edition
2.	Stephen C. Perry	Core C# and .NET	Pearson Education	2010 4th Edition

WEBSITE REFERENCES

https://dotnet.microsoft.com/apps/aspnet
https://en.wikipedia.org/wiki/ASP.NET
https://www.tutorialspoint.com/asp.net
https://www.tutorialspoint.com/csharp
https://www.geeksforgeeks.org/csharp-programming-language

SEMESTER V

Programme Code :	B.Sc CS	Programme Title	Bachelor of Computer Science	
Course Code :	18U5CSCT16	Title : Core 16: PHP & MYSQL	Batch	2018-2021
			Semester	V
Hrs/week	5 hrs		Credits	4

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

SYLLABUS

UNIT I **Hours:15**

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

UNIT II **Hours:15**

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

UNIT III **Hours:15**

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:15**

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:15**

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

S.No	Authors	Title	Publishers
1.	Matt Doyle	**Beginning PHP 5.3**	**TataMcgraw Hill,2009.**

Refrence 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**

SEMESTER V

Programme Code :	B.Sc CS	Programme Title	**Bachelor of Computer Science**	
Course Code :	18U5CSCP17	Title :Core 17: ASP .NET and C# - PRACTICAL	Batch	2018-2021
			Semester	V
Hrs/week	6 hrs		Credits	4

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 simple programs using C#
CO5	Developing applications using C#

MAPPING WITH PROGRAMME OUTCOMES

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

PROGRAMS

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 not.

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

www.codingfusion.com/Asp--Net-Practice-Questions

www.corporatebpl.com/cistuploads/DotNetMEAssignment.pdf

tusharkant.com/2013/04/asp-net-lab-manual-programs.html

https://www.sanfoundry.com/csharp-programming-examples/

https://www.w3resource.com/csharp-exercises/

SEMESTER V

Programme Code :	B.Sc CS	Programme Title	**Bachelor of Computer Science**	
Course Code :	18U5CSCP18	Title :**CORE 18: PHP & MYSQL PRACTICAL**	Batch	2018-2021
			Semester	V
Hrs/week	6 hrs		Credits	3

COURSE OBJECTIVES

- To develop the applications using PHP and MYSQL.
- To apply the concepts like looping, control statements arrays, function overloading and Database Management concepts.

COURSE OUTCOMES

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

CO Number	CO Statement
CO1	Choose the loops and decision making statements to solve the problem in PHP and MYSQL
CO2	Estimate PHP and MYSQL to demonstrate practical experience in developing solutions
CO3	Manipulate about viewing results by localhost in browser.
CO4	Manipulate about web server in browser
CO5	Manipulate about cookie and session

MAPPING WITH PROGRAMME OUTCOMES

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

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

WEBSITE REFERENCE

https://www.tutorialspoint.com/php/php_and_mysql.htm

https://www.w3schools.com/php/php_mysql_intro.asp

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

SEMESTER V

Programme Code:	B.Sc CS	Programme Title	Bachelor of Computer Science	
Course Code:	18U5NCCT01	Non Credit Course 3 :Aptitude & Soft Skills- I	Batch	2018-2021
			Semester	V
Hrs/ Week	3Hrs		Credits	-

COURSE OBJECTIVES

- 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 Number	CO Statement
CO1	Apply the inter personal and problem solving skills in the placement drive.
CO2	To apply the behavioral skills required for promoting individual competence by implementing the principles of interpersonal communication and value – based living to meet the market expectations.
CO3	Grasp the approaches and strategies to solve problems with speed and accuracy.
CO4	ility to reason critically by analyzing , elevating and extending arguments.
CO5	plain the concepts deal with graphs,tables,number sequence and texts.

SYLLABUS

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

7.Numerical Reasoning

8.Mental Ability

9. Logical Reasoning

TEXT BOOKS

Recent editions of the following books only are recommended

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

REFERENCE BOOKS

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

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

SEMESTER-VI

Programme code:	B.Sc CS	Programme Title	Bachelor of Computer Science	
Course Code:	**18U6CSCT19**	Title:Core 19: GRAPHICS AND MULTIMEDIA	Batch	2018-2021
			Semester	VI
Hrs/Week:	5 Hrs		Credits	4

COURSE OBJECTIVES

- To provide thorough knowledge to the students the basic concepts of Graphics & Multimedia .

COURSE OUTCOMES

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

CO Number	CO Statement
CO1	Explain two and three dimensional concepts and their applications
CO2	Identify all techniques related to modern graphics programming concepts
CO3	To understand 2D and 3D graphics and their transformations
CO4	To understand various clipping techniques
CO5	To understand various illumination and color models

MAPPING WITH PROGRAMME OUTCOMES

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

SYLLABUS

UNIT I **Hours:15**

Overview of Graphics Systems:Video Display Devices – Raster Scan Systems – Random Scan Systems – Graphics Monitors and Workstations – Input devices.

UNIT II

Hours:15

Output Primitives: Points and Lines – Line-Drawing algorithms – Loading frame Buffer – Line function – Circle-Generating algorithms – Ellipse-generating algorithms. Attributes of Output Primitives: Line Attributes – Curve attributes – Color and Grayscale

Levels – Area-fill attributes – Character Attributes.

UNIT III

Hours:15

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

UNIT IV

Hours:15

Text: Types of Text – Unicode Standard – Font – Insertion of Text – Text compression – File formats. Image: Image Types – Seeing Color – Color Models – Basic Steps for Image Processing – Scanner – Digital Camera – Interface Standards – Specification of Digital Images – CMS – Device Independent Color Models – Image Processing software – File Formats – Image Output on Monitor and Printer.

UNIT V

Hours:15

Audio: Introduction – Acoustics – Nature of Sound Waves – Types and Properties of Sound – Components of an Audio Systems – Digital Audio – Synthesizers – MIDI. Video: Introduction – Motion Video – Analog Video Camera – Analog Video Signal Representation – Television Systems – Video Color Spaces . Compression: Basic Concepts – Lossless Compression Techniques – Lossy Compression Techniques – Image Compression – Audio Compression.

