VISION, MISSION AND QUALITY POLICY OF THE COLLEGE

VISION

Kovai Kalaimagal 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

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

QUALITY POLICY

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

VISION, MISSION AND OBJECTIVES OF THE DEPARTMENT

VISION

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

MISSION

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

OBJECTIVES OF THE DEPARTMENT

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

GRADUATE ATTRIBUTES

Our Graduates to posses

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

PROGRAMME EDUCATIONAL OBJECTIVES AND PROGRAMME OUTCOME

Programme Educational Objectives

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

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

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

Programme Outcomes:

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

PO1: 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.

PO2: Develop domine knowledege relevant to the industry enabling to succeed in rapidly changing working environment.

PO3: Ability to apply the knowledge of computer system design principles in building system software and hardware.

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

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

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

PO7: Work individually or as a team with responsibility to function on multidisciplinary teams.

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

PO9: An ability to recognize their own strengths and weaknesses and balance their own emotions at the time of crisis

PO10: An ability to acquire entrepreneurship qualities and to take efforts to become entrepreneurs.

PO11: Extend the services of the department for the betterment of the society and environmental protection.

PO12: 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.

Programme Outcomes (Pos)

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

S.No	Graduates Attributes	Program Outcome
1	Communication skills	Demonstrate english language proficiency to an appropriate 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	In-depth domain knowledge	Develop domine knowledge 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 inter disciplinary subjects such as Commerce, Mathematics and Statistics for enhanced applications of softwares developed.
5	Positive attitude	Developing positive attitude by instilling confidence in the minds of students by suitable programs.
6	Critical thinking and problem solving skills	An ability to make the students think out of the box and solve complex problems arising in shop floor situation.
7	Dynamism and team building skills	Work individually or as a team with responsibility to function on multidisciplinary teams.
8	Professional ethics and social values	Carrying out the task assigned by the industries with professional ethics and at the same time with the consent for well being of the society.
9	Self-awareness and emotional intelligence	An ability to recognize their own strengths and weaknesses and balance their own emotions at the time of crisis.
10	Entrepreneurship qualitative	An ability to acquire entrepreneurship qualities and to take efforts to become entrepreneurs.
11	Responsibility towards Society and environment	Extend the services of the department for the betterment of the society and environmental protection.
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 Post Graduate Programmes
(Under Choice Based Credit System)
(Effective from 2020 – 2021)

1. REGULATIONS

This regulation is effective from the academic year 2020-'21.

1. 1 Eligibility for Admission

S.No.	Course	Eligibility Condition
1.	M.Sc(IT)	A pass with 50% marks in B.Sc (Computer Science) / Computer Technology / Information Technology / Electronics / Software Systems /Applied Sciences /BCA.

1.2 Duration and Course of study

Two Academic years with four semesters, the duration of the first and third from June to November and the second and fourth semesters from December to April. The duration of each semester is 90 working days with 5 hours a day.

1.3 The Medium of Instruction and Examinations

The medium of instruction and examinations shall be English.

1.4 Requirements for Attendance

a) A candidate will be permitted to take the examination for any semester, if he/she secures not less than 75% of attendance out of the 90 working days during the semester.

b) A candidate who has secured attendance less than 75% but 65% and above shall apply with the prescribed fee for the condonation of lack of attendance. On the recommendation of the Principal, he will be permitted to take up the examination.

c) A candidate who has secured attendance less than 65% but 55% and above in any semester, will be permitted to continue the course but will not be permitted to appear for the examination in the current papers. However he/she will be permitted to appear for the examination in the papers in which he/she has arrears. He/she will have to compensate the shortage of attendance in the subsequent semester and take the examination in the papers of both the semesters together.

d) A candidate who has secured less than 55% of attendance in any semester will not be permitted to take the regular examinations and to continue the study in the subsequent semester. He/she has to re-do the course by rejoining in the semester in which the attendance is less than 55%.

e) A candidate who has secured less than 65% of attendance in the final semester has to compensate his / her attendance shortage in a manner to be decided by the Head of the Department concerned after rejoining the course.

1.5 Restriction to take the Examinations

a) Any candidate having arrear paper(s) shall have the option to take the examination(s) in any arrear paper(s) along with the subsequent regular semester papers.

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

c) In the event of removal of that paper consequent to the change of regulations and / or curriculum after a five year period, the candidates shall have to take up equivalent paper in the revised syllabus as suggested by the chairman of the Board of Studies and fulfil 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 Internal Assessment (CIA) and End Assessment Examinations(EAE). The CIA, EAE break up for theory papers is 25:75 and practical is 40:60.

1.6.1 Break Up of Continuous Internal Assessment (CIA) Marks

Theory

Content	Marks Awarded
Continuous Internal Assessment Test I	05
Continuous Internal Assessment Test II	05
Model Examination	10
Assignment (1 Number) & Seminar (1 Number)	05
Total	**25**

Practical

Content	Marks Awarded
Minimum ten Experiments / Practical Paper / Semester	20
Continuous Internal Assessment Tests	05
Model Examination	10
Record Note Book	05
Total	**40**

Project Viva Voce

Content	Marks Awarded
Review & Content Presentation (3 Reviews) 3*40	120
Dissertation	40
Total	**160**

1.6.2 End Assessment Examination (EAE)

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

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

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

d) The exam will be conducted for a maximum of 75 marks for three hours. The passing minimum is 50% (38 out of 75 marks) and overall passing minimum putting the CIA and EAE marks together will be 50%.

Question Paper Pattern: **(Major & 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	

e) Extra Credit Course will be valued for a total of 100 marks. The pattern of the Question paper will be as follows:

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 rks**	

f) The marks secured in the extra credit course will get reflected in the mark sheet only if the candidate has secured 50% marks and above.

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

h) The extra credit courses are self learning courses for which only guidance will be provided by the faculty.

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

j) **Internship**

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

s)**Evaluation:**

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

This course carries 3 credit.

k) There will be two independent valuations for all theory PG courses with first valuation by the course faculty and the second valuation by external examiner. The average marks of first and second valuation will be taken as the final marks. If there is a difference of 15% or more between the first and second valuations, then paper will be referred for third valuation and the average of the marks which are closer among the three valuations will taken as the final marks.

l) A candidate may request for re-totalling of his/her answer script by applying through on application addressing to the Controller of Examination forwarded through the Principal, paying prescribed fees. This provision is available for all theory papers taken in the EAE. However there is no provision for revaluation of theory/ practical papers.

m) 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.

n) 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 maximum of three papers can appear for the supplementary exam conducted after the final semester.

1.6.3 Break Up of End Assessment Examination (EAE) Marks (Practical)

Practical

Content	Marks Awarded
Program - 1	20
Program - 2	20
Viva voce	10
Record	10
Total	**60**

Project Viva Voce

Content	Marks Awarded
Dissertation	**10**
Power Point Presentation	**10**
Viva Voce	**20**
Total	**40**

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 Grade

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	Average
00-49	0.0	U	Re – Appear
ABSENT	0.0	AB	Absent

C_i = Credits earned for course i in any semester

G_i = Grade Point obtained for course i in any semester

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

For a Semester:

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

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

For the Entire Programme:

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

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

Classification of Successful Candidates

A candidate who passes all the examinations in Part I to Part V 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	
0.0 and above but below 5.0	U	Re - Appearance

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

1.8 Course Completion

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

SCHEME OF EXAMINATION AND PROGRAMME STRUCTURE
Master of Information Technology (2020 – 2022)

Sem	Course Code	Study Components	Ins. Hours per week	CIA	Exam	Total	Credits
Semester – I							
I	**20P1ITCT01**	**Core 1:** Advanced Java Programming	4	25	75	100	4
	20P1ITCT02	**Core 2:** Network Security	4	25	75	100	4
	20P1ITCT03	**Core 3:** Cyber laws and Security Policies	3	25	75	100	3
	20P1ITCT04	**Core 4:** Design and Analysis of Algorithms	4	25	75	100	4
	20P1ITCP05	**Core 5:** Advanced Java Programming - Practical	4	40	60	100	4
	20P1ITCP06	**Core 6:** Design and Analysis of Algorithms – Practical	3	40	60	100	3
	20P1TSSP01	**Technical Skill Subject 1:** Open Source software using PHP –Practical	2	50	-	50	2
		Library work	2	-	-	-	-
		Total				**650**	**24**
Semester - II							
II	**20P2ITCT07**	**Core 7:** Distributed Computing and Linux	5	25	75	100	4
	20P2ITCT08	**Core 8:** Python Programming	4	25	75	100	3
	20P2ITCT09	**Core 9:** Object Oriented Analysis and Design	4	25	75	100	3
	20P2ITCT10	**Core 10:** Big Data Analytics	5	25	75	100	4
	20P2ITCP11	**Core 11:** Linux- Practical	4	40	60	100	3
	20P2ITCP12	**Core 12:** Python programming – Practical	4	40	60	100	3
	20P2ITET1A **20P2ITET1B** **20P2ITET1C** **20P2ITET1D**	**Elective 1:**Grid Computing **Elective 1:**: Introduction to Robotics **Elective 1**:Bioinformatics **Elective 1:**Wireles Communication	4	25	75	100	4
	20P2TSS02	**Technical Skill Subject 2:** Technical Seminar and Report Writing	2	20	30	50	2
		Library work	2	-	-	-	-
Total						**750**	**26**

Semester – III							
III	**20P3ITCT13**	**Core 13:** Web Data Mining	4	25	75	100	4
	20P3ITCT14	**Core 14:** Advanced Computer Networks	4	25	75	100	4
	20P3ITCT15	**Core 15:** Internet of Things	4	25	75	100	3
	20P3ITCT16	**Core 16**: Web Programming	4	25	75	100	3
	20P3ITCP17	**Core 17:** Network - Practical	4	40	60	100	3
	20P3ITCP18	**Core 18:** Web Programming –Practical	4	40	60	100	3
	20P3ITET2A **20P3ITET2B** **20P3ITET2C** **20P3ITET2D**	**Elective 2:**Soft Computing **Elective 2:**Embedded System **Elective 2:**Cloud Computing **Elective 2:**Software Quality Assurance	4	25	75	100	4
	20P3OLCT01	**Online Courses (NPTEL/SWAYAM)**	-	-	-	-	-
		Library work	2	-	-	-	-
Total						**700**	**24**
Semester – IV							
IV	**20P4ITCV19**	**Core 19:** Project Work and Viva Voce	-	160	40	200	15
	20P4INTR01	**Internship(15 Days)**	-	-	-	-	1
Total						**200**	**16**
Total			**90**			**2300**	**90**

Project and Viva Voce:

Project Work carries 200 marks with 12 credits . The breakup of marks will be as follows:-

Internal assessment :160 Marks (40 Marks for 3 reviews and 40 Marks for Record) and External Assessment : 40 Marks (Viva Voce)

Curriculum Structure

S.No.	Courses	No. of Papers	Credits
1	Core Courses	19	75
2	Electives	2	8
3.	Technical Skill Subjects	2	4
4.	Internship Training	1	3
5.	On line Courses	1	-
Total			90

EXTRA CREDIT COURSES

Course Code	Subjects	Credits
2020ECC001	சுற்றுலா வளர்ச்சி	2
2020ECC002	இதழியல் கலை	2
2020ECC003	நாட்டுப்புறவியல்	2
2020ECC004	கணிப்பொறியில் தமிழ்	2
2020ECC005	தமிழக வரலாறும் மக்கள் பண்பாடும்	2
2020ECC006	தமிழ் இலக்கிய வரலாறு	2
2020ECC007	New Media	2
2020ECC008	Proofreading And Copyediting	2
2020ECC009	Personality Development	2
2020ECC010	Technical Writing	2
2020ECC011	An Introduction To Psychology	2
2020ECC012	Astronomy	2
2020ECC013	Fuzzy Mathematics	2
2020ECC014	Operation Research	2
2020ECC015	Mathematics For Professional Courses	2
2020ECC016	Multimedia And Its Applications	2
2020ECC017	Management Information System	2
2020ECC018	Theory Of Computation	2
2020ECC019	Oops With Java Programming	2
2020ECC020	Programming In C	2
2020ECC021	Internet Of Things	2

2020ECC022	Web Technology And Its Applications	2
2020ECC023	Network Security	2
2020ECC024	Mobile And Wireless Technology	2
2020ECC025	Cloud Computing	2
2020ECC026	Cross Culture Management	2
2020ECC027	Indian Economy And Trade Dependencies	2
2020ECC028	Export Marketing	2
2020ECC029	International Trade & Forex	2
2020ECC030	Brand Management	2
2020ECC031	Stress Management	2
2020ECC032	Risk And Insurance In International Trade	2
2020ECC033	Retail Marketing	2
2020ECC034	Export And Import Procedures	2
2020ECC035	Logistics And Supply chain Management	2
2020ECC036	Quality Management	2
2020ECC037	Management Of Small And New Enterprises	2
2020ECC038	Tourism Management	2
2020ECC039	Event Management	2
2020ECC040	Hospitality Management	2
2020ECC041	Consumer Behaviour	2
2020ECC042	Human Resource Management	2
2020ECC043	Principles And Practice Of Marketing Services	2
2020ECC044	Consumer Marketing	2
2020ECC045	Marketing Of Health Services	2
2020ECC046	International Banking	2
2020ECC047	E-Commerce	2
2020ECC048	International Accounting	2
2020ECC049	Corporate Social Responsibility And Governance	2
2020ECC050	Enterprise Resource Planning	2

SEMESTER I

Programme Code	**M.Sc IT**	**Programme Title**	**Master of Science (Information Technology)**	
Course Code	**20P1ITCT01**	**Title : Core 1 : Advanced Java Programming**	**Batch**	**2020-2022**
			Semester	**I**
Hrs/week	**4**		**Credits**	**4**

COURSE OBJECTIVES

- To enable the students to provide an indepth knowledge about the concepts of language structure, program divisions of JAVA .
- Ability to design console based, GUI based programming language and Web based applications
- Understand the concept of JSP,Servlet Basics and JDBC and Inter Servlet Communications.
- Understand the Java Bean Component model.

COURSE OUTCOMES (CO)

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

CO Number	CO Statement
CO1	Explain the fundamental concepts of Java language.
CO2	Use GUI components from AWT and Swing including buttons and text components
CO3	Illustrate the methods to send and receive data through sockets
CO4	Describe the concept of JSP,Servlet Basics and JDBC
CO5	Summarize the concepts of JavaBean

MAPPING WITH PROGRAMME OUTCOMES

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

SYLLABUS

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

Introduction to Advanced Java Programming:OverView of the Java Platform, A Brief History of the Java Platform, Object-Oriented Programming in Java,Standard SDK ToolsClasses and Objects-Introduction, classes and Object-Oriented Programming,Using Constructors and Finalizers,Reference Objects and the Garbage Collector.

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

Common Elements of Graphical User Interfaces:Introduction, Main features and Technology of GUI, Introducing the Java foundation classes, Event Model, JFC Sample programs, Layout managers, Events. Swing–EventHandling,J-Frames,Lists,Tables,Trees, Text Components- Progress Indicator.

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

Networking Programming:Introduction- Working with URLs, Working with Sockets-Remote Method-Invocation

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

JSP Fundamentals: JSP Overview and Architecture – JSP Implicit Objects – JSP Standard Actions – Handling JSP Errors- Custom JSP Tag. Servlet Fundamentals: Servlet Overview and Architecture-Servlet Basics – JDBC and Inter – Servlet Communications.

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

JavaBeans:Introduction,JavaBeans Component Model,Bean Development Environments,Using the Sun BeanBox, Creating a JavaBean Class,Exploring JavaBEan Property Types,JDBC-Design of JDBC -Configuration-Executing SQL Statemetns.