TEXT BOOKS: (Recent Edition of the following bools only are recommended)

S.No	Authors	Title	Publishers	Year of Publication
1.	Donald Hearn, M.Pauline Baker	Computer Graphics, (UNIT-I: 3.1-3.6,4.1-4.5 & UNIT-II: 5.1-5.4,6.1-6.5)	2nd edition, PHI	
2	Ranjan Parekh	Principles of Multimedia (UNIT III: 4.1-4.7,5.1-5.16 UNIT-IV:7.1-7.3,7.8-7.14,7.18-7.20,7.22,7.24,7.26-28 UNIT-V: 9.5-9.10,9.13,9.15,10.10-10.13)	2007, TMH	2007

REFERENCE BOOKS

S.No.	Authors	Title	Publishers	Year of Publication
1.	Amarendra N Sinha, Arun D Udai	Computer Graphics,,	TMH	
2	Tay Vaughan	ultimedia: Making it Work,	7th edition, TMH	2002

WEBSITE REFERENCE

1.https://www.Springpoint.com/Java-Programming

2.**https://www.google.com**

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

SEMESTER – VI

Programme Code	B.Sc CS	Programme Title	**Bachelor of Computer Science**	
Course Code:	18U6CSCP20	Title:Core 20: SOFTWARE TESTING PRACTICAL	Batch	2018-2021
			Semester	VI
Hrs/ Week	5 Hrs		Credits	3

COURSE OBJECTIVES

- Develop methods and procedures for software development that can scale up for large systems and that can be used to consistently produce high-quality software
- at low cost and with a small cycle time
- Student learn systematic approach to the development, operation, maintenance, and retirement of software
- Student learn how to use available resources to develop software.

COURSEOUTCOMES (CO):

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

CO Number	CO Statement
CO1	Investigate the reason for bugs and analyze the principles in software testing to prevent and remove bugs.
CO2	Implement various test processes for quality improvement
CO3	Design test planning.
CO4	Manage the test process
CO5	Manipulate Exception Handling

MAPPING WITH PROGRAMME OUTCOMES

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

PROGRAMS LIST

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. Testing the java program:Biggest of three numbers using Logical Operators.
5. Creating test cases and testing the functionality of calculator.
6. 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.
7. Testing the java program:Matrix Multiplication
8. Testing the java program:Matrix Addition
9. Testing the java program: Sort and store the elements two arrays of integers into the third list.
10. Testing the java program: Multiple Inheritance.
11. Testing the java Program: Palindrome string checking program.
12. Testing the java Program: String Manipulation.
13. Testing the java Program: Employee details using constructors.
14. Testing the java program:Reading and writing a files.
15. Testing the java program:Exception Handling

SEMESTER – VI

Programme code:	B.Sc CS	Programme Title	Bachelor of Computer Science	
Course Code:	**18U6CSCP21**	Title:CORE 21 : GRAPHICS AND MULTIMEDIA PRACTICAL	Batch Semester	2018-2021 VI
Hrs/Week:	6 Hrs		Credits	3

COURSE OBJECTIVES:

- To implement various graphics drawing algorithms, 2D-3D transformations and clipping techniques.
- To learn the basic principles of 3-dimensional computer graphics.
- This is an introductory course on principles of computer graphics. We will consider both 2D and 3D graphics.

COURSE OUTCOMES:

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

CO Number	CO Statement
CO1	To create interesting scenes. In particular, you will learn how to use lighting, shading, and animation to enhance scenes
CO2	Understand the Concepts of 2D & 3D object representation
CO3	Understand the 3D transformations to create a target practice game.
CO4	Develop an animation using GIMP
CO5	Develop to create Game using C++ program.

MAPPING WITH PROGRAMME OUTCOMES:

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

PROGRAM LIST

Multimedia

1. Create Sun Flower using Photoshop.
2. Animate Plane Flying in the Clouds using Photoshop.
3. Create Plastic Surgery for the Nose using Photoshop.
4. Create See-through text using Photoshop.
5. Create a Web Page using Photoshop.
6. Convert Black and White Photo to Color Photo using Photoshop.
7. Design a Visiting Card containing at least One Graphic and Text Information.
8. Take a photographic image, Give a title for the Image. Put the border. Write your names and the name of the institution and place.

Animation

9. Changing the color
10. Shape Animations
11. Twinkle a star
12. Simple games
13. Graphics
14. Moving a car
15. rotate an image
16. DDA Algorithms

WEBSITE REFERENCE

1.https://www.**google.com**

SEMESTER – VI
CORE 22 : PROJECT VIVA VOCE

Subject Code : 18U6CACV22 **Total Hrs : 75** **No of Credits : 4**

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

1. Project work carries 100 marks with 4 credits
2. Internal Assessment: 80 marks (60 marks for 3 reviews and 20 marks for record) and External Assessment : 20 marks (Viva Voce)
3. For awarding a pass, a candidate should have obtained 40% of the total 100 Marks.(Viva - Voce)
4. 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 PROJECT
Bonafide Work Done by
STUDENT NAME
REG. NO.

Project submitted in partial fulfillment of the requirements

for the award of Bachelor of Computer Science of
Bharathiar University ,Coimbatore-46

College emblem

GUIDE HOD

Submitted for the Viva-Voce Examination held on _____

Internal Examiner External Examiner

MONTH – YEAR

CONTENTS

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 CS**	**Programme Title**	**Bachelor of Computer Science**	
Course Code:	**18U6NCCT02**	**Non Credit Course 4 : Aptitude & Soft Skills- II**	**Batch**	**2017-2020**
			Semester	**VI**
Hrs/ Week	**3 Hrs**		**Credits**	**-**

COURSE OBJECTIVES

- 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 the students should be able to

CO Number	CO Statement
CO1	Apply the inter personal and problem solving skills in the placement drive.
CO2	To apply the behavioral skills required for promoting individual competence by implementing the principles of interpersonal communication and value – based living to meet the market expectations.
CO3	Grasp the approaches and strategies to solve problems with speed and accuracy.
CO4	Ability to reason critically by analyzing , elevating and extending arguments.
CO5	Explain the concepts deal with graphs,tables,number sequence and texts.

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 BOOKS

Recent editions of the following books only are recommended

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

REFERENCE BOOKS

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

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

SEMESTER – V

Programme code:	B.Sc CS	Programme Title	Bachelor of Computer Science	
Course Code:	**18U5CSET1A**	**TITLE: ELECTIVE 1: DATA MINING AND WAREHOUSING**	Batch:	2018-2021
			Semester:	V
Hrs/Week:	4 Hrs		Credits:	3

COURSE OBJECTIVES

- On Successful Completion of this subject the students should have knowledge on Data Mining Concepts.
- 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

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

CO Number	CO Statement
CO1	Explain the Basics of data mining and warehousing.
CO2	Describe Data Mining Pre processing.
CO3	Enumerate the Association Rule Mining with Classification
CO4	Elucidate on Cluster Analysis and various methods.
CO5	Determine Applications and Trends in Data Mining.