REFERENCE BOOKS

S. No	Author Name	Title of the Book	Publisher
1.	Joe Wiggles Worth and Paula Mc Millan	Java programming: Advanced Topics	Thomson
2.	CayS.Horstmans,Gary Coronell	Core Java Volume II -Advanced Features	PearsonEducation
3.	James Goodwill	Developing Java Servlets	Techmedia Publication
4.	Uttam K. Roy	Advanced Java Programming	Oxford University Press

WEBSITE REFERENCES

1. https://www.linkedin.com/learning/advanced-java-programming
2. https://www.quora.com/in/What-is-advanced-Java
3. *https://www.javatpoint.com/servlet-tutorial*
4. *https://www.tutorialspoint.com/servlets/*
5. *https://docs.oracle.com/javase/7/docs/technotes/guides/idl/corba.html*

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

SEMESTER I

Programme Code :	**M.Sc IT**	**Programme Title**	**Master of Science (Information Technology)**	
Course Code :	**20P1ITCT 02**	**Title : Core 2: Network Security**	**Batch**	**2020-2022**
			Semester	**I**
Hrs/week	**4**		**Credits**	**4**

COURSE OBJECTIVES

- Understand the fundamental principles of Network, various network, cryptographic techniques, authentication and its standards.
- Understand the various methods of password management and protocols to maintain system security
- Understand various types of attacks and their characteristics
- Learn the security concepts exposed to original research in network security

COURSE OUTCOMES (CO)

On successful completion of the course the student should be able to

CO Number	**CO Statement**
CO1	Explain various types of attacks and their characteristics
CO2	Illustrate the basic concept of encryption and decryption for secure data transmission.
CO3	Describe the fundamentals of secret and public cryptography
CO4	Describe the various methods of password management and protocols to maintain system security
CO5	Survey the security concepts exposed to original research in network security

MAPPING WITH PROGRAMME OUTCOMES

CO/PO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO 7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**
CO1	-	✓	✓	✓	-	-	-	-	-	-	-	✓
CO2	-	✓	✓	-	-	-	-	-	-	-	✓	✓
CO3	-	✓	✓	-	-	✓	-	-	-	-	-	✓
CO4	-	✓	✓	-	-	-	-	-	-	-	✓	-
CO5	-	✓	✓	-	-	✓	-	-	-	-	✓	-

SYLLABUS

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

Introduction – Primer on Networking –Active and Passive Attacks -Possible Types of Attacks– Layers and Cryptography – authorization Viruses, worms, Trojan Horses.

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

Cryptography :Plain text and Cipher Text, Substitution techniques, Caesar Cipher, Mono-alphabetic Cipher, Polygram, Polyalphabetic Substitution, Playfair, Hill Cipher, Transposition techniques, Encryption and Decryption, Steganography, Key Range and Key Size.

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

Symmetric Key Algorithms and AES:Algorithms types and modes, Overview of Symmetric key Cryptography, Data Encryption Standard (DES), International Data Encryption Algorithm (IDEA), RC4, RC5, Blowfish, Advanced Encryption Standard (AES) Asymmetric Key Algorithms, Digital Signatures and RSA: Brief history of Asymmetric Key Cryptography, Overview of AsymmetricKey Cryptography, RSA algorithm, Symmetric and Asymmetric key cryptography together, Digital Signatures, Knapsack Algorithm.

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

User Authentication and Kerberos: Authentication basics, Passwords, Authentication Tokens, Certificate-based Authentication, Biometric Authentication, Kerberos, Key Distribution Center (KDC) , Security Handshake Pitfalls, Single Sign On (SSO) Approaches.

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

Network Security: Firewalls and Virtual Private Networks: Brief Introduction to TCP/IP, Firewalls, IP Security, Virtual Private Networks (VPN), Intrusion. Internet Security Protocols: Basic concepts, Secure Socket Layer (SSL), Transport Layer Security (TLS), Secure Hyper Text Transfer Protocol (SHTTP), Time Stamping Protocol (TSP), Secure Electronic Transaction (SET), SSL vs SET, 3-D Secure Protocol, Electronic Money, E-mail Security, Wireless Application Protocol (WAP) Security, Security in GSM, Security in 3G .

REFERENCE BOOKS

S. No	Author Name	Title of the Book	Publisher
1	Atul Kahate	Cryptography and Network Security	Tata Mc.Graw Hill
2	Charlie Kaufman, Radia Perlman and Mike Speciner	Network Security Private Communication in a Public World	Pearson Education, New Delhi
3	Stallings William	Cryptography and Network Security Principles and Practices	Prentice Hall India, New Delhi
4	Stallings William	Network Security Essentials Applications and Standards	Prentice Hall India, New Delhi
5.	V.K.Pachghare	Cryptography and Information Security	PHI , New Delhi

WEBSITE REFERENCES

1. https://www.go4expert.com/articles/types-of-attacks
2. https://www.tutorialspoint.com/cryptography

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

SEMESTER I

Programme Code	**M.Sc IT**	**Programme Title**	**Master of Science (Information Technology)**	
Course Code	**20P1ITCT03**	**Title : Core 3 : Cyber Laws and Security Policies**	**Batch**	**2020-2022**
Hrs/week	**3**		**Semester**	**I**
			Credits	**3**

COURSE OBJECTIVES

To enable the Students

- 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 (CO)

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

CO Number	**CO Statement**
CO1	Explain 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 use of Digital Signatures & Certificates .
CO5	Recognize and Detect Cyber Attacks.

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: 08)**

Concept of cyber law and space : Introduction – Meaning – Features – Significant of cyber law – Advantages of cyber law – Cyber law governance – Cyber space – meaning – Inclusive of cyber space – Facilitating functions of cyber space – Major issues in cyber space - E commerce & Cyber law : Meaning – History – Division – Benefits – Major Issues .

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

Data Security : Meaning – Fundamental requirements – Precautions – Encryption –Advantages of Encryption technology – Means of encryption of data – Public key Infrastructure – Cyber Security issues in India – Digital signature – Features– Types– Components of a Digital Signature Certificate – Use of Digital Signature Certificate .

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

The Evidence Aspect in Cyber Law: Evidence as Part of the Law of Procedures – Applicability of the Law of Evidence on Electronic Records - The Indian Evidence Act – The Criminal Aspect in Cyber Law: What is Crime? – What is Computer Crime – Factors Contributing to Computer Crime .

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

Global Trends in Cyber Law: The Contract Aspect – The Security Aspect – The Intellectual Property Aspects – The Criminal Aspect – Global Miscellany – Legal Framework for Electronic Data Interchange : The EDI Mechanism – The Electronic Data Interchange Scenario in India.

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

The Information Technology Act : Definition – Authentication of electronic records Electronic Governance - Digital Millennium Copyright Act (DMCA) – Cyber Security Enhancement Act 2002. Proper and Ethical Disclosure: CERT's Current Process – Full Disclosure Policy – Organization for Internet Safety.

REFERENCE BOOKS

S.No.	Author Name	Title of the Book	Publisher
1.	Dr.B.Kirubashini., P.Kavitha	Cyber Law	Nandhini Pathippagam
2.	Suresh T.Viswanathan., N.Chanrababu Naidu	Indian Cyber Laws with Cyber Glossary	Bharath Law House PVT .LTD
3.	Dean Armstrong, Dan Hyde, Sam Thomas	Cyber Security Laws & Practice	Jordans Publishing Limited
4.	Dr.B.Kirubashini., P.Kavitha	Cyber Law	Nandhini Pathippagam
5.	Suresh T.Viswanathan., N.Chanrababu Naidu	Bharath Law House	

WEBSITE REFERENCES

1. https://www.tutorialspoint.com › ... › Cyber Law - Quick Guide meity.gov.in/cyber-security
2. *gvpce.ac.in/syllabi/Mtech15-16/cyber-security/clsp kenes-exhibitions.com › Cyber Security Conference*
3. *https://www.wileyindia.com/introduction-to-information-security-and-cyber-laws.htm*
4. https://www.wisdomjobs.com/e.../information-security-cyber-law-tutorial-2355.html
5. https://cyber.laws.com/ethical-hacking-tutorials

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

SEMESTER I

Programme Code :	**M.Sc IT**	**Programme Title**	**Master of Science (Information Technology)**	
Course Code :	**20P1ITCT04**	**Title : Core 4: Design and Analysis of Algorithms**	**Batch**	**2020-2022**
			Semester	**I**
Hrs/week	**4**		**Credits**	**4**

COURSE OBJECTIVES

- To enable the students to write efficient algorithms for simple computational tasks and reasoning about the correctness of them.
- To understand different design strategies and the use of data structures in improving algorithmic performance.
- To Understand the security concepts exposed to original research in network security
- To enable the students to learn the Branch and Bound Techniques

COURSE OUTCOMES (CO)

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

CO Number	CO Statement
CO1	Analyze the asymptotic performance of algorithms
CO2	Differentiate different algorithmic approaches, techniques and methods
CO3	Apply design and analysis techniques for a given algorithm.
CO4	Apply optimization techniques for improving the efficiency of algorithms.
CO5	Find optimal solution by applying various methods

MAPPING WITH PROGRAMME OUTCOMES

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

SYLLABUS

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

Introduction : Algorithm definition,performance analysis, space complexity, time complexity, worst case – best case – average case complexity, asymptotic notation, sorting algorithms (insertion sort, heap sort) , sorting in linear time, searching algorithms, recursive algorithms (Tower of Hanoi , Permutations).

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

Divide and conquer : General method - binary search, merge sort, Quick sort, Strassen's matrix multiplication .Greedy method- knapsack problem, job sequencing with deadlines.Minimum-cost spanning trees, Kruskal and Prim's algorithm, optimal storage on tapes, optimal merge patterns, Huffman coding .

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

Dynamic programming- matrix chain multiplication, single source shortest paths, Dijkstra's algorithm, Bellman- ford algorithm , all pairs shortest path, longest common subsequence, string editing, 0/1 knapsack problem, Traveling salesperson problem.

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

Decrease and conquer: - DFS and BFS, Topological sorting, connected components .Backtracking: General method, 8 Queen's problem, Sum of subsets problem, graph coloring problem, Hamiltonian cycle, Knapsack problem.

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

Branch and Bound Technique : FIFO, LCBB, LC search, The 15 puzzle, NP hard and NP Complete problems : Basic concepts – classes NP hard & NP complete – NP hard graph problems : Clique ecision Problem(CDP) – Chromatic Number Decision Problem(CNDP) – Directed Hamilton Cycle(DHC)

REFERENCE BOOKS

S. No	Author Name	Title of the Book	Publisher
1.	Ellis Horowitz, Sartaj Sahni & Sanguthevar Rajasekaran,	Computer Algorithms	Galgotia.
2.	T.H. Cormen, C.E. Leiserson,R.L. Rivest and C. Stein	Introduction to Algorithms	HI Learning private limited
3.	A. Aho, J. Hopcroft, & J. Ullman	The Design and Analysis of Computer Algorithms	Addison Wesley

WEBSITE REFERENCES

1. https://www.tutorialspoint.com/design_and_analysis_of_algorithms/index.htm
2. *https://www.edx.org/course/algorithm-design-analysis-pennx-sd3x*
3. www. personal.kent.edu/~rmuhamma/Algorithms/algorithm.html
4. https://www.coursera.org/courses?query=Algorithm%20design%20and%20analysis
5. *https://www.coursera.org/specializations/algorithms*

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

SEMESTER I

Programme Code	**M.Sc IT**	**Programme Title**	**Master of Science (Information Technology)**	
Course Code	**20P1ITCP05**	**Title : Core 5: Advanced Java Programming- Practical**	**Batch**	**2020-2022**
			Semester	**I**
Hrs/week	**4**		**Credits**	**4**

COURSE OBJECTIVES

- To enable the students to gain knowledge in developing Java Programs for certain specified problems.
- To understand the basics of various applications using servlet communications.
- To understand the concepts of virtual functions and control structures

COURSE OUTCOMES (CO)

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

CO Number	CO Statement
CO1	Develop programs in Java to demonstrate Classes and objects
CO2	Use various types constructors and JFC.
CO3	Apply the concepts of virtual functions and control structures.
CO4	Design various applications using servlet communications.
CO5	Demonstrate Bean Development Environment and JSP Scripts.

MAPPING WITH PROGRAMME OUTCOMES

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

SYLLABUS

1. Develop a Java program using control structures.
2. Develop a Java program which demonstrates Classes and objects
3. Develop a Java program to illustrate the concept of constructors.
4. Develop a Java program to demonstrate the usage of GUI concepts
5. Develop a Java program using JFC.
6. Develop a Java program for Sockets-Remote Method
7. Develop a Java program to indicate Servlet Communications.
8. Develop a Java JSP program using implicit objects.
9. Develop a Java JSP program using servlet communications.
10. Develop a Java program to demonstrate Bean Development Environments.

WEB REFERENCES

1. https://www.linkedin.com/learning/advanced-java-programming
2. https://www.quora.com/in/What-is-advanced-Java
3. *https://www.javatpoint.com/servlet-tutorial*
4. *https://www.tutorialspoint.com/servlets/*
5. *https://docs.oracle.com/javase/7/docs/technotes/guides/idl/corba.html*

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

SEMESTER I

Programme Code :	**M.Sc IT**	**Programme Title**	**Master of Science (Information Technology)**	
Course Code :	**20P1ITCP06**	**Title : Core 6 :Design and Analysis of Algorithms - Practical**	**Batch**	**2020-2022**
			Semester	**I**
Hrs/week	**3**		**Credits**	**3**

COURSE OBJECTIVES

- To enable the students to gain knowledge about the teaching methodologies useful for the implementation and empirical evaluation of various algorithms and to efficiently implement the solutions for specific problems.

COURSE OUTCOMES (CO)

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

CO Number	CO Statement
CO1	Identify the problem given and design the algorithm using various algorithm design techniques.
CO2	Implement various algorithms in a high level language
CO3	Analyze the performance of various algorithms.
CO4	Compare the performance of different algorithms for same problem.

MAPPING WITH PROGRAMME OUTCOMES

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

SYLLABUS

1. Find Minimum Cost Spanning Tree of a given undirected graph using Kristal‟s algorithmObtain the Topological ordering of vertices in a given digraph
2. Implement 0/1 Knapsack problem using Dynamic Programming.
3. From a given vertex in a weighted connected graph, find shortest paths to other vertices using Dijikstra‟s algorithm.
4. Find Minimum Cost Spanning Tree of a given undirected graph using Kristal‟s algorithm.
5. Print all the nodes reachable from a given starting node in a digraph using BFS method
6. Check whether a given graph is connected or not using DFS method.
7. Find Minimum Cost Spanning Tree of a given undirected graph using Prim‟s algorithm.
8. Implement N Queen's problem using Back Tracking.
9. Implement All Pairs Shortest Paths Problem using Floyd's algorithm

WEBSITE REFERENCES

- https://www.tutorialspoint.com/design_and_analysis_of_algorithms/index.htm
- *https://www.edx.org/course/algorithm-design-analysis-pennx-sd3x*
- www. personal.kent.edu/~rmuhamma/Algorithms/algorithm.html
- https://www.coursera.org/courses?query=Algorithm%20design%20and%20analysis
- https://www.coursera.org/specializations/algorithms

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

SEMESTER-I

Programme Code	**M.Sc.IT**	**Programme Title**	**Master of Science (Information Technology)**	
Course Code	**20P1TSSP01**	**Technical Skill Subject 1: Open Source software using PHP – Practical**	**Batch**	**2020-2022**
			Semester	**I**
Hrs/ Week	**2**		**Credits**	**2**

COURSE OBJECTIVES

- To enable the students to gain knowledge in developing web applications using PHP programming language.

COURSE OUTCOMES

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

CO Number	CO Statement
CO1	Develop a Program in PHP
CO2	Develop an application using Classes web in .NET
CO3	Creating an application and find out biggest numbers
CO4	Creating an application using PHP for Mathematical Function

Mapping with Programme Outcomes

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

Syllabus

1.Write a program to show data types in PHP
2.Write a Program to use arthimetic operator in PHP
3.Write a Program to using Class in PHP
4.Write a Program to swap two numbers in PHP
5.Write aProgram for finding the biggest number in an array without using an arrayfunction
6.Write a Program for bubble sorting in PHP.
7.Write aProgram to concatenate two strings character by Character
8.Program to find LCM of two Numbers

WEBSITE REFERENCE

1.https://www.w3schools.com/PHP Language

2. https://www.sourcecodester.com/PHP

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

SEMESTER II

Programme Code :	**M.Sc IT**	**Programme Title**	**Master of Science (Information Technology)**	
Course Code :	**20P2ITCT07**	**Core 7: Distributed Computing And Linux**	**Batch**	**2020-2022**
			Semester	**II**
Hrs/week	**5**		**Credits**	**4**

COURSE OBJECTIVES

- To enable the students to provide an indepth knowledge about the concepts of Distributed computing and enable the students to write programs using Linux.
- To understand the concept of distributed process and communication.
- To understand the concept of Linux,file managemet operation and shell script.

COURSE OUTCOMES (CO)

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

CO Number	CO Statement
CO1	Discuss the concept of distributed system,types and its architecture
CO2	Describe the concept of distributed process and communication
CO3	Summarize the distributed synchronization and its algorithms
CO4	Use the Fault Tolerance and Client-Server Communication
CO5	Summarize the concepts of Linux,file managemet operation and shell script.

MAPPING WITH PROGRAMME OUTCOMES

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

SYLLABUS

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

Introduction-Definition of a Distributed System- Goals- Types of Distributed systems – Architectures : Architectural styles – System Architectures -Architectures VS Middleware – Interceptors – Self management in distributed systems.