MAPPING WITH PROGRAMME OUTCOMES

Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	-	灵	灵	-	-	灵	-	灵	-	-	灵	灵
CO2	-	灵	灵	-	-	灵	-	灵	-	-	灵	灵
CO3	-	灵	灵	-	-	灵	-	灵	-	-	灵	灵
CO4	-	灵	灵	-	-	灵	-	灵	-	-	灵	灵
CO5	-	灵	灵	-	-	灵	-	灵	-	-	灵	灵

SYLLABUS

UNIT **Hours: 12**

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

warehouse architecture – Data warehouse implementation – From data warehouse to data mining.

UNIT II **Hours: 11**

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

UNIT III **Hours: 13**

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

UNIT IV **Hours: 12**

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

UNIT V **Hours: 12**

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

TEXT BOOKS (Recent Edition of the following bools only are recommended)

S.No	Authors	Title	Publishers
1.	Jiwei Han, Michelien Kamber	Data Mining Concepts and Techniques	Morgan Kaufmann Publishers an Imprint of Elsevier, Latest Edition. 2003.
2.	Arun K.Pujari	Data Mining Techniques	Universities Press (India) Limited

REFERENCES BOOKS

S.No	Authors	Title	Publishers
1.	George M. Marakas	Modern Data warehousing, Mining and Visualization: Core Concepts	Printice Hall, First Edition, 2002.
2.	Pang-Ning Tan, Michael Steinbach, Vipin Kumar	Introduction to Data Mining	Pearson, 2008.
3.	Soman K. P, Shyam Diwakar, V. Ajay	Data Mining	Printice Hall, 2008.

WEBSITE REFERENCE

1.https://www.tutorialspoint/dm_overview.

2.https://rdatamining.com/resources/tools.

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

SEMESTER – V

Programme code:	B.Sc CS	Programme Title	Bachelor of Computer Science	
Course Code:	**18U5CSET1B**	**TITLE: ELECTIVE : 1 MOBILE COMPUTING**	Batch:	2018-2021
			Semester:	V
Hrs/Week:	4 Hrs		Credits:	3

COURSE OBJECTIVES

- On Successful Completion of this subject the students should have knowledge on Mobile Computing.
- To introduce the mobile communication fundamentals.
- To enable the students to know about GSM and GPRS Technologies.
- To make the students learn and understand 3G, 4G and 5G Technologies.

COURSE OUTCOMES

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

CO Number	CO Statement
CO1	Explain the fundamentals of mobile computing.
CO2	Describe Mobile Computing through Telephony.
CO3	Enumerate the Emerging Technologies with GSM.
CO4	Elucidate on GPRS and WAP Technologies.
CO5	Determine CDMA and 3G Concepts and Implementation.

MAPPING WITH PROGRAMME OUTCOMES

Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	-	灵	灵	-	-	灵	-	灵	-	-	灵	灵
CO2	-	灵	灵	-	-	灵	-	灵	-	-	灵	灵
CO3	-	灵	灵	-	-	灵	-	灵	-	-	灵	灵
CO4	-	灵	灵	-	-	灵	-	灵	-	-	灵	灵
CO5	-	灵	灵	-	-	灵	-	灵	-	-	灵	灵

SYLLABUS

UNIT I **Hours: 12**

Introduction: Mobility of Bits and Bytes –Wireless The Beginning – Mobile

Computing – Dialogue Control – Networks – Middleware and Gateways – Application and services- Developing Mobile computer Applications – security in mobile computing – Standards - Why is it necessary – Standard bodies. MOBILE COMPUTTING ARCHITECTURE: History of computers and Internet – Architecture for mobile computing – Three-tier architecture – Design considerations for mobile computing – Mobile comput ing through Internet – Making exiting applications mobile enabled

UNIT II **Hours: 12**

MOBILE COMPUTING THROUGH TELEPHONY: Evaluation of telephony – Multiple access procedures – Mobile computing through telephone – IVR Application – Voice XML – TAPI

UNIT III **Hours: 12**

EMERGING TECHNOLOGIES: Blue Tooth – RFID – WiMAX –Mobile IP –IPv6 – Java Card. **GSM** : Global System for mobile communications – GSM Architecture – GSM Entities – Call routing in GSM –PLMN Interfaces – GSM Addresses and Identifiers – Network Aspects in GSM – GSM Frequency allocations –Authentications and Security.- **SMS**

UNIT IV **Hours: 12**

GPRS – GPRS and packet data network – GPRS network architecture – GPRS network operations – Data services in GPRS – Application for GPRS- Limitations – Billing and Charging. **WAP** : MMS – GPRS Applications

UNIT V **Hours: 12**

CDMA and 3G: Spread spectrum technology – Is 95 – CDMA vs GSM – Wireless Data – Third generation networks – Applications on 3G WIRELESS LAN: Wireless LAN advantages – IEEE 802.11standards – Architecture – Mobile in Wireless LAN – Deploying wireless LAN – Mobile adhoc networks and sensor networks –Wireless LAN Security –WiFi vs 3G

TEXT BOOKS (Recent Edition of the following bools only are recommended)

S.No	Authors	Title	Publishers
1.	Asoke K Talukder , Roopa R Yavagal	MOBILE COMPUTING	TMH, 2005 , 2nd Edition.

REFERENCES BOOKS

S.No	Authors	Title	Publishers
1.	J.Schiller.	Mobile Communications,	Second Edition, Second Impression, Pearson Education Limited

WEBSITE REFERENCE

1. https://www.tutorialpoint.com/mobile computing.
2. https://www.mobilecomputing.com.ar
3. https://www.cebsworldwide.com/mobile computing.

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

SEMESTER:V

Programme code:	B.Sc CS	Programme Title	Bachelor of Computer Science	
Course Code:	18U5CSET1C	Tiltle:ELECTIVE 1 : EMBEDDED SYSTEMS	Batch	2018-2021
			Semester	V
Hrs/Week:	4 Hrs		Credits	3

COURSE OBJECTIVES

- To make the students to have basic Knowledge and understanding of fundamental embedded systems design paradigms, architectures, possibilities and challenges, both with respect to software and hardware
- Ability to analyze a system both as a whole and in parts and their interaction in the functionality and properties of the system.
- To make the students to have a clear understanding on industrial embedded systems and intelligent embedded system development.

COURSE OUTCOMES

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

CO Number	CO Statement
CO1	Understand what is a microcontroller, microcomputer,embedded system
CO2	Understand different components of a micro-controller andtheir interactions
CO3	Become familiar with programming environment used todevelop embedded systems
CO4	Understand key concepts of embedded systems like IO,timers, interrupts, interaction with peripheral devices
CO5	Learn debugging techniques for an embedded system

MAPPING WITH PROGRAMME OUTCOMES

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

SYLLABUS

UNIT I **Hours: 12**

Introduction To Embedded System: Embedded System - Processor Embedded Into a System - Embedded Hardware Units And Devices In a System - Embedded Software In a System -

Examples Of Embedded System - Embedded System-On-Chip(Soc)And Use Of VLSI Circuit Design Technology. Memory Organization: Processor And Memory Organization – Memory Types - Memory Maps And Address – Processor Selection - Memory Selection.

UNIT II **Hours: 12**

Devices And Communication Buses For Devices Network: IO Types And Examples - Serial Communication Devices - Parallel Device Ports - Sophisticated Interfacing Features In Device Ports - Wireless Devices - Timer And Couting Devices - ISR Concept - Interrupt Sources - Interrupt Servicing(Handling)Mechanism - Multiple Interrupt.

UNIT III **Hours: 12**

Programming Concept And Embedded Programming In C, C++ & Java: Software Programming In Assembly Language(Alp) and In High Level Language 'c' – C Program Element: Header and Source File And Preprocessor Directives - Program Elements: Macro And Functions - program Elements : Data Types, Data Structures, Modifiers, Statements, Loops And Pointers - Object - Oriented Programming - Embedded Programming In C++ - Embedded Programming In Java.

UNIT IV **Hours: 12**

Inter Process Communication And Synchronization Of Process,Threads And Tasks: Multiple Processes In An Application - Multiple Threads In An Application – Tasks - Inter Process Communication - Message Queue Function - Mailbox Function - Pipe Function - Socket Function – RPC Function.

UNIT V **Hours: 12**

Real Time Operating System: OS Services - Process Management - Timer Function - Event Function - Memory Management – Devices, Files and IO Sub System Management - Interrupt Routines RTOS Environment And Handling Of Interrupt Source Calls - Real-Time Operating System -Basic Design Using An RTOS - RTOS Task Scheduling Models, Interrupt Latency And Response Of The Task As Performance Metrics.

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

S.No	Authors	Title	Publishers
1.	Raj Kamal	**Embedded Systems – Architecture , Programming and Design**	TATA McGRAW-HILL EDITION, New Delhi.2007.

WEBSITE REFERENCE

- https://www.elprocus.com/basics-of-embedded-system-and-applications/
- https://www.electronics-notes.com/articles/digital-embedded-processing/embedded-systems/basics-primer.php
- https://www.tutorialspoint.com/embedded_systems/

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

SEMESTER:V

Programme code:	B.Sc CS	Programme Title	Bachelor of Computer Science	
Course Code:	**18U5CSET2A**	ELECTIVE 2 : E-COMMERCE	Batch	2018-2021
			Semester	V
Hrs/Week:	4 Hrs		Credits	**3**

COURSE OBJECTIVES

To enable students

- To have knowledge on concepts of e-Commerce.
- To enhance the knowledge in business strategy and inter organisational transactions.
- To understand the concepts of E-Markets, Electronic Data Interchange and E-Business.

COURSE OUTCOMES

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

CO Number	CO Statement
CO1	Understand the basic concepts and technologies used in the field of management information systems;
CO2	Have the knowledge of the different types of management information systems
CO3	Understand the processes of developing and implementing information systems
CO4	Be aware of the ethical, social, and security issues of information systems
CO5	Understand the E-Wallet operation

MAPPING WITH PROGRAMME OUTCOMES

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

SYLLABUS

UNIT – I **(Hours - 15)**

Introduction to E-Commerce : Electronic Commerce – The Scope of Electronic Commerce – Definition of Electronic Commerce - Electronic Commerce and the Trade Cycle - Electronic Markets - Electronic Data Interchange – Internet Commerce – e-Commerce in perspective. **Business Strategy in an Electronic Age**: The Value chain – Supply Chains Porter's Value Chain Model – Inter Organisational Value Chains.

UNIT – II **(Hours - 15)**

Business Strategy: Introduction to Business Strategy – Strategic Implications of IT – Technology – Business Environment – Business Capability – Existing Business Strategy – Strategy Formulation & Implementation Planning – e-Commerce Implementation – e-Commerce Evaluation. **Inter-organisational Transactions:** Inter-organisational Transactions – The Credit Transaction Trade Cycle – A Variety of Transactions.

UNIT – III **(Hours - 15)**

Electronic Markets: Markets - Electronic Markets – Usage of Electronic Markets – Advantages and Disadvantages of Electronic Markets. **Electronic Data Interchange:** Introduction to EDI – EDI Definition – The Benefits of EDI – EDI Example – EDI Implementation – EDI Agreement – EDI Security.

UNIT – IV **(Hours - 15)**

The Internet: The Internet – The Development of the Internet – TCP/IP – Internet Components – Uses of Internet. **A Page on the Web:** HTML Basics – Introduction to HTML – Further HTML – Client Side Scripting – Server Side Scripting – HTML Editors and Editing. **The Elements of E-Commerce** : Elements – e-Visibility – The e-Shop – Online Payments – Delivering Goods – Internet e-Commerce Security.

UNIT – V **(Hours - 15)**

Introduction to E-Wallet operation: What is an e-wallet-benifits of Wallet-risks-types of ewalet:paytm,MobiKwik,oxigenWallet,CitrusWallet,ItsCash,FreeCharge,AirtelMoney,Jiomoney, mRupee,SBIBuddy,Vodaphone M-Pesa.Advantages and disadvantages of digital Wallet.

TEXT BOOKS: (Recent Edition of the following bools only are recommended)

S.No	Authors	Title	Publishers
1.	David Whitely	**e-Commerce Strategy, Technologies, and Applications**	McGraw Hill Education (India) Edition 2001 32nd reprint 2013

REFRENCE BOOKS:

S.No	Authors	Title	Publishers
1.	Dr C.S. Rayudu	**E-Commerce E- Business**	SHimalaya Publishing House, First Edition 2004, Reprint 2012
2.	Nidhi Dhawan	**E-Commerce Concepts and Applications**	*International Book House Pvt Ltd First Edition 2011*
3.	Efrain Turban, David King	Electronic Commerce	Pearson Education, 2009

WEBSITE REFERENCE

https://en.wikipedia.org/wiki/E-commerce

https://ecommerceguide.com/guides/what-is-ecommerce/

https://www.youtube.com/watch?v=AhgtoQIfuQ4

SEMESTER – V

Programme Code	B.Sc CS	Programme Title	**Bachelor of Computer Science**	
Course Code:	18U5CSET2B	ELECTIVE 2 :CLIENT SERVER TECHNOLOGY	Batch	2018-2021
			Semester	V
Hrs/ Week	4 Hrs		Credits	3