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

Processes: Threads -Virtualization– Clients – Servers – code migration: Approaches to code

migration – Migration and Local Resources – Migration in Heterogeneous Systems – Software agents – Communication: Fundamentals – RPC -Naming: naming Entities: names, identifiers and Addresses –Flat Naming – Structured naming

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

Synchronization: clock Synchronization - Physical Clock – Synchronization algorithms – use of Synchronized clocks – logical clocks - Mutual Exclusion – Election algorithms - Consistency and Replication – Data Centric Consistency Models – Client-centric consistency models - Replica Management

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

Fault Tolerance: Introduction to fault tolerance – Process resilience: design issues – Failure Masking and replication – Reliable Client-Server Communication: Point to Point Communication – RPC semantics in the presence of failures – Reliable group of Communication: basic Reliable – multicasting Schemes – Distributed Commit – Recovery.

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

Linux Operating systems : Introduction – History of Linux– Differences between Linux and Other Operating System – User accounts – Accessing the linux system – Linux Commands – Linux File Structure: Linux file types – File structures – managing Files - Managing Directories – File and Directory operation. File Management Operation: File and Directory permissions – Jobs –Shell operations: Command Line – Standard Input/Output- Shell Scripts – Shell Variables - Arithmetic Shell Operations – Control Structures.

REFERENCE BOOKS

S. No	Author Name	Title of the Book	Publisher
1.	Andrew S.Tanenbaum and Marten Van Steen	Distributed Systems Principles and Paradigms	Prentice Hall India, New Delhi
2.	Pradeep K.Sinha	Distributed Operating Systems	Prentice Hall India, New Delhi
3.	George coulouris, Jean Dollimore and Tim Kindberg	Distributed Systems Concepts and Design	Pearson Education
4.	Richard Petersen	The Complete Reference – Linux	TMH

WEBSITE REFERENCES

1. http://en.wikipedia.org/wiki/List_of_distributed_computing_projects
2. http://www.indiastudychannel.com/resources/107761-Design-Issues-Distributed-Operating-System.aspx
3. http://www.inf.uni-konstanz.de/dbis/teaching/ss06/os/ch14-wrongNumber.pdf
4. https://www.cs.rutgers.edu/~pxk/rutgers/notes/content/ft.h
5. Overview of Linux Distributions URL:http://distrowatch.com /dwres.php?resource=major

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

SEMESTER II

Programme Code	M.Sc IT	Programme Title	Master of Science (Information Technology)	
Course Code	20P2ITCT08	Core 8 : Python Programming	Batch	2020-2022
			Semester	II
Hrs/week	4		Credits	3

COURSE OBJECTIVE:

- To enable the students to Learn Syntax, semantics and create Functions in Python.
- To Understand Regular expressions in constructing Data Structures and Build Web Services.
- To understatnd the Data Structures using Python
- Understand the concepts of Regular Expressions and Object-Oriented programming as used in Python

COURSE OUTCOMES (CO)

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

CO Number	CO Statement
CO1	Exposed to Python syntax and semantics and be fluent in the use Python flow control and functions.
CO2	Create and run Python Programs using Lists, Dictionaries and handle File Systems.
CO3	Explain the concepts of Regular Expressions and Object-Oriented programming as used in Python.
CO4	Build Data Structures using Python.
CO5	Create programming projects from scratch using in-demand skill and technologies

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)**

Terminology: Interpreter and compiler, Writing a program- **Variables, expressions and statements:** Values and types-Variables – Statements – Expressions. **Conditional execution-Functions:** Built-in functions-Type conversion functions-Random numbers-Math functions-Adding new functions-Definitions and uses.

Unit – II **(Hours:10)**

Iteration-The while statement-Infinite loops and break, Finishing iterations with continue-Definite loops using for-Loop patterns-**Strings-**String comparison-string methods-Parsing strings- Format operator- **Files-** Opening files-Text files and lines-Reading files-Searching - Using try, except, and open and writing files-**Lists-** Traversing a list, List operations, List slices, List methods-Deleting elements-Lists and functions- Lists and strings-Parsing lines-Objects and values**.**

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

Tuples :Tuples are immutable-Comparing tuples-Tuple assignment-Dictionaries and tuples-Multiple assignment with dictionaries-Sequences-Regular expressions- Character matching-Extracting-Combining searching and extracting, Escape character. Classes and objects: User-defined compound types-Classes and functions-MyTime-Pure functions-Modifiers-Operator overloading, Polymorphism.

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

Stacks, Abstract data types, The Stack ADT, Implementing stacks with Python lists, Pushing and popping, Using a stack to evaluate postfix, Parsing, Evaluating postfix, Clients and providers, Queues, The Queue ADT, Linked Queue, Performance characteristics, Improved Linked Queue, Priority queue.

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

Networked programs:Hypertext Transport Protocol – HTTP, The World's Simplest Web Browser, Retrieving an image over HTTP, Retrieving web pages with urllib, Parsing HTML and scraping the web, Parsing HTML using Regular Expressions, Parsing HTML using BeautifulSoup, Reading binary files using urllib,eXtensible Markup Language – XML, Parsing XML, Looping through nodes, JavaScript Object Notation – JSON, Parsing JSON, Application Programming Interfaces (API).

REFERENCE BOOKS

S.No.	Authors	Title	Publishers
1	Charles Severance	Python for Informatics	CreateSpace Independent Publishing Platform, First Edition
2	Peter Wentworth, Jeffrey Elkner, Allen B. Downey and Chris Meyers	How to Think Like a Computer Scientist: Learning with Python	Open Book Project, Second Edition
3	Mark Lutz	Learning Python	O'Reilly Media, Fifth Edition
4	Wesley Chun	Core Python Applications Programming	Prentice Hall India, New Delhi, Third Edition
5.	Alex Martelli	Python in a Nutshell	O'Reilly Media, Second Edition

WEBSITE REFERENCES:

1.https://pythonprogramming.net
2. https://www.sanfoundry.com/python-problems-solutions
3.https://www.tutorialspoint.com/python/python_linked_lists.htm
4. http://interactivepython.org/runestone/static/pythonds/BasicDS/toctree.html
5. https://pythonprogramminglanguage.com

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

SEMESTER II

Programme Code :	M.Sc IT	Programme Title	Master of Science (Information Technology)	
Course Code :	20P2ITCT09	Core 9: Object Oriented Analysis and Design	Batch	2020-2022
			Semester	II
Hrs/week	4		Credits	3

COURSE OBJECTIVES

- To specify, analyze and design the use case driven requirements for a particular system and helps to model the event driven state of object and transform them into implementation specific layouts.
- Understands the UML programming by exploiting the objects in the real world.
- Understands the UML programming by exploiting the objects in the re

COURSE OUTCOMES (CO)

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

CO Number	CO Statement
CO1	Analyze and design the use case driven requirements for a particular system
CO2	Analyze and identify the subsystems, various components and collaborate them interchangeably
CO3	Recollect about the basic functionality of object and to know how objects work with different methodologies.
CO4	To analyse the problem and tends to refine the problem into concepts.
CO5	Describe the UML programming by exploiting the objects in the real world.

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)**

Object Basics: Introduction – An Object - Oriented Philosophy – Objects – Attributes – Object Behavior And Methods – Objects Respond To Messages – Encapsulation And Information Hiding – Class Hierarchy – Polymorphism – Object Relationships And Associations – Aggregations And Object Containment – Meta-Classes – Object- Oriented System Development Life Cycle.

UNIT II **(Hours: 10)**

Object-Oriented Methodologies: Rumbaugh Object Modeling Technique – The Booch Methodology – The Jacobson Methodologies – Patterns – Frameworks – The Unified Approach.

UNIT III **(Hours: 10)**

Object-Oriented Analysis: Business Object Analysis – Use-Case Driven Object-Oriented Analysis – Business Process Modeling – Use-Case Model – Object Analysis – Noun Phrase Approach –Common Class Pattern Approach – Use-Case Driven Approach – Classes, Responsibilities And Collaborators.

UNIT IV **(Hours: 10)**

Object-Oriented Design: Object-oriented Design Process – Object-Oriented Design Axioms – Corollaries –Design Patterns - designing classes – case study.

UNIT V **(Hours: 10)**

UML and Programming: Introduction – Static and Dynamic Models – Introduction to the Unified Modelling Language – UML Diagrams – UML Class Diagram – Use Case Diagram – UML Dynamic Modelling – Case study to inventory, sales and banking.

REFERENCE BOOKS

S. No	Author Name	Title of the Book	Publisher
1.	Ali Bahrami	Object Oriented Systems Development	Irwin-McGraw Hill
2.	Gredy Booch	Object Oriented Analysis and Design With Applications	Addition Wesley
3.	Martin Fowler	UML Distilled	PHI Education
4.	Rumbaugh, James, Jacobson, Ivar, and Booch, Grady	The Unified Modeling Language Reference Manual	Addison Wesley

WEBSITE REFERENCES

1.https://en.wikipedia.org/wiki/Object-oriented_analysis_and_design
2.https://www.tutorialspoint.com/object_oriented_analysis_design/
3.https://en.wikipedia.org/wiki/Object-oriented_analysis_and_design
4.https://airbrake.io/blog/design-patterns/object-oriented-analysis-and-design
5.https://medium.com/.../object-oriented-analysis-and-design-

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

SEMESTER II

Programme Code :	**M.Sc IT**	**Programme Title**	**Master of Science (Information Technology)**	
Course Code :	**20P2ITCT10**	**Core 10: Big Data Analytics**	**Batch**	**2020-2022**
			Semester	**II**
Hrs/week	**5**		**Credits**	**4**

COURSE OBJECTIVES

- To enable the studetns to provide the knowledge about the Big Data Fundamentals, including the characteristics of Big Data, the sources Big Data (such as social media, sensor data, geospatial data etc),
- To enable the studetns to understand the challenges imposed around information management, data analytics, privacy and security, as well as platforms and architectures
- Understand the the concepts of HDFS and MapReduce framework

COURSE OUTCOMES (CO)

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

CO Number	CO Statement
CO1	Explain the the concepts of HDFS and MapReduce framework
CO2	Explain the Hadoop 2.x Architecture
CO3	Implement HBase and MapReduce Integration
CO4	To analyse the problem and tends to refine the problem into concepts. Implement best Practices for Hadoop Development
CO5	Work on a Real Life Project on Big Data Analytics

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 BIG DATA: Introduction to BigData Platform –Challenges of Conventional Systems - Intelligent data analysis –Nature of Data - Analytic Processes and Tools - Analysis vs Reporting - Modern Data Analytic Tools - Statistical Concepts: Sampling Distributions - Re - Sampling - Statistical Inference - Prediction Error.

UNIT II **(Hours: 12)**

MINING DATA STREAMS: Introduction To Streams Concepts –Stream Data Model and Architecture -Stream Computing -Sampling Data in a Stream –Filtering Streams –Counting Distinct Elements in a Stream –Estimating Moments –Counting Oneness in a Window –Real time Analytics Platform(RTAP) Applications

UNIT III **(Hours: 13)**

HADOOP: History of Hadoop-The Hadoop Distributed File System –Components of Hadoop-Analyzing the Data with Hadoop-Scaling Out-Hadoop Streaming-Design of HDFS-Java interfaces to HDFS-Basics-Developing a Map Reduce Application-How Map Reduce Works-Anatomy of a Map Reduce Job run-Failures-Job Scheduling-Shuffle and Sort –Task execution -Map Reduce Types and Formats

UNIT IV **(Hours: 11)**

HADOOP ENVIRONMENT: Setting up a Hadoop Cluster -Cluster specification -Cluster Setup and Installation -Hadoop Configuration-Security in Hadoop -Administering Hadoop –HDFS -Monitoring-Maintenance-Hadoop benchmarks-Hadoop in the cloud.

UNIT V **(Hours: 12)**

FRAMEWORKS: Applications on Big Data Using Pig and Hive –Data processing operators in Pig –Hive services –HiveQL –Querying Data in Hive -fundamentals of HBase and ZooKeeper -IBM InfoSphere. Visualizations -Visual data analysis techniques, interaction techniques.

REFERENCE BOOKS

S. No	Author Name	Title of the Book	Publisher
1.	Tom White	Hadoop: The Definitive Guid	O'reilly Media
2.	Anand Rajaraman and Jeffrey David Ullman,	Mining of Massive Datasets	Cambridge University Press,
3.	Bill Franks,	Taming the Big Data Tidal Wave	John Wiley & sons
4.	Michael Berthold, David J. Hand,	Intelligent Data Analysis	Springer

WEBSITE REFERENCES

1. https://www.sas.com › SAS Insights › Analytics Insights
2. https://analyticstraining.com › Big Data Analytics
3. https://www.qubole.com/big-data-analytics
4. https://en.wikipedia.org/wiki/Big_data
5. https://www.edx.org/course/big-data-analytics-adelaidex-analyticsx

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

SEMESTER II

Programme Code :	**M.Sc IT**	**Programme Title**	**Master of Science (Information Technology)**	
Course Code :	**20P2ITCP11**	**Core 11:Linux - Practical**	**Batch**	**2020-2022**
			Semester	**II**
Hrs/week	**4**		**Credits**	**3**

COURSE OBJECTIVES

- To develop the applications using Linux Programming.
- To apply the concepts of shell script and linux programming

COURSE OUTCOMES (CO)

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

CO Number	CO Statement
CO1	Learn to know the working of RMI and RPC
CO2	Know the concept working in syncronization
CO3	How to make, remove, rename, copy and move files and directories
CO4	Learn to identify and change the permissions of files and directories and what the consequences of these are.
CO5	Learn to write shell scripting.

MAPPING WITH PROGRAMME OUTCOMES

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

SYLLABUS

Distributed System:

1. To study Client Server based program using RMI
2. To study Client Server based program using RPC.
3. To study Implementation of Election algorithm.
4. To study Implementation of Mutual Exclusion algorithms.

Linux Programming :

5. Study of General Purpose Utility Commands.

6. Study of File System Navigation Commands Text Processing Tools.

7. Write shell script to perform integer arithmetic operations

8.Write a Shell script that displays list of all the files in the current directory to which the user has read, write and execute permissions.

9.Write a shell script that computes the gross salary of a employee according to the following

1) if basic salary is <1500 then HRA 10% of the basic and DA =90% of the basic
2) if basic salary is >=1500 then HRA 500 and DA =98% of the basic

10. Write a shell script to search an element in the list

WEBSITE REFERENCES

*1.*https://www.tutorialspoint.com/java_rmi/java_rmi_application.htm

2.hhttp://mrbool.com/how-to-create-rmi-client-and-server-to-invoke-remove-method-of-rmi-server-in-java/28320

3.*http://www.learntosolveit.com/java/MutualExclusion.html*

4.https://opensource.com/resources/linux

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

SEMESTER II

Programme Code :	M.Sc IT	Programme Title	Master of Science (Information Technology)	
Course Code	20P2ITCP12	Core 12 :Python Programming-Practical	Batch	2020-2022
			Semester	II
Hrs/week	4		Credits	3

COURSE OBJECTIVES

- To write, test, and debug simple Python programs.
- To develop the applications using Python programming language.

COURSE OUTCOMES:

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

CO Number	CO Statement
CO1	Develop proficiency in creating applications, testing and debugging of code written in Python using the Python Programming Language.
CO2	Understand the various data structures available in Python programming language and apply them in solving computational problems.
CO3	Perform text filtering with regular expressions in Python
CO4	Draw various kinds of plots using PyLab

MAPPING WITH PROGRAMME OUTCOMES

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

SYLLABUS

1. Develop programs to understand the control structures of python
2. Develop programs to learn different types of structures (list, dictionary, tuples) in python
3. Develop programs to learn concept of functions scoping, recursion and list mutability.
4. Develop programs to understand working of exception handling and assertions.
5. Develop programs for data structure algorithms using python searching and sorting
6. Develop programs to learn regular expressions using python.
7. Learn to plot different types of graphs using PyPlot.
8. Implement classical ciphers using python

WEB REFERENCES

1. https://www.w3resource.com/python-exercises
2. http://www.introtopython.org/
3. https://inventwithpython.com/hacking/chapters

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

SEMESTER II

Programme Code :	**M.Sc IT**	**Programme Title**	**Master of Science (Information Technology)**	
Course Code :	**20P2ITET1A**	**Elective 1 : Grid Computing**	**Batch**	**2020-2022**
			Semester	**II**
Hrs/week	**4**		**Credits**	**4**

COURSE OBJECTIVES

To enable the students

1. To be familiar with the fundamental components of Grid environments, such as authentication, authorization, resource access, and resource discovery.
2. To design and implement Grid computing applications using Globus or similar toolkits .
3. To justify the applicability, or non-applicability, of Grid technologies for a specific application.
4. To understand where the grid computing could be effectively utilized by illustrations of applications of grid computing.