COURSE OBJECTIVES

- To understand the concepts of client/server
- To learn the components of client and server application-Client & Server
- To learn the components of client and server application-Connectivity
- To learn the components of client and server application-Software & Hardware

COURSE OUTCOMES (CO):

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

CO Number	**CO Statement**
CO1	Use Human/Computer Interaction design principles and best practices for graphical user interface design and development.
CO2	Design and implement advanced graphical user interfaces using basic and advanced Swing components such as JTable and JTree.
CO3	Manage components using advanced layout techniques of GroupLayout and GridBagLayout.
CO4	Use I/O Object serialization.
CO5	Use the Components of Client/Server Applications–Hardware

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**

Client/Server Computing :Mainframe -Centric Client/Server Computing-Downsizing and Client/Server Computing .Advantages of Client / Server Computing -Connectivity –Ways to improve Performance –How to reduce network Traffic

UNIT II **Hours:12**

Components of Client/Server Applications –The Client: Role of a Client –Client Services – Request for Service-RPC. Components of Client/Server Applications –The Server: The Role of a Server –Server Functionality in Detail –The Server Operating system.

UNIT III **Hours:12**

Components of Client/Server Applications –Connectivity: Open System Interconnect – Communications Interface Technology – Inter process communication –WAN Technologies.

UNIT IV **Hours:12**

Components of Client/Server Applications–Software: Factors Driving demand for application software development –Rising Technology Staff costs –Need to improve Technology –Need for Common Interface across Platforms –Client/Server System Development Methodology-OOP.

UNIT V **Hours:12**

Components of Client/Server Applications–Hardware: Hardware/Network Acquisition –PC-Level Processing Units –Macintosh, notebooks, Pen –UNIX Workstation –x-terminals –Disk, Tape, Optical Disks, NIC and UPS. The Future of Client/Server Computing: Enabling Technologies –Transformational Systems.

TEXT BOOKS: **(Recent Edition of the following bools only are recommended)**

S.No	Author Name	Title of the Book	Publisher	Year /Edition
1	Patrick N.Smith with Steve L.Guengerich	Client/Server Computing	PHI	2012

REFERENCE BOOKS:

S. No	Author Name	Title of the Book	Publisher	Year /Edition
1	Robert Orfali, Dan Harkey, Jeri Edwards	The Essential Client/Server Survival Guide	PHI	2014

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

SEMESTER – V

Programme code:	B.Sc CS	Programme Title	Bachelor of Computer Science	
Course Code:	18U5CSET2C	ELECTIVE 2 : SOFTWARE PROJECT MANAGEMENT	Batch	2018-2021
			Semester	V
Hrs/Week:	4 Hrs		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	lentify issues that could lead to IT project success or failure.
CO3	xplain project management in terms of the software development process.
CO4	Describe the responsibilities of IT project managers.
CO5	pply project management concepts through working in a group as team leader or active team member on an IT project

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**

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

UNIT II **Hours:10**

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

UNIT III **Hours:14**

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

UNIT IV **Hours:14**

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

UNIT V **Hours:12**

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

TEXT BOOKS: (Recent Edition of the following bools only are recommended)

S.No.	Authors	Title	Publishers	Year of Publication
1.	Bob Hughes and Mike Cotterell,	Software Project Management	Tata McGraw Hill 5th Edition	Nil
2	Dr. Gopalaswamy Ramesh	Managing Global Software Projects	TMH.	2001

REFERENCE BOOKS

S.	Authors	Title	Publishers	Year of Publication
1.	Walker Royce	Software Project Management	Addison Wesley	1998
2.	Stellman & Greener	Applied software project management	SPD	nil

WEBSITE REFERENCE

1.https://www.**google.com**

SEMESTER – V

Programme code:	B.Sc CS	Programme Title	Bachelor of Computer Science	
Course Code:	18U6CSET3A	ELECTIVE 2 : ARTIFICIAL INTELLIGENCE and EXPERT SYSTEM	Batch	2018-2021
			Semester	VI
Hrs/Week:	4 Hrs		Credits	3

COURSE OBJECTIVES

- This course presents the fundamentals of knowledge representation for problem solving, learning
- methods of Artificial Intelligence and the deeper concepts of Machine Learning and Algorithms. It
- Also covers various Statistical, Reinforcement, supervised and unsupervised learning algorithms used
- for classification, prediction and clustering and Case studies.

COURSE OUTCOMES

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

CO Number	CO Statement
CO1	Develop solutions for problems using various Artificial Intelligence concepts.
CO2	Design applications using PROLOG for making inferences.
CO3	Demonstrate usage of planning and decision making.
CO4	Apply the concepts of learning using Tensor Flow.
CO5	To Create the applications on Machine Learning in Artificial Intelligence.

MAPPIN**G OUTCOME**

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

SYLLABUS

UNIT I **Hours:9**

Introduction: Definition of AI - AI Problems – Topics of AI – Production Systems – State space Representation - Applications of AI

UNIT II **Hours:9**

Heuristic Search Techniques: Generate and Test - Hill Climbing - Search techniques - Problem Reduction **– Constraint Satisfaction – Means –end- Analysis.**

UNIT III **Hours:9**

Game Playing:MINIMAX Procedure – ALPHA-BETA Pruning – Combined Approach Knowledge representation: – Knowledge Management – types of Knowledge – Knowledge representation – **Approaches to knowledge Representation - Issues in Knowledge representation – Reasoning**

UNIT IV **Hours:9**

Learning –Association Learning - clustering: K-means clustering – Fuzzy clustering – Hierarchical Clustering – Reinforcement Learning: Markov Decision Problem - Q- Learning – Learning Automata – **Statistical Learning: Hidden Markov Models – Linear Classifiers – Quadratic Classifiers –Decision Trees – Bayesian Networks.**

UNIT V **Hours:9**

Supervised Learning: Support Vector - Case-based Reasoning – Ensemble Classifiers – Nearest Neighborhood – Unsupervised Learning: Expectation maximization – Self organizing Maps – Adaptive **Resonance Theory**

Case Studies - clustering, Reinforcement Learning, Statistical Learning, Unsupervised Learning

TEXT BOOKS: (Recent Edition of the following bools only are recommended)

S.No	Authors	Title	Publishers
1.	S.S. Vinod Chandra, S. Anand Hareendran	**Artificial Intelligence and Machine Leaning**	**Eastern Economy Edition, PHI Learning Private Limited, New Delhi, 2014.**

REFRENCE BOOKS:

S.No	Authors	Title	Publishers
1.	Elaine Rich and Kevin Knight	**Artificial Intelligence**	**3/e, Tata McGraw Hill, New Delhi, 2009.**
2.	Donald A. Waterman	**A Guide to Expert Systems**	**Tech knowledge Series in Knowledge** Engineering, New Delhi, 2003.
3.	Charnaik, E., C.K. Reiesbeck, and D.V. McDermett	**Artificial Intelligence Programming**	**Lawrence Erlbaum Associates, New Jersey**
4.	Stephen Marsland	Machine Learning: An Algorithmic Perspective	Chapman and Hall, 2009.
5.	Christopher Bishop	Pattern Recognition and Machine Learning	Springer 2007.

SEMESTER V

Programme Code	B.Sc CS	Programme Title	**Bachelor of Computer Science**	
Course Code:	18U6CSET3B	ELECTIVE 3 :SOFTWARE TESTING	Batch	2019-2022
			Semester	VI
Hrs/ Week	4 Hrs		Credits	3

COURSE OBJECTIVES

- To study fundamental concepts in software testing, including software testing objectives, process, criteria, strategies, and methods.
- To discuss various software testing issues and solutions in software unit test, integration, regression, and system testing.
- To understand software test automation problems and solutions.
- To learn how to write software testing documents, and communicate with engineers in various forms.
- To gain the techniques and skills on how to use modern software testing tools to support software testing projects.

COURSE OUTCOMES (CO):

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

CO Number	**CO Statement**
CO1	Investigate the reason for bugs and analyse it for preventing and remove the bugs
CO2	Implement various test process for quality standard
CO3	Designing test plan for various problems
CO4	Manage test case and proces
CO5	Understanding testing techniques

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**

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:12**

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:12**

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:12**

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.

TEXT BOOKS: **(Recent Edition of the following bools only are recommended)**

S. No	Author Name	Title of the Book	Publisher	Year /Edition
1	Srinivasan Desikan & Gopalswamy Ramesh	Software Testing Principles and Practices	Pearson Education	2006

REFERENCE BOOKS:

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

SEMESTER V

Programme Code :	B.Sc CS	Programme Title	Bachelor of Science (Computer Science)	
Course Code :	18U6CSET3C	Title : ELECTIVE 3 :ENTERPRISE RESOURCE PLANNING	Batch	2018-2021
			Semester	VI
Hrs/week	4		Credits	3

COURSE OBJECTIVES

- To develop the capability to streamline the different organizational processes and work flows in ERP and to understand the ways of Improving efficiency, performance, and productivity levels of ERP Projects.

COURSE OUTCOMES (CO)

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

CO Number	CO Statement
CO1	Understanding the challenges associated with managing extant ERP systems.
CO2	Learn the forces and organizational conditions leading to the acquisition of such enterprise wide systems.
CO3	The opportunity to identify extant and missing organizational competencies that may be drawn upon to create an appropriate ERP implementation method.
CO4	Understanding of issues and decisions that must be made when embarking upon a ERP selection and implementation journey.
CO5	Understand and implement the ERP tools for integrated system

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**

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 **Hours:12**

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 **Hours:12**

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 **Hours:12**

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 **Hours:12**

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 Edition of the following bools only are recommended)

S.No	Authors	Title	Publishers
1.	Ashim raj singla	**Enterprise Resource Planning**	Cengage Learning india Pvt . Ltd., 2008.

REFRENCE BOOKS:

S.No	Authors	Title	Publishers
1.	Alexis Leon	**ERP Demystified**	II Edition , Tata McGraw Hill, New Delhi, 2000Alexis Leon," Enterprise Resource Planning: II Edition, Tata McGraw Hill.

WEBSITE REFERENCE

https://www.tutorialspoint.com/management.../enterprise_resource_planning.htm

https://www.saponlinetutorials.com/what-is-erp-systems-enterprise-resource-planning/

SEMESTER – VI

Programme code:	B.Sc CS	Programme Title	Bachelor of Computer Science	
Course Code:	18U6CSET4A	ELECTIVE 4: COMPILER DESIGN	Batch	2018-2021
			Semester	VI
Hrs/Week:	4 Hrs		Credits	3

COURSE OBJECTIVES

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

COURSE OUTCOMES

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

CO Number	CO Statement
CO1	Specify and analyse the lexical, syntactic and semantic structures of advanced language features
CO2	Separate the lexical, syntactic and semantic analysis into meaningful phases for a compiler to undertake language translation
CO3	Write a scanner, parser, and semantic analyser without the aid of automatic generators
CO4	Describe techniques for intermediate code and machine code optimisation
CO5	Design the structures and support required for compiling advanced language features.

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

UNIT II **Hours:12**

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

UNIT III **Hours:12**

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

UNIT IV **Hours:12**

Symbol tables : the Contents of a symbol tables – data structures – Representing scope

information.**Error Detection and Recovery :** Errors – Lexical phase errors – Syntactic phase errors – Semantic errors.

UNIT V **Hours:12**

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

TEXT BOOKS: (Recent Edition of the following bools only are recommended)

S.No.	Authors	Title	Publishers	Year of Publication
1.	lfred V. Aho, Jeffrey D.Ullman	Principles of Compiler Design	Narosa publishing house	

REFERENCE BOOKS

S.No.	Authors	Title	Publishers	Year of Publication
1.	fred V.Aho and Monica S.Lam,	SCompilers : Principles, Techniques and Tools	2nd Edition	ep 10 , 2006.

WEBSITE REFERENCE

.https://www.google.com

SEMESTER – VI

Programme code:	B.Sc CS	Programme Title	Bachelor of Computer Science	
Course Code:	**18U6CSET4B**	ELECTIVE 4: ANDROID OPERATING SYSTEM	Batch	2018-2021
			Semester	VI
Hrs/Week:	4 Hrs		Credits	**3**

COURSE OBJECTIVES

- To understand the principles, tools and patterns that underlie Android development.
- **T**o understand the Methods of developing various applications using android pratice.