COURSE OUTCOMES (CO)

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

CO Number	CO Statement
CO1	Explain various Grid Standards, Principles, Approaches , Methods in Grid Environment.
CO2	Know the application, History, learning and Motivation theories in assessing the Economic Strategy and Satisfaction.
CO3	Describe the grounding in the architecture of the Grid, and exposure to various implementations of the infrastructure.
CO4	Evaluate the Grid Service Taxonomy, functionalities in Grid Service Architecture.
CO5	Explain the various applications of grid computing.

MAPPING WITH PROGRAMME OUTCOMES

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

SYLLABUS

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

Introduction: Grid Computing & Key Issues –Applications –Other Approaches –Grid Computing Standards –Pragmatic Course of Investigation Grid Computing Software Interface-Grid Computing Infrastructure Development.

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

Grid Benefits & Status of Technology: Motivations –History of Computing, Communications and Grid Computing –Grid Computing Prime Time– Suppliers and Vendors –Economic Value – Challenges.

UNIT – III **(Hours : 10)**

Components of Grid Computing Systems and Architectures: Basic Constituent Elements-A Functional View –A Physical View –Service View Grid Environment-Grid Security Infrastructure-Delegation-Higher Level Authorization Tools.

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

Grid Computing Standards - OGSI: Standardization –Architectural Constructs –Practical View – OGSA/OGSI Service Elements and Layered Model –More Detailed View.

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

Standards Supporting Grid Computing-OGSA: Functionality Requirements –OGSA Service Taxonomy –Service Relationships –OGSA Services –Security Considerations.

REFERENCE BOOKS

S. No.	Author Name	Title of the Book	Publisher
1.	Daniel Minoli	A Networking Approach to Grid Computing	Wiley Publication
2.	Ahmar Abbas	Grid Computing –A Practical Guide to Technology and Applications	Charles River Media Publication.
3.	Barry Wilkinson	Grid Computing Techniques and Applications	CRC Press

WEBSITE REFERENCES

1. https://www.techopedia.com/definition/87/grid-computing
2. https://computer.howstuffworks.com › ... › Computer Hardware › Networking
3. *https://searchdatacenter.techtarget.com/definition/grid-computing*
4. *https://azure.microsoft.com/en-in/overview/what-is-grid-computing/*
5. https://techterms.com/definition/grid_computing

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

SEMESTER II

Programme Code	**M.Sc IT**	**Programme Title**	**Master of Science (Information Technology)**	
Course Code	**20P2ITET1B**	**Elective 1 : Introduction to Robotics**	**Batch**	**2020-2022**
			Semester	**II**
Hrs/week	**4**		**Credits**	**4**

Course Objectives:

- To learn the basic concepts of Robots and the concepts of Kinematics of Robotics
- To learn the concepts of Motions, velocities and dynamic analysis of force
- To understand the concepts of Motion planning and Trajectory Planning
- To understand the concepts Actuators and sensors.

COURSE OUTCOMES (CO)

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

CO Number	**CO Statement**
CO1	Explain the basic concepts of Robots.
CO2	Describe the working kinematics of Robots
CO3	Explain the concept of motion,velocities and dynamic forces
CO4	Realise the Motion and Trajecctory planning
CO5	Explain the different Actuators and Sensors.

SYLLABUS

UNIT – I **(Hours : 10)**

Fundamentals: What is a Robot? Classification of Robots. What is Robotics? History of Robotics. Advantages and Disadvantages of Robots. Robot Components. Robot Degrees of Freedom. Robot Joints. Robot Coordinates. Robot Reference Frames. Programming Modes. Robot Characteristics. Robot Workspace. Robot Languages. Robot Applications. Other Robots and Applications. Social Issues.

Unit – II **(Hours : 10)**

Robot Kinematics:Position Analysis: Robots as Mechanisms. Matrix Representation. Homogeneous Transformation Matrices. Representation of Transformations. Inverse of Transformation Matrices. Forward and Inverse Kinematics of Robots.

Unit – III **(Hours : 10)**

Differential Motions and Velocities:Differential Relationships. Jacobian. Differential Motions of a Frame. Interpretation of the Differential Change. Differential Changes Between Frames. **Dynamic Analysis and Forces:**Lagrangian Mechanics: A Short Overview. Effective Moments of Inertia. Dynamic Equations for Multiple-Degree-of-Freedom Robots. Static Force Analysis of Robots. Transformation of Forces and Moments Between Coordinate Frames

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

Trajectory Planning: Path vs. Trajectory. Joint-Space vs. Cartesian-Space Descriptions. Basics of Trajectory Planning. Joint-Space Trajectory Planning. Cartesian-Space Trajectories. Continuous Trajectory Recording.

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

Actuators: Characteristics of Actuating Systems. Comparison of Actuating Systems. Hydraulic Devices. Pneumatic Devices. Electric Motors. Microprocessor Control of Electric Motors. Magnetostrictive Actuators. Shape-Memory Type Metals. Speed Reduction **Sensors:**Sensor Characteristics. Position Sensors. Velocity Sensors. Acceleration Sensors. Force and Pressure Sensors. Torque Sensors. Microswitches. Light and Infrared Sensors. Touch and Tactile Sensors. Proximity Sensors. Range-finders. Sniff Sensors. Vision Systems. Voice Recognition Devices. Voice Synthesizers. Remote Center Compliance (RCC) Device

REFERENCE BOOKS

S.NO	Author Name	Title of the Book	Publisher
1	Saeed B. Niku	Introduction to Robotics: Analysis, Systems, Applications	Hoboken,N.J Wiley
2	Ghosal, A.	Robotics:Fundamental Concepts and Analysis	Oxford University Press
3.	Doughales R. Halconnjr.	An Introduction to Robotics	-

WEBSITE REFERENCES

1. http://engineering.nyu.edu/mechatronics/smart/pdf/Intro2Robotics.pdf
2. https://www.ohio.edu/mechanical-faculty/williams/html/PDF/IntroRob.pdf
3.http://courses.csail.mit.edu/6.141/spring2014/pub/labs/lab7/docs/Arm-Assembly-Instructions.pdf

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

SEMESTER II

Programme Code	**M.Sc IT**	**Programme Title**	**Master of Science (Information Technology)**	
Course Code	**20P2ITET1C**	**Elective 1 : Bioinformatics**	**Batch**	**2020-2022**
			Semester	**II**
Hrs/week	**4**		**Credits**	**4**

COURSE OBJECTIVES:

To enable the students

- To understand the basic concepts in molecular biology and genetics.
- To understand the various methods of phylogenetic tree construction
- To understand the various techniques of proteomics.
- To understand the structure and functions of the genomes.
- To know the application areas of bioinformatics.

COURSE OUTCOMES (CO)

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

CO Number	CO Statement
CO1	Describes about the concepts of molecular biology.
CO2	Interpret the characteristics of phylogenetic methods
CO3	Explain the pair wise sequence alignment methods.
CO4	Explain the protein synthesis in eukariotic cells.
CO5	Describe the various bioinformatics applications.

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)**

Molecular Biology, Gene Structure and Information Content, Molecular Biology Tools, Genomic Information Content, Data Searches and Pairwise Alignments, Gaps, Scoring Matrices, Needleman and Wunsch Algorithm, Global and Local Alignments, Database Searches.

Self Study: Scoring Matrices

UNIT II **(Hours:10)**

Patterns of Substitution Within Genes, Estimating Substitution Numbers, Molecular Clocks, Molecular Phylogenetics, Phylogenetic Trees, Distance Matrix Methods. Self Study: Distance Matrix Methods

UNIT III **(Hours:10)**

Character-Based Methods Of Phylogenetics, Parsimony, Ancestral Sequences, Searches, Consensus Trees, Tree Confidence, Genomics, Prokaryotic Gene Structure, Gene Density,Eukariotic Genomes, Gene Expression. Self Study: Gene Expression.

UNIT IV **(Hours:10)**

Protein and RNA Structure Prediction, Polypeptic Composition, Secondary and Tertiary Structure, Algorithms For Modeling Protein Folding, Structure Prediction. Self Study: Structure Prediction.

UNIT V **(Hours:10)**

Proteomics, Protein Classification, Experimental Techniques, Ligand Screening, Post-Translational Modification Prediction. Self Study: Protein Classification.Bioinformatics Applications – Agricultural – Transgenic Plants and Animals, Pharmaceutical –Drug design and Medical – SNP, Genetic Disorders, Gene therapy.

References Books:

S. No	Author Name	Title of the Book	Publisher
1.	D. E. Krane and M. L. Raymer	Fundamental Concepts of Bioinformatics"	Pearson Education
2.	T. K. Attwood and D. J. Parry-Smith	Introduction to Bioinformatics	Pearson Education
3.	J. H. Zar	Biostatistical Analysis	Pearson Education

WEB REFERENCES:

1. www.Bioinformatics.org
2. www.bioinfo.mbb.yale.edu/mbb452a/intro/
3. www.biology.ucsd.edu/others/dsmith/Bioinformatics.html

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

SEMESTER II

Programme Code	**M.Sc IT**	**Programme Title**	**Master of Science (Information Technology)**	
Course Code	**20P2ITET1D**	**Elective 1 : Wireless Communication**	**Batch**	**2020-2022**
Hrs/week	**4**		**Semester**	**II**
			Credits	**4**

COURSE OBJECTIVES

To enable the Students

- To understand the basics of wireless voice and data communication technologies.
- To study the working principles of wireless LAN and its standards .
- To build working knowledge on various telephone and satellite networks.
- To build knowledge on various Mobile Computing algorithms.

COURSE OUTCOMES (CO)

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

CO Number	CO Statement
CO1	Recognize various bandwidth Coherences and various Channels.
CO2	Explain the Cellular concepts and Frequency coverage calculations.
CO3	Elucidate the Wireless computing Algorithms and Technologies.
CO4	Identify two core networks associated with 3G Cellular networks
CO5	Compare the data transfer rates with those over Wireless LAN

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)**

Large scale path loss – Path loss models: Free Space and Two-Ray models -Link Budget design – Small scale fading- Parameters of mobile multipath channels – Time dispersion parameters- Coherence bandwidth – Doppler spread & Coherence time, Fading due to Multipath time delay spread .

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

Multiple Access techniques - FDMA, TDMA, CDMA – Capacity calculations–Cellular concept- Frequency reuse - channel assignment- hand off- interference & system capacity- trunking & grade of service – Coverage and capacity improvement.

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

Structure of a wireless communication link, Principles of Offset-QPSK, p/4-DQPSK, Minimum Shift Keying, Gaussian Minimum Shift Keying, Error performance in fading channels, OFDM principle – Cyclic prefix, Windowing, PAPR.

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

Equalisation – Adaptive equalization, Linear and Non-Linear equalization, Zero forcing and LMS Algorithms. Diversity – Micro and Macro diversity, Diversity combining techniques, Error probability in fading channels with diversity reception, Rake receiver.

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

MIMO systems – spatial multiplexing - System model -Pre-coding - Beam forming - transmitter diversity, receiver diversity- Channel state information-capacity in fading and non-fading channels.

REFERENCE BOOKS

S. No.	Author Name	Title of the Book	Publisher
1.	Rappaport,T.S.	Wireless Communications	Pearson Education
2.	Andreas.F. Molisch	Wireless Communications	John Wiley – India
3.	David Tse, Pramod Viswanath	Fundamentals of Wireless Communication	Cambridge University Press
4.	Upena Dalal	Wireless Communication	Oxford University Press
5.	Van Nee, R. and Ramji Prasad	OFDM for Wireless Multimedia Communications	Artech House

WEBSITE REFERENCES

1. https://www.engineersgarage.com/articles/wireless_communication
2. https://www.tutorialspoint.com › ... › Wireless Communication – Overview
3. https://www.edgefx.in/different-types-wireless-communication-technologies/
4. *https://www.techopedia.com/definition/10062/wireless-communications*
5. *https://www.electronicshub.org › General*

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

SEMESTER – II

Programme Code	M.Sc.IT	Programme Title	Master of Science (Information Technology)	
Course Code	20P2TSS02	Technical Skill Subject 2: Technical Seminar And Report Writing	Batch	2020-2022
			Semester	II
Hrs/ Week	2		Credits	2

Guidelines for

Technical Seminar & Report Writing

Technical Seminars

Seminar is a course requirement wherein under the guidance of a faculty member a student is expected to do an in depth study in a specialized area by doing literature survey, understanding different aspects of the problem and arriving at a status report in that area. While doing a seminar, the student is expected to learn investigation methodologies, study relevant research papers, correlate work of various authors/researchers critically, study concepts, techniques, prevailing results etc., analyze it and present a seminar report. It is mandatory to give a seminar presentation before a panel constituted for the purpose. The grading is done on the basis of the depth of the work done, understanding of the problem, report and presentation by the student concerned.

Seminar Report

Students must carefully go through the report preparation guidelines.

1) The first draft of the report complete in all respects must be submitted at least one month prior to the date of submission of the final report.
2) The report must reflect the students' understanding of the problem.
3) The student is expected to write his own report without plagiarism

Presentation

Students also need to make a mock presentation to the M.Sc students one week prior to the final presentation date. This would enable the student to make corrections either in the slides or in the presentation so that he/she is better prepared for the final presentation.

Report Writing

This document may be referred as report writing guide It may be used for the preparation of seminar and project reports associated with M.Sc Programs.

Contents

Merits of evaluation

1) Regularity:

Based on:Whether the student has kept the guide updated on his progress (at least one contact hour per week).

2) Quality of work:

Based on:Depth of work done and understanding of the problem.Whether the student has learnt investigation methodologies described above.

3) Quality of report:

Based on:Whether the student has expressed his/her understanding of the topic.

Whether the student has followed the guidelines given for report preparation.

4) Quality of presentation:

Based on:Whether the student has been able to express his/her understanding of the topic.

Whether the student has been able to satisfactorily answer questions of the panel members.

Evaluation weightages

Merit of evaluation	**Guide**	**Examiner**	**Panel member**
Regularity	15%	-	-
Quality of work	15%	15%	10%
Quality of report	10%	15%	-
Quality of presentation	-	-	20%

SEMESTER III

Programme Code	**M.Sc IT**	**Programme Title**	**Master of Science (Information Technology)**	
Course Code	**20P3ITCT13**	**Core 13: Web Data Mining**	**Batch**	**2020-2022**
			Semester	**III**
Hours/week	**4**		**Credits**	**4**

COURSE OBJECTIVES

To enable the students to

- Understand the difference between web content mining, web structure mining and web usage mining and their applications.
- Understand the web content mining in accordance with machine learning concepts.
- Understand to extract the structured data from some fixed templates and extracting enables us to separate the particular data from multiple sources.
- Understand the automatic discovery of meaningful patterns and relationships from the large collection of semi-structured data.

COURSE OUTCOMES (CO)

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

CO Number	CO Statement
CO1	Classify the difference between web content mining, web structure mining and web usage mining and their applications.
CO2	Summarize the web content mining in accordance with machine learning concepts.
CO3	Communicate the diverse concepts of object ranking, group detection, collective classification, link prediction and sub graph discovery to build various models in linked data.
CO4	Focusing on extracting the structured data from some fixed templates and extracting enables us to separate the particular data from multiple sources.
CO5	Explain the automatic discovery of meaningful patterns and relationships from the large collection of semi-structured data.

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)**

Web Mining: Introduction – Theoretical background – Algorithms and techniques – Association rule mining – Sequential Pattern Mining – Information retrieval and Web search – Information retrieval Models – Relevance Feedback – Text and Web page Pre-processing – Inverted Index – Latent Semantic Indexing – Web Search – Meta – Search – Web Spamming.

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

Web Content Mining: Supervised Learning –Decision tree -Naïve Bayesian Text Classification-Support Vector Machines -Ensemble of Classifiers. Unsupervised Learning -K-means Clustering -Hierarchical Clustering – Partially Supervised Learning –Markov Models -Probability-Based Clustering – Evaluating Classification and Clustering – Vector Space Model – Latent semantic Indexing – Automatic Topic Extraction -Opinion Mining and Sentiment Analysis -Document Sentiment Classification.

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

Web Link Mining – Hyperlink based Ranking – Social Networks Analysis – Co-Citation and Bibliographic Coupling – Page Rank – Authorities and Hubs – Link-Based Similarity Search – Enhanced Techniques for Page Ranking – Community Discovery**.**

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

Structured Data Extraction: Wrapper Generation – Preliminaries – Wrapper Induction – Instance – BasedWrapper Learning – Automatic Wrapper Generation: String Matching and Tree Matching – Multiple Alignment – Building DOM Trees – Extraction Based on a Single List Page and Multiple pages.

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

Web Usage Mining – Click stream Analysis – Web Server Log Files – Data Collection and Pre-Processing – Cleaning and Filtering – Data Modeling for Web Usage Mining – The BIRCH Clustering Algorithm –Affinity Analysis and the A Priori Algorithm –Binning – Discovery and Analysis of Web Usage Patterns – Modeling user interests – Probabilistic Latent Semantic Analysis – Latent Dirichlet Allocation Model.

REFERENCE BOOKS

S.No.	Author Name	Title of the Book	Publisher
1.	Bing Liu	Web Data Mining - Exploring Hyperlinks, Contents and Usage Data	Springer
2.	Guandong Xu, Yanchun Zhang, Lin Li	Web Mining and Social Networking: Techniques and Applications Springer, First Edition	Springer
3.	Zdravko Markov, Danie lT. Larose,	Data Mining the Web: Uncovering Patterns in Web Content, Structure, and Usage	John Wiley & Sons, Inc.
4.	Soumen Chakrabarti	Mining the Web: Discovering Knowledge from Hypertext Data	Morgan Kaufmann Edition

WEBSITE REFERENCES

1. https://www.tutorialride.com/data-mining/web-mining.html
2. *https://www.tutorialspoint.com › data mining › data mining*
3. https://www.cs.uic.edu/~liub/WebMining.html

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

SEMESTER III

Programme Code	M.Sc IT	Programme Title	Master of Science (Information Technology)	
Course Code	20P3ITCT14	Core 14: Advanced Computer Networks	Batch	2020-2022
			Semester	III
Hours/week	4		Credits	4

COURSE OBJECTIVES

To enable the students

- To learn the basic computer network technology.
- To enhance the knowledge about digital transmission methods.
- To Identify the different types of network topologies.
- To learn different protocols used for transmission of data in various layers.
- To learn about user networks interfaces and protocols of ATM and its operations and maintenance.

COURSE OUTCOMES (CO)

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

CO Number	CO Statement
CO1	Explain the Data Communications System and its components.
CO2	Describe routing and congestion in network layer with routing algorithms
CO3	master the terminology and concepts of the OSI reference models and TCP/IP
CO4	Illustrate applications of Computer Network capabilities, selection and usage for various sectors of user community.
CO5	Explain the concepts of ATM and its Methods.

MAPPING WITH PROGRAMME OUTCOMES

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

SYLLABUS

UNIT I **(Hours: 10)**

Introduction to Data Communications and Networking : Introduction – Fundamentals concepts – Data Communication – Protocals – standards – Standards organization – signal propagation- analog and Digital signals. Analog and Digital Transmission methods: Introduction – Analog signal , Analog Transmission – Digital Signal , Digital Transmission.

UNIT II **(Hours: 12)**

Transmission Media – Introduction – Guided Media – Unguided Media. Network Topologies , switching and routing algorithms: Introduction – Mesh , Star, Tree , Ring, Bus , Hybrid Topologies. Switching Basics – Circuit , packet , Message switching - Router and Routing – Routing Algorithms.

UNIT III **(Hours: 10)**

Networking Protocal and OSI Model : Introduction – Protocals in computer communication – the OSI Model – OSI Layer Functions. TCP/IP : Introduction-TCP/IP Basics - why IP Addresses? -Local addresses-TCP/IP Examples-The concepts of IP Adresses-ARP.

UNIT IV **(Hours: 10)**

TCP/IP PART II-(TCP,UDP) - TCP/IP PART III(DNS,Email,FTP,TFTP)

UNIT V **(Hours: 10)**

Overview of ATM : Introduction – What is ATM ? Genesis of ATM – Basic Principles of ATM – TCP/IP Part IV(WWW,HTTP,TELNET).

Reference Books:

S. No	Author Name	Title of the Book	Publisher
1.	Achyut Godbole	Data Communication And Networks	Tata MaGraw-Hill
2.	Sumit Kasera & Pankaj Seth	ATM Networks concetps and protocols	Tata MaGraw-Hill
3.	Uyless Black	Computer Networks - Protocols, Standards, and Interfaces	Prentice-Hall International

WEB References

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

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

SEMESTER III

Programme Code	**M.Sc IT**	**Programme Title**	**Master of Science (Information Technology)**	
Course Code	**20P3ITCT15**	**Core 15: Internet of Things**	**Batch**	**2020-2022**
			Semester	**III**
Hours/week	**4**		**Credits**	**3**

Objectives: To enable the students

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

COURSE OUTCOMES (CO)

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

CO Number	CO Statement
CO1	Explain the concept of IoT.
CO2	Analyze various protocols for IoT.
CO3	Analyze applications of IoT in real time scenario
CO4	Explain the data analytics and cloud in the context of IoT
CO5	Explain the concepts of SOCRADES.

MAPPING WITH PROGRAMME OUTCOMES

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

SYLLABUS

UNIT I **(Hours:10)**

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

UNIT II **(Hours:11)**

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

UNIT III **(Hours:10)**

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

UNIT IV **(Hours:10)**

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 **(Hours:10)**

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.

REFERENCE BOOKS

S.No.	Author Name	Title of the Book	Publishers
1.	Vijay Madisetti and Arshdeep Bahga	Internet of Things (A Hands-on-Approach)	VPT
2.	Francis daCosta	Rethinking the Internet of Things: A Scalable Approach to Connecting Everything	Apress Publications
3.	Hakima chaouchi	The Internet Of Things Connecting Objects	
4.	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	Academic Press
5.	Vijay Madisetti and Arshdeep Bahga	Internet of Things (A Hands-on-Approach)	VPT

WEBSITE REFERENCES

1. https://en.wikipedia.org/wiki/Internet_of_things
2. https://internetofthingsagenda.techtarget.com/definition/Internet-of-Things-IoT
3. https://www.techopedia.com/definition/28247/internet-of-things-iot
4. https://www.iotforall.com › #askIoT
5. https://www.wired.co.uk/article/internet-of-things-what-is-explained-iot

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

SEMESTER III

Programme Code	**M.Sc IT**	**Programme Title**	**Master of Science (Information Technology)**	
Course Code	**20P3ITCT16**	**Core 16: Web Programming**	**Batch**	**2020-2022**
			Semester	**III**
Hours/week	**4**		**Credits**	**3**

COURSE OBJECTIVES:

- To learn about the basic concepts of various computer and internet.
- To learn about the concepts of cascading style sheet.
- To learn about the Java Scripts and XML.
- To learn about the various web servers.

COURSE OUTCOMES (CO)

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

CO Number	CO Statement
CO1	Gain deep understanding of the use and implementation of HTML 5 tags.
CO2	Understand the CSS, the role of JavaScript in web page creation.
CO3	Program, access, and manipulate data through the adoption of accepted standards, mark-up languages, client-side programming, and server-side programming
CO4	Predict the need of various web servers
CO5	To know about the client side scripting.

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: 08)**

Introduction to Computers and internet: HTML5, CSS3, Javascript, W3C, Data Hierarchy, types of programming languages, HTML5: editing, example, validation service, headings, linking, images, characters, lists, tables, forms, meta elements, Input types, datalist elements, page structure elements.

UNIT II **(Hours: 10)**

Cascading Style Sheets: Inline, embedded style sheets, conflicting styles, Positioning elements, backgrounds, element dimensions, box model, menus, text shadows, corners, color, box shadows, radial gradient, multiple background, image borders.

UNIT III **(Hours: 10)**

Java Script:first script, prompt dialogs, memory, arithmetic, decision making. control statement – algorithms, pseudo code, control statements, if selection, if...else, while repetition, counter-controlled repetition, sentinel-controlled repetition, nested control statements, assignment operators, increment and decrement.

UNIT IV

(Hours: 10)

Control Statements II: for repetition, switch multiple, do...while, break, continue and logical operators.Java Script function definitions and array declaring and allocating. XML: basics, structuring data, XML namespace, DTDs, XML vocabularies, DOM.

UNIT V **(Hours: 10)**

Web Servers (apache & IIS): HTTP transactions, Client-side scripting, accessing web servers, Apache, MySql, PHP Installation, Microsoft IIS. Web App development with ASP.Net in C#: web basics, multitier architecture, first ASP.NET, web controls, validation.

REFERENCE BOOKS

S. No	Author Name	Title of the Book	Publisher
1	Paul Deitel, Harvey Dietel and Abbey Dietel	"Internet & World Wide Web – How to Program"	Tata McGraw Hill.
2	Steve Suehring	"JavaScript – Step by Step"	PHI
3	Chris Bates,	Web Programming - Building Intranet Applications	Wiley Publications,

WEBSITE REFERENCES

1. https://www.geeksforgeeks.org/html-introduction/
2. https://www.w3schools.com/html/html5_intro.asp
3. https://www.tutorialspoint.com/css/what_is_css.htm
4. https://www.guru99.com/introduction-to-javascript.html
5. https://www.c-sharpcorner.com/UploadFile/1d42da/web-service-basics/

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

SEMESTER III

Programme Code	M.Sc IT	Programme Title	Master of Science (Information Technology)	
Course Code	20P3ITCP17	Core 17: Network - Practical	Batch	2020-2022
			Semester	III
Hrs/week	4		Credits	3

COURSE OBJECTIVES

To enable the students

- To learn the digital networks & internet protocols
- To have a clear idea about various functions of TCP and UDP.
- To learn about user networks interfaces and protocols of on B-ISDN and its operations and maintenance.

COURSE OUTCOMES (CO)

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

CO Number	CO Statement
CO1	Demonstrate LAN and WAN protocol behavior using Modern Tools.
CO2	Analyze data flow between peer to peer in an IP network using Application, Transport and Network Layer Protocols.
CO3	Demonstrate basic configuration of switches and routers.
CO4	Develop Client - Server architectures and prototypes by the means of correct standards and technology
CO5	Demonstrate basic configuration of TCP and UDP Sockets.

MAPPING WITH PROGRAMME OUTCOMES

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

SYLLABUS

1. To write a Java program to perform sliding window.

2. Implementaion of socket programming date and time display from client to server using TCP Sockets.

3. Write a code simulating ARP /RARP protocols.

4. Write a code simulating PING and TRACEROUTE commands.

5. Create a socket for HTTP for web page upload and download.

6. Write a program to implement RPC (Remote Procedure Call).

7. Implementation of Subnetting.

8. Applications using TCP Sockets like Echo client and echo server.

9. Applications using TCP Sockets like File Transfer.

10. Java program for Dns application program.

11. Java program for SNMP application program .

12. Java program for applaction using TCP and UDP Sockets Links.

WEBSITE REFERENCES:

1. https://www.informit.com
2. https://www.cisco.com
3. https://www.ahirlabs.com
4. https://www.ace-edu.in

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

SEMESTER III

Programme Code	**M.Sc IT**	**Programme Title**	**Master of Science (Information Technology)**	
Course Code	**20P3ITCP18**	**Core 18: Web Programming - Practical**	**Batch**	**2020-2022**
			Semester	**III**
Hrs/week	**4**		**Credits**	**3**

COURSE OBJECTIVE: To enable the students to

- Design the concept and usages of web based programming techniques.
- Develop the HTML documents using JavaScript and CSS.
- Use of different types of server side Applications
- Design and implement user interactive dynamic web based applications.
- Implement XML Namespace & PHP Programming.

COURSE OUTCOMES (CO)

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

CO Number	CO Statement
CO1	Demonstrating the concept and usages of web based programming techniques.
CO2	Demonstrating HTML Programs using JavaScript and CSS.
CO3	Demonstrating the different types of server side Applications
CO4	Designing interactive dynamic web based applications.
CO5	Demonstrating XML Namespace & PHP Programming.

MAPPING WITH PROGRAMME OUTCOMES

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

SYLLABUS

HTML:

1. Write a HTML program with basic HTML Tags (Headings, Linking, Images with attributes, special characters).
2. Write a HTML program with basic HTML Tags (tables, lists, forms, meta elements).
3. Write a HTML program with HTML Tags (Input type tag – color, date, datetime, email, month, number).

4. Write a HTML program with HTML Tags (input, data list and auto complete attributes).

CSS:

5. Write a CSS program with inline styles, embedded style, linking, backgrounds, drop down menus.
6. Write a CSS program with positioning elements – absolute, z-index, relative and span.
7. Write a CSS program with text shadows, rounded corners, color, gradients and animations.
8. Write a CSS program with box shadows, text stroke, transition and transforms.

Java Script:

9. Write a Java script program with prompt dialogs (adding, subtracting, multiplication and dividing integers).
10. Write a Java script program with decision making – equality and relational operators.
11. Write a Java script program with control statements (if, if ... else, logical operators).
12. Write a Java script program with for, do...while, while and switch statements.

13. Write a Java script program with java script functions, arrays and objects.

XML:

14. Write a XML program with XML namespace, DTD.

15. Write a program to display the session count using PHP programming

WEBSITE REFERENCES

1. https://www.geeksforgeeks.org/html-introduction/
2. https://www.w3schools.com/html/html5_intro
3. https://www.tutorialspoint.com/css/
4. https://www.wikitechy.com/engineering-courses/it6503-web-programming-syllabus-notes

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

SEMESTER III

Programme Code	**M.Sc IT**	**Programme Title**	**Master of Science (Information Technology)**	
Course Code	**20P3ITET2A**	**Elective 2 : Soft Computing**	**Batch**	**2020-2022**
Hours/week	**4**		**Semester**	**III**
			Credits	**4**

COURSE OBJECTIVES

- To enable the Students to learn the basic concepts of Soft Computing.
- To become familiar with various techniques like neural networks, genetic algorithms and fuzzy systems.
- To apply soft computing techniques to solve problems.
- To Understand the basic principles and working of Genetic Algorithms.

COURSE OUTCOMES (CO)

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

CO Number	CO Statement
CO1	Apply suitable soft computing techniques for various applications.
CO2	Integrate various soft computing techniques for complex problems.
CO3	Explain the basic principles and working of Genetic Algorithms.
CO4	Summarize the basic Fuzzy Principles and fuzzy logic.
CO5	Describe the concept of neural networks and its applications.

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:1**0)

INTRODUCTION TO SOFT COMPUTING: Introduction-Artificial Intelligence-Artificial Neural Networks-Fuzzy Systems-Genetic Algorithm and Evolutionary Programming-Swarm Intelligent Systems-Classification of ANNs-McCulloch and Pitts Neuron Model-Learning Rules.

UNIT II **(Hours:1**0)

ARTIFICIAL NEURAL NETWORKS: Back propagation Neural Networks – Kohonen Neural Network -Learning Vector Quantization -Hamming Neural Network – Hopfield Neural Network-Bi-directional Associative Memory -Adaptive Resonance Theory Neural Networks- Support Vector Machines – Spike Neuron Models.

UNIT III **(Hours:10)**

FUZZY SYSTEMS**:**Introduction to Fuzzy Logic, Classical Sets and Fuzzy Sets – Classical Relations and Fuzzy Relations -Membership Functions -Defuzzification – Fuzzy Arithmetic and Fuzzy Measures -Fuzzy Rule Base and Approximate Reasoning – Introduction to Fuzzy Decision Making.

UNIT IV **(Hours:08)**

GENETIC ALGORITHMS:Basic Concepts- Working Principles -Encoding- Fitness Function – Reproduction -Inheritance Operators – Cross Over – Inversion and Deletion -Mutation Operator – Bit-wise Operators -Convergence of Genetic Algorithm.

UNIT V **(Hours:12)**

HYBRID SYSTEMS**:**Hybrid Systems -Neural Networks, Fuzzy Logic and Genetic -GA Based Weight Determination – LR-Type Fuzzy Numbers – Fuzzy Neuron – Fuzzy BP Architecture – Learning in Fuzzy BP- Inference by Fuzzy BP – Fuzzy ArtMap: A Brief Introduction – Soft Computing Tools – GA in Fuzzy Logic Controller Design – Fuzzy Logic Controlle**r.**

REFERENCE BOOKS

S. No.	Author Name	Title of the Book	Publisher
1.	N.P.Padhy, S.P.Simon	Soft Computing with MATLAB Programming	Oxford University Press
2.	S.N.Sivanandam , S.N.Deepa	Principles of Soft Computing	Wiley India Pvt. Ltd
3.	S.Rajasekaran, G.A.Vijayalakshmi Pai	Neural Networks, Fuzzy Logic and Genetic Algorithm, Synthesis and Applications	PHI Learning Pvt. Ltd

WEBSITE REFERENCES

1.https://en.wikipedia.org/wiki/Soft_computing
2. https://en.wikipedia.org/wiki/Computing_platform
3. https://www.britannica.com/technology/software
4. https://www.khanacademy.org › Computing › Computer science › How Computers Work

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

SEMESTER III

Programme Code	**M.Sc IT**	**Programme Title**	**Master of Science (Information Technology)**	
Course Code	**20P3ITET2B**	**Elective 2 : Embedded System**	**Batch**	**2020-2022**
Hrs/week	**4**		**Semester**	**III**
			Credits	**4**

COURSE OBJECTIVES

- To learn the architecture and programming of ARM processor.
- To become familiar with the embedded computing platform design and analysis.
- To get thorough knowledge in interfacing concepts
- To design an embedded system and to develop programs

COURSE OUTCOMES (CO)

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

CO Number	**CO Statement**
CO1	Describe the architecture and programming of ARM processor
CO2	Explain the Concepts of peripherals and interfacing of sensors.
CO3	Capable of using the system design techniques to develop firmware
CO4	Illustrate the code for constructing a system
CO5	Explain the concepts of embedded systems.