COURSE OUTCOMES

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

CO Number	CO Statement
CO1	Understand the basic concepts of Mobile Operating System
CO2	General knowledge of Mobile and Wireless Communication technology
CO3	Understand the processes of Communication in mobile communicatio
CO4	Understand the security design Security Design And Architecture-
CO5	Understand the network application and gaming

MAPPING WITH PROGRAMME OUTCOMES

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

SYLLABUS

UNIT I **Hours:12**

Getting Started-Understanding The Android Life Cycle-Installing .apk Files Onto An Emulator Via The Adb-Installing Apps Onto An Emulator Via Slideme-Sharing Java Classes From Another Eclipse Project-Referencing Libraries To Implement External Functionality-Using SDK Samples To Help Avoid Head Scratching-Keeping The Android Sdk Updated**.**

Testing-Doing Test-Driven Development(TDD)In Android-Setting Up In Android Virtual Device (AVD) For App Testing-Testing On A Huge Range Of Devices With Cloud Based Testing-Creating And Using A Test Project –troubleshooting Application Crashes-Getting Bug Reports From Users Automatically With Bug Sense-Reproducing Activity Life Cycle Scenario For Testing**.**

UNIT II **Hours:12**

Inter-/Intra-ProcessCommunication-Introduction: Inter-/Intra-Process Communication-Opening A Webpage, Phone Number Or Anything Else With An Intent-Emailing Text From A View-Sending An Email With Attachments-Creating a Responsive Application using Threads-Sending Messages Between Threads Using An Activity Thread Queue And Handler-Creating An Android Epoch HTML/JAVA Script Calendar.

Content Provider-Introduction-Content Provider-Retreiving Data From A Content Provider-Writing A Content Provider-Writing An Android Remote Service.

UNIT III **Hours:12**

Graphics-Introduction-Using A Custom Font-Drawing A Spinning Cube With Opengl Es-Adding Controls To The Opengl Spinning Cube-Freehand Drawing Smooth Curves Taking A Picture Using Intent –taking A Picture Using Android.Media.Camera-Scanning A Barcode Or Qr Code With The Google ZXing Barcode Scanner-Using Androidplot To Display Charts And Graphs-Using Inkspace To Create An Android Launcher Icon-Creating Easy Launcher Icons From Open Clipart.Org Using Paint.Net-Using Nine Patch Files-Creating HTML5 Charts With Android RGRAPH-Adding A Simple Raster Animation-Using Pinch To Zoom.

UNIT IV **Hours:12**

Android Security Design And Architecture-Understanding Android System Architecture-Understanding Security Boundaries And Enforcement-Androids Sandbox-Android Permissions-Looking Closer At The Layers-Android Applications-The Android Framework-The Dalvik Virtual Machine-User-Space Native Code-The Kernel-Complex Security,Complex Exploits.

UNIT V **Hours:12**

Case Study-Telephone Applications-Networked Applications-Gaming And Animation-Social Networking-Location And Map Applications.

TEXT BOOKS: (Recent Edition of the following bools only are recommended)

S.No	Authors	Title	Publishers
1.	Ian F. Darwin Shroff	**Android Cook Book**	Edited by Publishers and Distributors PVT Limited

REFRENCE BOOKS:

S.No	Authors	Title	Publishers
1.	Wiley , Joshua J . Drake	**Android Hackers Handbook**	Edited by Publishers and Distributors PVT Limited

WEBSITE REFERENCE

https://en.wikipedia.org/wiki/Mobile_operating_system

https://www.webopedia.com/DidYouKnow/Hardware_Software/mobile-operating-systems-mobile-os-explained.html

https://searchmobilecomputing.techtarget.com/definition/mobile-operating-system

SEMESTER – VI

Programme Code	B.Sc CS	Programme Title	**Bachelor of Computer Science**	
Course Code:	18U6CSET4C	ELECTIVE 4: CLOUD COMPUTING	Batch	2018-2021
			Semester	VI
Hrs/ Week	4 Hrs		Credits	3

COURSE OBJECTIVES

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

COURSE OUTCOMES (CO):

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

CO Number	CO Statement
CO1	Analyze the Cloud computing setup with it's vulnerabilities and applications using different architectures.
CO2	Design different workflows according to requirements and apply map reduce programming model
CO3	Create combinatorial auctions for cloud resources and design scheduling algorithms for computing clouds
CO4	Apply and design suitable Virtualization concept, Cloud Resource Management and design scheduling algorithms.
CO5	Evaluate Cloud storage method

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

UNIT II **Hours:12**

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

UNIT III **Hours:12**

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

UNIT IV **Hours:12**

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

UNIT V **Hours:12**

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

TEXT BOOKS: **(Recent Edition of the following books only are recommended)**

S. No	Author Name	Title of the Book	Publisher	Year /Edition
1	Michael Miller	Cloud Computing	Pearson Education	2009
2	Anthony T. Velte	Cloud Computing	Tata Mcgraw Hill Education Private Limited	2009

REFERENCE BOOKS:

S. No	Author Name	Title of the Book	Publisher	Year /Edition
1	A Hands-On Approach Paperback	Cloud Computing	PHI	2013

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

சுற்றுலா வளர்ச்சி

Subject Code: 2018ECC001 **No. of Credits: 2**

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

இதழியல் கலை

Subject Code: 2018ECC002 **No. of Credits: 2**

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.

நாட்டுப்புறவியல்

Subject Code: 2018ECC003 **No. of Credits: 2**

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

தைப்பாடல்கள்

அலகு ஏ

விடுகதைகள்

பழமொழிகள்

புராணங்கள்

பாடநூல் : நாட்டுப்புறவியல்

ஆசிரியர் : சு. கண்முக சுந்தரம்

காவ்யா பதிப்பகம்,

ஏப்ரல் - 2017

கணிப்பொறியில் தமிழ;

Subject Code: 2018ECC004 **No. of Credits: 2**

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

வின்டோஸ் எக்ஸ்பீயில் தமிழ்

தமிழ் இணையதளங்கள்

ஆசிரியர் : த. பிரகர்'

பெரிகாம் நூல் வெளியீடு மற்றும் விற்பனை

ஆகஸ்டு – 2007.

தமிழக வரலாறும் மக்கள் பண்பாடும்

Subject Code: 2018ECC005 **No. of Credits: 2**

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.

தமிழ் இலக்கிய வரலாறு

Subject Code: 2018ECC006 **No. of Credits: 2**

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

NEW MEDIA

Subject Code: 2018ECC007 **No. of Credits: 2**

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.

PROOFREADING AND COPYEDITING

Subject Code: 2018ECC008 **No. of Credits: 2**

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

PERSONALITY DEVELOPMENT

Subject Code: 2018ECC009 **No. of Credits: 2**

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.

TECHNICAL WRITING

Subject Code: 2018ECC010 **No. of Credits: 2**

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

AN INTRODUCTION TO PSYCHOLOGY

Subject Code: 2018ECC011 **No. of Credits: 2**

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

ASTRONOMY

Subject Code: 2018ECC012 **No. of Credits: 2**

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.