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:09)**

INTRODUCTION TO EMBEDDED COMPUTING AND ARM PROCESSORS**:**Complex systems and micro processors– Embedded system design process –Design example: Model train controller- Instruction sets preliminaries – ARM Processor – CPU: programming input and output- supervisor mode.

UNIT II **(Hours:10)**

EMBEDDED SYSTEM PLATFORM DESIGN: The CPU Bus-Memory devices and systems– Designing with computing platforms – consumer electronics architecture – platform-level performance analysis – Components for embedded programs- Models of programs- Assembly, linking and loading – compilation techniques.

UNIT III **(Hours:10)**

SENSOR INTERFACING WITH ARDUINO: Basics of hardware design and functions of basic passive components-sensors and actuators-Arduino code – library file for sensor interfacing-construction of basic applications

UNIT IV **(Hours:10)**

EMBEDDED FIRMWARE:Reset Circuit, Brown-out Protection Circuit-Oscillator Unit – Real Time Clock-Watchdog Timer – Embedded Firmware Design Approaches and Development Languages.

UNIT V **(Hours:11)**

EMBEDDED C PROGRAMMING: Introduction-Creating _hardware delays' using Timer 0 and Timer 1-Reading switches-Adding Structure to the code-Generating a minimum and maximum delay-Example: Creating a portable hardware delay- Timeout mechanisms-Creating loop timeouts-Testing loop timeouts- hardware timeouts-Testing a hardware timeout**.**

REFERENCE BOOKS

S. No.	Author Name	Title of the Book	PublisherS
1.	Marilyn Wolf,	Computers as Components Principles of Embedded Computing System Design	Morgan Kaufmann Publisher
2.	Michael J. Pont	Embedded C	Pearson 2nd edition
3.	Shibu K.V	Introduction to Embedded Systems	Tata Mcgraw Hill

WEBSITE REFERENCES

1.https://en.wikipedia.org/wiki/Embedded_system
2. https://internetofthingsagenda.techtarget.com/definition/embedded-system
3. https://www.tutorialspoint.com/embedded_systems/es_overview.htm
4. https://www.techopedia.com/definition/3636/embedded-system

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

SEMESTER III

Programme Code	M.Sc IT	Programme Title	Master of Science (Information Technology)	
Course Code	20P3ITET2C	Elective 2:Cloud Computing	Batch	2020-2022
Hrs/week	4		Semester	II
			Credits	4

COURSE OBJECTIVES

To enable the students

- To understand security implications in cloud computing
- To understand the Cloud computing architectures, applications and challenges and learn about various cloud storages

COURSE OUTCOMES (CO)

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

CO Number	CO Statement
CO1	Explain the security implications in cloud computing
CO2	Analyse the trade-offs inherent in cloud computing
CO3	Identify the architecture and infrastructure of cloud computing, including Service models and Cloud Access.
CO4	Explain the core issues of cloud computing such as security, privacy, and interoperability
CO5	Identify problems, and explain, analyze, and evaluate various cloud computing solutions

MAPPING WITH PROGRAMME OUTCOMES

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

SYLLABUS

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

INTRODUCTION: 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 : 10)**

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 : 10)**

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 : 10)**

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 : 10)**

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.

REFERENCE BOOKS

S. No	Author Name	Title of the Book	Publishers
1.	Michael Miller	Cloud Computing	Pearson Education, New Delhi
2	Anthony T. Velte	Cloud Computing A Practical Approach	Tata Mcgraw Hill Education Private Limited
3.	Arshdeep Bahga	Cloud Computing: A Hands-On Approach	Paperback-Import,

WEBSITE REFERENCES

1. https://en.wikipedia.org/wiki/Cloud_computing
2. https://searchcloudcomputing.techtarget.com/definition/cloud-computing
3. https://www.salesforce.com/what-is-cloud-computing/
4. https://aws.amazon.com/what-is-cloud-computing
5. https://www.techopedia.com/definition/2/cloud-computing

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

SEMESTER III

Programme Code	**M.Sc IT**	**Programme Title**	**Master of Science (Information Technology)**	
Course Code	**20P3ITET2D**	**Elective 2:Software Quality Assurance**	**Batch**	**2020-2022**
Hrs/week	**4**		**Semester**	**II**
			Credits	**4**

COURSE OBJECTIVES

To enable the students

- To understand the importance and types of testing
- To understand the test strategy and execution and test automation

COURSE OUTCOMES (CO)

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

CO Number	CO Statement
CO1	Explain the software Development Life Cycles
CO2	Analyse the various types of testing
CO3	Explain the types of test cases
CO4	Explain the test Strategy And Execution
CO5	Identify the testing automation

MAPPING WITH PROGRAMME OUTCOMES

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

SYLLABUS

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

INTRODUCTION TO SOFTWARE TESTING: Importance of testing, testing as a career-Difference between Project and product-Difference between Quality Assurance and Quality Control-Tool selection criteria.Software Development Life Cycles (SDLC):Software Development Life Cycle Stages-Software Development Methodologies

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

TYPES OF TESTING:Dynamic Testing- Black Box Testing, White box testing, Grey box testing,Functional Testing: GUI Testing, Boundary Value Analysis, Equivalence Class Partition, Error guessing, Negative testing, Back End testing, Database Testing, Compatibility Testing, Security testing, Portability testing, Configuration Testing, Recovery testing.Performance testing: Load testing, Stress testing, Soak testing, Spike testing, Scalability testing, Volume testing.

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

TEST CASES-Test cases and use case design-Test Case Parameters-Write/Review/Execute Test cases-Test Case Design Templates-Requirement Traceability Matrix (RTM)-Setting up Test Data-Importance of Test Data in Testing-Gathering Test Data-Advantages of Test Data Gathering Design control:Standards and procedures for design and requirement.

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

TEST STRATEGY AND EXECUTION:-Learn Test Execution Life Cycle Process-Understand Different levels of Test Execution-Sanity/ Smoke Testing-Test Batches or Test Suite Preparation and Execution-Retesting-Regression Testing, What is Bug Leakage-Test Design.Document control:Configuration items-Change validation.

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

AUTOMATION TESTING – Basics:Introduction to Automation Testing-What is Automation testing-Benefits of Automation Testing-Various Automation Test Tools.Object Repository-Working on test objects and object repository-Configuring Object Identification-Managing object repository.Product Identification:Tracebility-Configuration management.

REFERENCE BOOKS

S. No	Author Name	Title of the Book	Publishers
1.	Mordechai Ben-Menachem	Software quality producing practical,consistent software	Second Edition-2001. Thomson Asia Pte Ltd,Singapore
2	Kshirasagar Naik	Software Testing and Quality Assurance: Theory and Practice	Second Edition-Tata Mcgraw Hill,Education Private Limited

WEBSITE REFERENCES

1. https://en.wikipedia.org/wiki/software quality assurance
2. https://searchcloudcomputing.techtarget.com/definition/software quality assurance
3. https://www.salesforce.com/what-is-software quality assurance
4. https://aws.amazon.com/what-is-software quality assurance
5. https://www.techopedia.com/definition/2/software quality assurance

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

SEMESTER IV

Programme Code	M.Sc IT	Programme Title	Master of Science (Information Technology)	
Course Code	20P4ITCV19	Core 19: PROJECT VIVA VOCE	Batch	2020-2022
Hrs/week	-		Semester	IV
			Credits	4

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

GUIDELINES FOR PROJECT WORK

- The aim of the project work is to acquire practical knowledge on the implementation
- of the programming concepts studied.

- 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.

- The project work should be compulsorily done in the college only under the supervision of the department staff concerned.

FINAL VIVA VOCE

1.Project work carries 200 marks with 20 credits

2.Internal Assessment: 160 marks (40 marks for 3 reviews and 40 marks for record) and External Assessment : 40 marks (Viva Voce)

3.For awarding a pass, a candidate should have obtained 50% of the total 200 Marks.

(1) **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.**

Extra Credit Course

Programme Code :	**M.Sc IT**	**Programme Title**	**Master of Science (Information Technology)**	
Course Code :	**2020ECC001**	**Title : சுற்றுலா வளர்ச்சி**	**Batch**	**2020-2022**
			Credits	**2**

பாடத்திட்டம் :

அலகு ஐ

1. சுற்றுலா – ஒரு விளக்கம்
2. உலக நாடுகளில் சுற்றுலா வளர்ச்சி
3. பாரதத்தில் சுற்றுலா வளர்ச்சி

அலகு ஐஐ

1. தமிழ்நாட்டில் சுற்றுலா வளர்ச்சி
2. பன்னாட்டு பலவகைப் பயணிகள்
3. சுற்றுலாவின் சமுக பொருளாதார விளைவுகள்

அலகு ஐஐஐ

1. சுற்றுலாப் பயணிகள் பற்றிய புள்ளி விவரங்கள்
2. சுற்றுலாவைத் திட்டமிடுதலும் மேம்படுத்தலும்
3. சுற்றுலா விடுதிகள்

அலகு ஐஏ

1. சுற்றுலாப் பயணிகளின் பல்வேறு போக்குவரத்துகள்
2. சுற்றுலாக் கழகங்கள்
3. சுற்றுலாப் பயண முகவர்கள்

அலகு ஏ

1. சுற்றுலாவின் வணிகச் சந்தைகள்
2. சுற்றுலாவின் வழிகாட்டிகள்
3. தமிழ் இலக்கியத்தில் பயணநூல்கள்

பாடநூல் : சுற்றுலா வளர்ச்சி

ஆசிரியர் - வெ. கிருட்டிணசாமி

மணிவாசகர் பதிப்பகம்

சென்னை, ஆகஸ்டு – 2009

Extra Credit Course

Programme Code :	**M.Sc IT**	**Programme Title**	**Master of Science (Information Technology)**	
Course Code :	**2020ECC002**	**Title : இதழியல் கலை**	**Batch**	**2020-2022**
			Credits	**2**

பாடத்திட்டம் :

அலகு ஐ இதழியல் - இயல்பும் பரப்பும்

1. இதழியல் விளக்கம்.
2. இதழ்களின் பணிகள், கடமைகள், பொறுப்புகள்.
3. இதழ்கள் வகைகளும் இயல்புகளும்.
4. மக்களாட்சியில் இதழியல்.
5. இதழ்களின் சுதந்திரம்.
6. இதழியல் நடத்தையறக் கட்டளைகள்.
7. இதழியல் தொழில் வாய்ப்புகள்.

அலகு ஐஐ இதழியல் தோற்றமும் வளர்ச்சியும்

1. இதழியல் வளர்ச்சி
2. தமிழகத்தில் இதழியல் வளர்ச்சி
3. பத்திரிக்கைச் சட்டங்கள்
4. பத்திரிக்கை மன்றம்

அலகு ஐஐஐ இதழ்களின் அமைப்பு முறை

1. இதழ்கள் தொடங்குவதற்கான வழிமுறைகள்
2. செய்தித்தாள் நிர்வாக அமைப்பு

அலகு ஐஏ செய்திகள், சேகரித்தல், எழுதுதல்

1. செய்தியாளர்
2. செய்தி
3. செய்தியின் உள்ளடக்கங்கள்
4. செய்தி திரட்டுதல்
5. செய்தி நிறுவனங்கள்
6. பேட்டி
7. குற்றச் செய்திள்
8. பல்வேறு வகையான செய்திகள்
9. செய்திகளும் சிறப்புத்தனி இயல்புகளும்
10. படங்களும் இதழ்களும்

அலகு ஏ செப்பனிடுதல் (பதிப்பித்தல்)

1. செய்திகளைச் செப்பனிடுதல் - நுட்பங்கள்
2. ஆசிரியர்
3. செய்தி ஆசிரியர்
4. துணை ஆசிரியர்
5. செய்தியின் கட்டமைப்பு
6. பக்க வடிவமைப்பு
7. அச்சுப்படி திருத்துதல்
8. இதழியல் கலைச் சொற்கள்

பாடநூல் : இதழியல் கலை

ஆசிரியர் : டாக்டர் மா.பா. குருசாமி

ஸ்ரீ சக்தி ∴பைன் ஆர்ட்ஸ், சிவகாசி, ஜனவரி – 2009.

Extra Credit Course

Programme Code :	**M.Sc IT**	**Programme Title**	**Master of Science (Information Technology)**	
Course Code :	**2020ECC003**	**Title : இதழியல் கலை**	**Batch**	**2020-2022**
			Credits	**2**

பாடத்திட்டம் :

அலகு ஐ

நாட்டுப்புற இயல் என்றால் என்ன?

நாட்டுப்புற இயலின் வரலாறு

நாட்டுப்புற அயல் கல்வி – ஒரு விளக்கம்

அலகு ஐஐ

நாட்டுப்புற ஆடல்கள்

நாட்டுப்புற கூத்துகள்

நாட்டுப்புற கைவினைக் கலைகள்

அலகு ஐஐஐ

நாட்டுப்புற விளையாடல்கள்

நாட்டுப்புற மருத்துவம்

நாட்டுப்புற நம்பிக்கைகள்

அலகு ஐஏ

நாட்டுப்புற வழிபாடுகள்

நாட்டுப்புறக் கதைகள்

நாட்டுப்புறப் பாடல்கள்

கதைப்பாடல்கள

அலகு ஏ

விடுகதைகள்

பழமொழிகள்

புராணங்கள்

பாடநூல் : நாட்டுப்புறவியல்

ஆசிரியர் : சு. கண்முக சுந்தரம்
காவ்யா பதிப்பகம்,
ஏப்ரல் - 2017.

Extra Credit Course

Programme Code :	M.Sc IT	Programme Title	Master of Science (Information Technology)	
Course Code :	2020ECC004	Title : கணிப்பொறியில் தமிழ்	Batch	2020-2022
			Credits	2

பாடத்திட்டம் :

அலகு ஐ

கணிப்பொறியில் தமிழ்

விசைப்பலகை அமைப்பு முறைகள்

எழுத்துருவின் வகைகள்

அலகு ஐஐ

தமிழ் எழுத்துருக்கள்

எழுத்துரு ∴ விசைப்பலகை இயக்கியை நிறுவுதல்

அலகு ஐஐஐ

தமிழில் தட்டச்சு செய்யும் முறை

சிக்கல்களும் தீர்வுகளும்

அலகு ஐஏ

இணையத்தில் தமிழ்

தமிழ் இணையப் பல்கலைக்கழகம்

மின்னஞ்சல்

அலகு ஏ

யூனிக்கோடு

வின்டோஸ் எக்ஸ்பீயில் தமிழ்

தமிழ் இணையதளங்கள்

ஆசிரியர் : த. பிரகா'

பெரிகாம் நூல் வெளியீடு மற்றும் விற்பனை

ஆகஸ்டு – 2007.

Extra Credit Course

Programme Code :	**M.Sc IT**	**Programme Title**	**Master of Science (Information Technology)**	
Course Code :	**2020ECC005**	**Title : தமிழக வரலாறும் மக்கள் பண்பாடும்**	**Batch**	**2020-2022**
			Credits	**2**

பாடத்திட்டம் :

அலகு ஐ

1. தமிழக வரலாற்றுக்கான அடிப்படை ஆதாரங்கள்
2. தமிழகத்தின் இயற்கை அமைப்புகள்.
3. வரலாற்றுக் காலத்துக்கு முந்திய தமிழகம்.
4. சிந்து வெளி அகழ்வாராய்ச்சி.

அலகு ஐஐ

1. பண்டைய தமிழரின் அயல்நாட்டு தொடர்புகள்
2. தமிழ் வளர்த்த சங்கம்
3. சங்க இலக்கியம்
4. பண்டைய தமிழரின் வாழ்க்கை

அலகு ஐஐஐ

1. களப்பிரர்கள்
2. பல்லவர்கள்
3. தமிழகத்தில் நான்காம் நூற்றாண்டு முதல் ஒன்பதாம் நூற்றாண்டு வரையில் சமூக நிலை.

அலகு ஐஏ

1. சோழப் பேரரசின் தோற்றம்.
2. சோழப் பேரரசின் வளர்ச்சியும் வீழ்ச்சியும்.
3. சோழர் காலத்தில் தமிழரின் சமுதாயம்.
4. பாண்டியரின் ஏற்றமும் வீழ்ச்சியும்.

அலகு ஏ

1. மதுரை நாயக்கர்கள்.
2. தமிழகத்தில் 13 முதல் 18 ஆம் நூற்றாண்டு வரை சமூகநிலை
3. ஐரோப்பியரின் வரவு.
4. 19 ஆம் நூற்றாண்டின் அரசியலும் தமிழகத்தின் சமூக நிலையும்.
5. 20 ஆம் நூற்றாண்டில் தமிழகம் மேற்கோள் நூல்கள்.

பாடநூல் : தமிழக வரலாறும் மக்கள் பண்பாடும்

ஆசிரியர் - கே. கே. பிள்ளை. உலகத் தமிழாராய்ச்சி நிறுவனம். செப்டம்பர் - 2016.

Extra Credit Course

Programme Code :	**M.Sc IT**	**Programme Title**	**Master of Science (Information Technology)**	
Course Code :	**2020ECC006**	**Title : தமிழ் இலக்கிய வரலாறு**	**Batch**	**2020-2022**
			Credits	**2**

பாடத்திட்டம் :

அலகு ஐ

1. காலப்போக்கில் கன்னித்தமிழ் ஒரு கண்ணோட்டம்
2. தமிழ்ச்சங்கம் 3. அகத்தியர்
4. தொல்காப்பியர் 5. சங்க இலக்கியம்
6. பதினெண் கீழ்கணக்கு

அலகு ஐஐ

1. இரட்டைக் காப்பியங்கள் 2. நாயன்மார்கள் 3. ஆழ்வார்கள்
4. சமயமும் தமிழும் (பௌத்தம், சமணம், சைவம், வைணவம்)
5. கன்னித் தமிழ் காப்பிய வளர்ச்சி 6. புராணங்களும் பிறவும்.

அலகு ஐஐஐ

1. சிற்றிலக்கியங்கள். 2. பதினெண் சித்தர்கள். 3. உரையாசிரியர்கள்.
4. பிற்காலப் புலவர்கள். 5. கிருத்துவமும் தமிழும். 6. இஸ்லாமியமும் இன்தமிழும்.

அலகு ஐஏ

1. சோழப் பேரரசின் வளர்ச்சியும் வீழ்ச்சியும். 2. கவிஞர் பெருமக்கள்.
3. புதக்கவிதை. 4. உரைநடை இலக்கியம், சிறுகதை இலக்கியம்.

அலகு ஏ

1. தமிழ் நாவல் இலக்கியம். 2. தாளிகைகள்.
3. இசைத்தமிழ் வரலாறு. 4. நாடகத் தமிழ் வரலாறு
5. 20 ஆம் நூற்றாண்டில் இன்தமிழ் வளர்ச்சி. 6. பிற நாடுகளில் பைந்தமிழ்

பாடநூல் : தமிழ் இலக்கிய வரலாறு

ஆசிரியர் : பேராசிரியர் மது.சா. விமலானந்தம்
முல்லைநிலையம்,
சென்னை, 2018

EXTRA CREDIT COURSE

NEW MEDIA

Course Code: 2020ECC007 **No. of Credits: 2**

Course Objectives :

To enable the students to understand the new age media sources.

UNIT I:

Spread of Internet; Salient features and advantage over traditional media; History and spread of internet in India, reach and problem of access; Internet and Knowledge Society; Convergence and Multi-media: Print, radio, TV, internet and mobile.

UNIT II:

Online journalism; Earlier websites of newspapers, E-books and E-publishing Status of online journalism today.

UNIT III:

Digital storytelling: Tools of multimedia journalists; Learn to report, write and produce in a manner that is appropriate for online media; Feature writing for online media: Story idea, development and news updates.

UNIT IV:

Open source journalism: Responding to the audience, Annotative reporting; Citizen Journalists, Problem of verification, accuracy and fairness.

UNIT V:

Use of blogs, tweets, etc. for story generation and development; Protecting copyright, Exploring Cyberspace: Individual Blog; Group weblog

TEXT BOOKS:

1.Jagdish Chakravarthy, Net, Media and the Mass Communication,Authors press, New Delhi,2004.

2. Gopal Bhargava ,Mass Media and Information Revolution,Isha Books, New Delhi ,2004.

REFERENCE BOOKS:

1.Nath, Shyam ,Assessing the State of Web Journalism ,Authors Press, New Delhi,2002.

2.Narayana Menon, The Communication Revolution.National Book Trust ,1976.

EXTRA CREDIT COURSE

PROOFREADING AND COPYEDITING

Course Code: 2020ECC008 **No. of Credits: 2**

Course Objectives

To enable the students to proofread and edit texts.

UNIT I:

Introduction to Proofreading and Copyediting, The use of style sheets and style guides in Proofreading and copyediting, finding the appropriate style guides, how to create and use a style sheet.

UNIT II:

Proofreaders' marks and how they are used to copyedit and proofread, your job as a proofreader.

UNIT III:

How to proofread, Proofreading practice.

UNIT IV:

The job of copyediting, how to copyediting, copyediting practice.

UNIT V:

How to copyedit or proofread one's own Work, copyediting or proofreading as a career.

TEXT BOOKS:

1. Laura Anderson ,Proofreading Handbook ,McGraw-Hill ,2nd Edition2006.

2. Elsie Myers Stainton, The Fine Art of Copyediting ,Columbia University Press ,2002.

REFERENCE BOOKS:

1. Suzanne Gilad ,Copyediting and Proofreading For Dummies ,1st Edition

2011

2. Peter Ginna ,What Editors Do: The Art, Craft, and Business of Book Editing (Chicago Guides to Writing, Editing, and Publishing) ,University of Chicago Press ,2017

EXTRA CREDIT COURSE

PERSONALITY DEVELOPMENT

Course Code: 2020ECC009 **No. of Credits: 2**

Course Objectives :

To make students groom their personality and prove themselves as good Samaritans of the society

UNIT I:

Introduction to Personality Development ; The concept of personality, Theories of Freud & Erickson, Significance of personality development; The concept of success and failure: What is success-Hurdles, What is failure- Causes of failure.

UNIT II:

Attitude & Motivation, Factors affecting attitudes-Positive attitude, Advantages, Negative attitude-Disadvantages - Concept of motivation - Significance – Internal and external motives -Importance of self- motivation-Factors leading to de-motivation

UNIT III:

Term self-esteem, Symptoms, Advantages - Do's and Don'ts to develop positive self-esteem, Low selfesteem, Symptoms - Personality having low self esteem - Positive and negative self esteem. Interpersonal Relationships.

UNIT IV:

Other Aspects of Personality Development, Body language - Problem-solving - Conflict and Stress Management - Decision-making skills -Leadership and qualities of a successful leader – Character building -Team-work – Time management - Work ethics –Good manners and etiquette.

UNIT V:

Employability Quotient , Resume building- The art of participating in Group Discussion – Facing the Personal (HR & Technical), Interview, Psychometric Analysis, Mock Interview Sessions.

TEXT BOOKS:

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

- Heller, Robert., Effective leadership, Essential Manager series. Dk Publishing,2002.
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EXTRA CREDIT COURSE

TECHNICAL WRITING

Course Code: 2020ECC010 **No. of Credits: 2**

Course Objectives :

To enable the students to practice professional writing.

UNIT I:

Technical Writing Basics, Technical Communication: Definition & Purpose.

UNIT II:

Characteristics of Technical Communication, Audience, Centered Communication.

UNIT III:

Legal and Ethical Communication: Description & Importance, Implicit and Explicit Rules of Communication: Definitions & Examples.

UNIT IV:

Types of Technical Documents.

UNIT V:

The Technical Writing Process: Prewriting, Writing & Rewriting, Spread of Internet; Salient features and advantage over traditional media.

TEXT BOOKS:

1. Kieran Morgan , Technical Writing Process: The simple, five-step guide that anyone can use to create technical documents such as user guides, manuals, and procedures , Better on paper publications ,2015

2. Thomas Arthur Rickard ,A Guide to Technical Writing ,Bibliolife, 2008.

REFERENCE BOOKS:

1. Gerald J. Alred, Charles T. Brusaw & Walter E. Oliu , Handbook of Technical Writing ,Bedford/St. Martin's ,2008.

2. Mike Markel, Technical Communication, Palgrave MacMillan ,2012

EXTRA CREDIT COURSE

AN INTRODUCTION TO PSYCHOLOGY

Course Code: 2020ECC011 **No. of Credits: 2**

Course Objectives :

- To enable the students to articulate how psychological research adheres to ethical and scientific principles, and communicate the difference between personal views and scientific evidence in understanding behaviour.

UNIT I:
Introducing Psychology, Psychological Science, Brain, Body and Behaviour.
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:

1. David Myer , David Myer's Psychology , Worth Publishers ,(7th ed.) 2004.
2. Daniel Kahneman, Thinking Fast and Slow , Farrar , Straus and Giroux , 2011

REFERENCE BOOKS:

1. Roger R. Hock, Forty Studies That Changed Psychology , Prentice hall ,2008.

2. Robert Feldman, Understanding psychology, McGraw Hill Education, 2017

3.Thomas E. Ludwig , Psychsims ,WortSh Publishers ,2004

EXTRA CREDIT COURSE

ASTRONOMY

Course Code: 2020ECC012 **No. of Credits: 2**

Course Objectives:
On successful completion of this course the students should gain knowledge about Astronomy.

UNIT I:

General description of the Solar system. Comets and meteorites – Spherical trigonometry.

UNIT II:

Celestial sphere – Celestial co – ordinates – Diurnal motion – Variation in length of the day.

UNIT III:

Dip – Twilight – Geocentric parallex.

UNIT IV:

Refration – Tangent formula – Cassinis formula.

UNIT V:

Kepler's laws – Relation between true eccentric and mean anamolies.

TEXT BOOK

"ASTRONOMY" by S.Kumaravelu and Susheela Kumaravelu.

EXTRA CREDIT COURSE

FUZZY MATHEMATICS

Course Code: 2020ECC013 **No. of Credits: 2**

Course Objective:

- To know the basic concepts of fuzzy stes and its characteristics.
- To understand the concept of various operations on fuzzy sets.
- To learn the concept of fuzzy relations and its applications.

UNIT 1

From classcal sets to Fuzzy sets: Introduction-Crisp Sets: An over vieww-Fuzzy set: Basic types-Fuzzy sets: Basic Concepts-Characteristics and significance of the paradigm Shift

UNIT 2

Fuzzy sets of versus crisp sets: Addtional properties of 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.

EXTRA CREDIT COURSE

OPERATION RESEARCH

Course Code: 2020ECC014 **No. of Credit :2**

Course Objectives:

- To understand the basic concepts of Operations Research and Solving LPP
- To solve Transportation and Assignment problems
- To understand the concept of Game theory , Queuing theory PERT and CPM.

UNIT I
Introduction to Operations Research - Meaning - Scope – Models - Limitation. Linear Programming - Formulation – Graphical method only.

UNIT II
Transportation (Non- degenerate only) - Assignment problems - Problems.

UNIT III
CPM - Principles - Construction of Network for projects – Types of Floats – Slack- crash programme.

UNIT IV
PERT - Time scale analysis - critical path - probability of completion of project - Advantages and Limitations.

UNIT V
Game Theory: Graphical Solution – mx2 and 2xn type. Solving game by Dominance property - fundamentals - problems . Replacement problem – Replacement of equipment that deteriorates gradually (value of money does not change with time).

Text Book:
Prof. V. Sundaresan., K.S. Ganapathy Subaramanian ., K.Ganesan: Resource Management

Techniques (Operations Research) A.R.Publications- 2002

Unit I : Chapter 1 – Section 1.1,1.2,1.4,1.9, Chapter 2 – Section 2.1- 2.5
Unit II: Chapter 7 – Section 7.1- 7.2, Chapter 8 – Section 8.1 ,8.2,8.4,8.5
Unit III : Chapter 15 – Section 15.1,15.2,15.5,15.8
Unit IV : Chapter 15 – Section 15.6
Unit V : Chapter 16 – Section 16.6, 16.7, Chapter 11 – Section 11.1, 11.2

ReferenceBook :

1. Kanti Swarup, Gupta P.K, Man Mohan : Operations Research, Sultan Chand & Sons- 1997
2. P.R. Vittal and V.Malini : Operations Research, Margham Publications -2011.
3.P.K.Gupta.,ManMohan: Problems in Operations Research,Sultan Chand &sons-2004
4.V.K.Kapoor: Operations research, Sultan Chand&sons-2007

EXTRA CREDIT COURSE

MATHEMATICS FOR PROFESSIONAL COURSES

Course Code: 2020ECC015 **No. of Credits: 2**

COURSE OBJECTIVES

- To understand the fundamental concepts of Set Theory and Linear Equations.
- To solve the problems in Mathematics of Finance, sequence and series.
- To acquire the knowledge of correlation, regression and problem solving.

UNIT 1:

Sets, Functions and Relations -Equations Linear equations–Homogeneous linear equations.

UNIT 2:

Sequence and Series–Arithmetic progression-Geometric progression; Mathematics of Finance: Simple interest-Compound interest.

UNIT 3:

Limits ─ Basic concepts of Differentiation - Integration

UNIT 4:

Measures of Central Tendency and Dispersion, Arithmetic Mean, Median – Mode, Geometric Mean and Harmonic Mean, Standard deviation, Quartile deviation

UNIT 5:

Correlation and Regression.

TEXT BOOKS:

1. Discrete Mathematics, B.S. Vatssa, Wishwa Prakashan Private Limited, 3rd Edition.
2. Business Mathematicsc and Statistics, P.A. Navanitham, Jai Publisher, June 2004.

Reference Book:

1 .Dr.M.K.Venketaramen,Dr.N.Sridharan,N.Chandarasekaran: DiscreteMathematics The National publishing Company – 2006.
2.P.R.Vittal :Business Mathematics and Statistics, Margham Publications.-2011
3. Sanchetti, D.C and Kapoor, V.K: Business Mathematics, Sultan chand Co & Ltd-2002.

Unit 1: Chapter 2 and 3, chapter 7, 7.1-7.4 (Text Book 1)
Unit 2: Chapter 1 and 2 (Text Book 2, Part 1)
Unit 3: Chapter 5, 6 and 8 (Text Book 2, Part 1)
Unit 4: Chapter 7 (Text Book 2, Part 2)
Unit 5: Chapter 12 and 13 (Text Book 2, Part 2
Chapter 3 , Section 3.1-3.4 and Chapter 6, Section 6.1-6.3 (Text Book 3)

EXTRA CREDIT COURSE

MULTIMEDIA AND ITS APPLICATIONS

Course Code: 2020ECC016 **No.of Credits: 2**

Course Objectives:

- To enable the students learn the overview of Multimedia systems.
- To provide knowledge about the Basic concepts of Sound and Image Processing.
- To enhance the knowledge about the Multimedia Applications.

UNIT I

Media and Data Streams : Medium – Main Properties of a Multimedia Systems – Multimedia – Traditional Data Streams Characteristics – Data Streams characteristics for continuous media.

UNIT II

Sound / Audio: Basics sound Concepts – Music – Speech . Video and Animation : Basics concepts – Television – Computer Based Animations.

UNIT III

Images and Graphics : Basics concepts – Computer Image Processing – Data Compression : Storage space – coding requirement – source entropy and hybrid coding – some basic compression techniques – JPEG – MPEG – DVI.

UNIT VI

Multimedia Communication system : Application subsystem – Transport subsystem – quality of services and resource management.

UNIT V

Multimedia Applications : Introduction – Media Preparation – Media Composition – Media Integration – Media Communication – Media Entertainment.