FUZZY MATHEMATICS

Subject Code: 2018ECC013 **No. of Credits: 2**

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 α– 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.

OPERATION RESEARCH

Subject Code: 2018ECC014 **No. of Credit :2**

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

Reference:

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

MATHEMATICS FOR PROFESSIONAL COURSES

Subject Code: **2018ECC015** No. of Credits: 2

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)

MULTIMEDIA AND ITS APPLICATIONS

Subject Code: **2018ECC016** No.of Credits: 2

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.

MANAGEMENT INFORMATION SYSTEM

Subject Code: 2018ECC017 **No. of Credits:**

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.

THEORY OF COMPUTATION

Sub Code: 2018ECC018 **No. of Credits: 2**

Objectives:

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

UNIT- I

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

UNIT -II

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

UNIT -III

Formal Language: Introduction-Theory of Formal Language-Kleene and positive Closure-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-Problems

UNIT- V

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

TEXT BOOKS:

Recent editions of the following books only are recommended

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

OOPS WITH JAVA PROGRAMMING

Subject Code: 2018ECC019 **No. of Credits: 2**

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

PROGRAMMING IN C

Subject Code: 2018ECC020 **No. of Credits: 2**

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.

INTERNET OF THINGS

Subject Code: 2018ECC021 **No. of Credits: 2**

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:

Recent editions of the following books only are recommended

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.

WEB TECHNOLOGY AND ITS APPLICATIONS

Subject Code: 2018ECC022 **No. of Credits: 2**

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.

NETWORK SECURITY

Subject Code: 2018ECC023 **No. of Credits: 2**

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.**

MOBILE AND WIRELESS TECHNOLOGY

Subject Code: 2018ECC024 **No. of Credits: 2**

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

CLOUD COMPUTING

Subject Code: 2018ECC025 **No. of Credits: 2**

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..

CROSS CULTURE MANAGEMENT

Subject Code: 2018ECC026 **No. of Credits: 2**

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.

INDIAN ECONOMY AND TRADE DEPENDENCIES

Subject Code: 2018ECC027 **No. of Credit :2**

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.

EXPORT MARKETING

Subject Code: 2018ECC028 **No. of Credits: 2**

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

INTERNATIONAL TRADE & FOREX

Subject Code: 2018ECC029 **No. of Credits:**

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

BRAND MANAGEMENT

Sub Code: 2018ECC030 **No. of Credits: 2**

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.

STRESS MANAGEMENT

Subject Code: 2018ECC031 **No. of Credits: 2**

Objectives:

To provide a broad physical, social and psychological understanding of stress.

To understand the management of work related stress

To develop and implement effective strategies to prevent and manage stress at work.

UNIT I

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

UNIT II

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

UNIT III

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

UNIT IV

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

UNIT V

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

TEXT BOOK:

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.

RISK AND INSURANCE IN INTERNATIONAL TRADE

Subject Code: 2018ECC032 **No. of Credit :2**

Objective: On successful completion of this course, the students should have understood basic principles of insurance and risk management

Understanding contemporary issues related to insuran

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

RETAIL MARKETING

Subject Code: **2018ECC033** No.of Credits: 2

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

EXPORT AND IMPORT PROCEDURES

Subject Code: **2018ECC034** No.of Credits: 2

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.

LOGISTICS AND SUPPLYCHAIN MANAGEMENT

Sub Code : 2018ECC035 **No. of Credits: 2**

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.

QUALITY MANAGEMENT

Sub Code : 2018ECC036 **No. of Credits: 2**

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.

MANAGEMENT OF SMALL AND NEW ENTERPRISES

Sub Code : 2018ECC037 **No. of Credits: 2**

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.

TOURISM MANAGEMENT

Sub Code : 2018ECC038 **No. of Credits: 2**

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.

EVENT MANAGEMENT

Sub Code: 2018ECC039 **No. of Credits: 2**

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.

HOSPITALITY MANAGEMENT

Sub Code: 2018ECC040 **No. of Credits: 2**

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

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

CONSUMER BEHAVIOUR

Sub Code : 2018ECC041 **No. of Credits: 2**

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.

HUMAN RESOURCE MANAGEMENT

Subject Code : 2018ECC042 **No. of Credits: 2**

Objectives:

To understand the nature of human resources and its significance to the organization

To familiarise students with the various techniques in HRM that contribute to the overall effectiveness of an organization.

To bring the attention of the students on the latest trends in managing human resources in an organization.

UNIT I

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

UNIT II

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

UNIT III

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

UNIT IV

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

UNIT V

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

TEXT BOOKS:

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 .

PRINCIPLES AND PRACTICE OF MARKETING SERVICES

Subject Code: 2018ECC043 **No. of Credits: 2**

Objectives:

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

UNIT I

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

UNIT II

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

UNIT III

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

UNIT IV

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

UNIT V

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

REFERENCE BOOKS:

1. S.M.Jha,: "Services Marketing", Himalaya Publication House, Mumbai, Sixth Edition, 2003.

2. Christopher love lock: "Services Marketing", Person Education Chennai, Sixth Edition, 2010.

3. Philip Kotler: "Marketing Management", Person Education Chennai, Sixth Edition, 2013

4. S.Sherlekar: "Marketing Management", Himalaya Publication House, Mumbai, Sixth Edition, 1997.

CONSUMER MARKETING

Subject code: **2018ECC044** **No. of Credits: 2**

Objectives:

To make the students to understand the concepts of consumer marketing and the motivation theories.

To understand the customer value chain and their demography.

To understand market segmentation and their uses.

UNIT I

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

UNIT II

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

UNIT III

Learning Theories and their application- Brand 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

MARKETING OF HEALTH SERVICES

Subject Code: 2018ECC045 **No. of Credits: 2**

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.

INTERNATIONAL BANKING

Subject Code: 2018ECC046 **No. of Credits: 2**

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.

E-COMMERCE

Subject Code: 2018ECC047 **No. of Credits: 2**

Objectives:

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

UNIT I

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

UNIT II

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

UNIT III

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

UNIT IV

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

UNIT V

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

TEXT BOOKS:

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.

INTERNATIONAL ACCOUNTING

Subject Code: **2018ECC048** No. of Credits: 2

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.

CORPORATE SOCIAL RESPONSIBILITY AND GOVERNANCE

Subject Code: 2018ECC049 **No. of Credits: 2**

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.

ENTERPRISE RESOURCE PLANNING

Subject Code: **2018ECC050** No.of Credits: 2

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

Ashim raj singla – Enterprise Resource Planning – Cengage Learning india Pvt . Ltd 2008