Reference Books:

1. Ralf Steinmetz and Klara Nahrstedt , Multimedia : Computing , Communication & Applications. ,Pearson Education.

EXTRA CREDIT COURSE

MANAGEMENT INFORMATION SYSTEM

Course Code: 2020ECC017 **No. of Credits: 2**

Course Objectives:

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

UNIT I

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

UNIT II

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

UNIT III

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

UNIT IV

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

UNIT V

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

TEXT BOOKS:

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

REFERENCE BOOKS:

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

EXTRA CREDIT COURSE

THEORY OF COMPUTATION

Course Code: 2020ECC018 **No. of Credits: 2**

Course 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:

1. Theory of Computing-A Gentle Introduction, Efim Kinber, Carl Smith, published by Pearson Education.(UNIT 1)

2. Theory of Automata, Language & Computation, Rajendra Kumar, Tata McGraw Hill Education Private Limited, New Delhi. (UNIT 1to 5)

REFERENCE BOOK:

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

UNIT 1: Chapter 1: Section 1.1, 1.2 (Text Book 1)
Chapter 1: Section 1.1-1.6 (Text Book 2)
UNIT 2: Chapter 2: Section 2.1-2.11
UNIT 3: Chapter 3: Section 3.1-3.10
UNIT 4: Chapter 4: Section 4.1-4.5, 4.6, 4.6.1, 4.6.2
Chapter 6: Section 6.1-6.10
UNIT 5: Chapter 7: Section 7.1-7.10

EXTRA CREDIT COURSE

OOPS WITH JAVA PROGRAMMING

Course Code: 2020ECC019 **No. of Credits: 2**

Course Objectives :

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

UNIT I

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

UNIT II

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

UNIT III

Decision Making and Branching :if,if...else, nested if, switch – Decesion making and looping :] while,do,for – Jumps in Loops – Labeled loops – Classes, Objects and Methods.
Arrays, Strings and vectors - Interfaces :Multiple Inheritance – Packages : Putting classes together – Multithreaded programming – Thread exceptions – Life cycle of Thread – Thread priority – Synchronization.

UNIT IV

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

UNIT V

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

TEXT BOOKS:

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

Reference Books:

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

EXTRA CREDIT COURSE

PROGRAMMING IN C

Course Code: 2020ECC020 **No. of Credits: 2**

Course Objectives: To enable the students

To know about problem solving techniques and algorithm fundamentals.

To know about the basics of C Programming and its various computation logics.

UNIT I

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

UNIT II

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

UNIT III

Arrays - One Dimensional - Two Dimensional - Multidimensional arrays - Character string Handling - Declaring and initializing string variables - String:Introduction- Standard Functions. Funtions: User - defined Functions - Need for user Defined functions - Types of Functions :No Arguments and no return values - Arguments with return values - Recursion.

UNIT IV

Structure : Structure definition - Giving values to members – Structure initialization - comparison of structure variables - Structures within structures- size of structures.

UNIT V

Pointers to structures. Pointers – Introduction-Features of Pointers - Declaring and initializing pointers - Accessing a variable through its pointers - pointers and arrays - pointers and character strings

TEXT BOOKS:

1. E. Balagurusamy: **"**Programming in ANSI C" **,** Tata Mc. Graw Hill, 5th Edition (reprint), 2011.

(Unit II, Unit III, Unit IV, Unit V)

2. R.G.Dromey: "How to Solve it by Computer", Prentice Hall of India, Delhi,2000 (Unit-I)

Reference Books:

1. Byron Gottfried: "Programming with C"(Schaum's Outline Series), Tata Mc.Graw Hill,2nd Edition,1998.

2. Ashok. N. Kamathane: "Programming with ANSI and Turbo C", Pearson Education Asia,4th Edition,2002 .

3. Yeswanth Kanethkar: "Let us C" Tata Mc. Graw Hill, 3rd Edition,1992.

EXTRA CREDIT COURSE

INTERNET OF THINGS

Course Code: 2020ECC021 **No. of Credits: 2**

Course Objectives:

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

UNIT I

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

UNIT II

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

UNIT III

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

UNIT IV

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

UNIT V

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

TEXT BOOKS:

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

REFERENCE BOOKS:

1. Vijay Madisetti and Arshdeep Bahga: **"Internet of Things (A Hands-on-Approach)", First** Edition, VPT, 2014.

2. Francis daCosta: "Rethinking the Internet of Things: A Scalable Approach to Connecting Everything", First Edition, Apress Publications, 2013.

3.Hakima chaouchi,"The Internet Of Things Connecting Objects,2010.

EXTRA CREDIT COURSE

WEB TECHNOLOGY AND ITS APPLICATIONS

CourseCode: 2020ECC022 **No. of Credits: 2**

Course Objectives: To enable the students

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

UNIT I

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

UNIT II

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

UNIT III

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

UNIT IV

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

UNIT V

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

TEXT BOOK:

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

REFERENCE BOOKS:

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

EXTRA CREDIT COURSE

NETWORK SECURITY

Course Code: 2020ECC023 **No. of Credits: 2**

Course Objectives: To enable the students

- To know about cryptography and its various functions.
- To understand the concepts of hashes and public key algorithm.
- To have a knowledge on different types of authentication.
- To know about the standards, IP security and their applications**.**

UNIT I

Cryptography - Introduction – Primer on Networking –Active and Passive Attacks –Layers and Cryptography – authorization Viruses, worms, Trojan Horses – The Multi level Model of Security. Cryptography – Breaking an Encryption Scheme – Types of Cryptographic functions – secret key Cryptography – Public key Cryptography – Hash algorithms.

UNIT II

Secret Key Cryptography - Secret Key Cryptography – Generic Block Encryption – Data Encryption Standard – International Data Encryption Algorithm (IDEA) – Advanced Encryption Standard.

UNIT III

Hashes and Public Key Algorithms - Hashes and Message Digests: Introduction – Things to do with hash – MD2 – MD4 – MD5. Public Key Algorithms: Modular arithmetic – RSA – Diffie-Hellman – Digital Signature Standard – Elliptic Curve Cryptography.

UNIT IV

Authentication - Overview of Authentication Systems: Password-Based Authentication – Address-Based Authentication – Cryptographic Authentication Protocols –Eavesdropping and Server Database Reading – Trusted Intermediaries – Session Key Establishment.

UNIT V

Standards, IP Security and Applications - Standards: Kerberos V4: Introduction – Tickets and Ticket-Granting Tickets – Configuration – Logging into the Network – Replicated KDCs. IP Security: Overview of IPSec – IP and IPv6 – Authentication Header – ESP.

Reference Books:

1.Charlie Kaufman, Radia Perlman and MikeSpeciner : "Network Security Private Communication in a Public World", Pearson Education, New Delhi, 2nd Edition,2008 .

2.Stallings William : "Cryptography and Network Security Principles and Practices", Prentice Hall India, New Delhi, 4th Edition 2007.

3.Stallings William : " Network Security Essentials Applications and Standards " Prentice Hall India, New Delhi, 2004.

4.Atul Kahate : "Cryptography and Network Security " Tata Mc.Graw Hill , 2nd Edition, 2008.

EXTRA CREDIT COURSE

MOBILE AND WIRELESS TECHNOLOGY

Course Code: 2020ECC024 **No. of Credits: 2**

Course Objectives:

To learn the wireless communication on digital mobile communication system and integration of services and applications from fixed networks into networks supporting mobility of end user and wireless access.

UNIT - I

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

UNIT -II

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

UNIT -III

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

UNIT -IV

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

UNIT -V

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

TEXT BOOKS:

1. Asoke K Talukder and Roopa R Yavagal ,Mobile Computing,Tata McGraw-Hill,,Eleventh Reprint 2009.

2.John Schiller , Mobile communication, Pearson Edition ,2 nd Edition.

REFERENCE BOOKS:

1. William C.Y.Lee, Mobile Communication Design Fundamentals ,John Wiley,1993

2. Ivan Stojmenoric , Wireless network & Mobile communication,1st Editio

EXTRA CREDIT COURSE

CLOUD COMPUTING

Course Code: 2020ECC025 **No. of Credits: 2**

Course Objectives:

To Understand the Cloud computing architectures, applications and challenges and learn about various cloud storages

UNIT - I **(12 Hours)**

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

UNIT -II **(12 Hours)**

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

UNIT -III **(12 Hours)**

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

UNIT -IV **(12 Hours)**

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

UNIT -V **(12 Hours)**

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

TEXT BOOKS:

1. Michael Miller, Cloud Computing, Pearson Education, New Delhi,2009.

2.Anthony T. Velte, Cloud Computing A Practical Approach, Tata Mcgraw HillEducation Private Limited,1st Edition2009

REFERENCE BOOKS:

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

EXTRA CREDIT COURSE

CROSS CULTURE MANAGEMENT

Course Code: 2020ECC026 **No. of Credits: 2**

Course Objective:

- To provide a thorough understanding
- The impact of an international context on management practices based on culture.
- Frameworks for guiding cultural and managerial practice in international business.

UNIT-I

Basic framework of Cross Cultural Management: Factors influencing Decision Making – Using Culture – Cross Cultural and International Management – Implications for the Manager. Comparing Cultures. Shifts in the Culture – Organizational Culture – Culture and Communication –Needs and Incentives – Dispute Resolution and Negotiation.

UNIT-II

Structure of Cross Cultural Management: Formal Structures – Functions – Bureaucracy – Culture and Bureaucracy – Implications. Informal Systems – Informal Relationships – Patronage, Society and Culture –Government-Business Patronage – Guanxi – Managing Informal Systems –Implications.

UNIT-III

Globalization & Cross Cultural Management: Planning Change: Meaning – Planning for Change – Planning in Different Culture – Planning in an Unstable Environment – Implications. International Strategies –Globalization and Localization – Defining Globalization – Roots – Global-Local Contradictions – Implications.

UNIT-IV

Models of Cross Cultural Management: Family Companies: The Anglo Model: Environment, Culture and Management. The Chinese Model: Environment and Culture. The Chinese Model: Management. Changes in the Chinese model – Implications.

UNIT-V

Strategy of Cross Cultural Management: Designing and Implementing Strategy: Formal Strategy Planning – Analyzing Resources and the Competition – Positioning the Company – Implementation – Emergent Strategy – Implications. Head Quarters and Subsidiary: Risk for the Multinational – Control – Implications.

TEXT BOOK:

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.
6. Richard R.Gesteland, Cross-Culture Business Behaviour, Copenhagen Business School Press, Edition-1999.

EXTRA CREDIT COURSE

INDIAN ECONOMY AND TRADE DEPENDENCIES

Course Code: 2020ECC027 **No. of Credit :2**

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

The diversity of issues prevalent in the Indian Economy.

Trade related issues of the Indian Economy.

The importance of trade in the present globalized era.

UNIT- I

Introduction to Indian Economy : Alternative Development Strategies – Trends in National Income, Growth and Structure since 1991 - New Industrial Policy 1991 – Recent changes in Trade Policy - Competition Policy - Public Sector Reform - Privatization and Disinvestments – Progress of Human Development in India.

UNIT-II

Planning and Economic Development : Redefining the Role of the State –Human Capital Formation in India – Problem of Foreign Aid – Economic Reforms and Reduction of Poverty – Measures to Remove Regional Disparities.

UNIT-III

Indian Industries : Review of Industrial Growth under 10^{th} and 11^{th} Five year plan - Growth and

present state of IT industry in India – Outsourcing, Nationalism and Globalization – Small Sector Industrial Policy.

UNIT-IV

Foreign Trade: Trends of Exports and Imports of India – Composition of India's Foreign Trade - Direction of India's Foreign Trade – Growth and Structure of India's Foreign Trade since 1991 – Balance of Payments since the New Economic Reforms of 1991. Foreign Capital : Need for Foreign Capital – Foreign Investment Inflows –Role of Special Economic Zones (SEZ)

UNIT-V

India in the Global Setting : India in Global Trade – Liberalization and Integration with the Global Economy – Globalization Strategies – India's Foreign Exchange Reserves –Convertibility of the Rupee – WTO and India.

TEXT BOOK:

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- ,2016
3.Gaurav Kumar, Indian Economy, Kd Publication, Edition-1, 2016.
4.Puri Misra, Indian Economy, Himalaya Publication, Edition-26, 2008.

EXTRA CREDIT COURSE

EXPORT MARKETING

Course Code: 2020ECC028 **No. of Credits: 2**

Course Objectives:

- To gain knowledge on Export distribution channels.
- To enable the students to understand Export and Import Procedures.
- To create awareness regarding the export promotion and export finance.

UNIT I

Export marketing – an overview -export marketing – meaning difference between export marketing and domestic marketing – basic function of export marketing.

UNIT II

Export distribution channels – direct export – indirect export – channel; small manufacturer.

UNIT III

Export promotion – characteristics of foreign buyers – forms of export promotion-importance of Promotional Activities.

UNIT IV

Export and Import Procedure Documents used in Foreign Trade.

UNIT V

Export Finanace- Needs- Short terms, Medium and long term Source of Finance types of Credit.

Text Book

1.Rathor. BS-Export Marketing - Himalaya publishing House 2006

EXTRA CREDIT COURSE

INTERNATIONAL TRADE & FOREX

Course Code: 2020ECC029 **No. of Credits: 2**

Course Objectives:

- To learn the overview of International Trade and Globalisation.
- To make the students to understand the concepts of foreign exchange management.
- To gain the knowledge on the basic regulation of FEMA.

UNIT I

International trade- Meaning- Scope- Challanges- Theories of International Trade- Balance of Payment- Trade Barriers

UNIT II

Competition Law and International Trade- Competition and Consumer Protection- Regulation of anti competition activity

UNIT III

Export Policy and Procedure- features- Export Promation Schemes- SEZs , EOU- Deemed Export- Export Promotion Council

UNIT IV

Import Policy and Procedure- Import of Gifts- Import on Import basis- Procedure for customer clearance- Warehousing- Canalised import

UNIT V

Introduction to FEMA- Forex Management-Nature- Forex Manager- Foreign Exchanfge Market- Foreign Exchange Rate- Types- Present status of Foreign exchange Market in India

TEXT BOOKS:

1. Francis cherunilam -International trade-Himalaya publication House 2010

EXTRA CREDIT COURSE

BRAND MANAGEMENT

Course Code: 2020ECC030 **No. of Credits: 2**

Course Objective:

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

UNIT I

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

UNIT II

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

UNIT III

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

UNIT IV

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

UNIT V

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

TEXT BOOKS:

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,
4.Ranjeet Verma, Brand Management, Laxmi Publications, 1st Edition 2009.

EXTRA CREDIT COURSE

STRESS MANAGEMENT

Course Code: 2020ECC031 **No. of Credits: 2**

Course Objectives:

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

UNIT I

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

UNIT II

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

UNIT III

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

UNIT IV

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

UNIT V

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

TEXT BOOK:

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

REFERENCE BOOKS:

1.Kamlesh Jani, Ratish Kakkad, Stress Management, Pothi Publishers, Edition 2008.

2.Aarti Gurav , Time Management , Buzzing stock Publishing House, First Edition 2014.

3.Sanjay Kumar, Pushp Lata, Communication Skills, Oxford University Press, Second Edition 2015.

- Barun Mitra, Personality Development and Soft Skills, Oxford University Press, Second Edition 2017.

EXTRA CREDIT COURSE

RISK AND INSURANCE IN INTERNATIONAL TRADE

Course Code: 2020ECC032 **No. of Credit :2**

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

Understanding contemporary issues related to insuranance

UNIT-I

Nature and History of Insurance Business - Insurance Business in India Europe, UK andUSA - 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:

1.Mishra, M.N,Insurance principles and practices, S. Chand and Co, Delhi, Edition 4, 2007 .

REFERENCE BOOKS:

1.Tripathy N.P,Insurance principles and practices,Prentice Hall India Learning Private Limited Edition 3, 2009

2.Ghanashyam Panda & Monika Mahajan,Principles and Practice of Insurance,Kalyani Publishers Edition 4, 2011.

3.Insurance Regulatory and Development Authority Act, 1999 ,Universal Law Publishing - An imprint of LexisNexis Edition 1, 2016.

4.S K Sarvaria,Commentary on the Insurance Regulatory and Development ,Universal Law Publishing - An Imprint of Lexis Nexis; Edition 1, 2016

EXTRA CREDIT COURSE
RETAIL MARKETING

Course Code: 2020ECC033 **No.of Credits: 2**

Course Objective:

- To enable the students to understand about Global Retailing.
- To provide knowledge on Visual Merchandise Management.
- To familiarise the students with the Retail shoppers' behaviour**.**

UNIT I

An overview of Global Retailing – Challenges and opportunities – Retail trends in India – Socio economic and technological Influences on retail management – Government of India policy implications on retails.

UNIT II

Organized and unorganized formats – Different organized retail formats – Characteristics of each format – Emerging trends in retail formats – MNC's role in organized retail formats.

UNIT III

Choice of retail locations - internal and external atmospherics – Positioning of retail shops – Building retail store Image - Retail service quality management – Retail Supply Chain Management – Retail Pricing Decisions. Merchandising and category management – buying.

UNIT IV

Visual Merchandise Management – Space Management – Retail Inventory Management – Retail accounting and audits - Retail store brands – Retail advertising and promotions – Retail Management Information Systems - Online retail – Emerging trends .

UNIT V

Understanding of Retail shopper behavior – Shopper Profile Analysis – Shopping Decision Process - Factors influencing retail shopper behavior – Complaints Management - Retail sales force Management – Challenges in Retailing in India.

TEXT BOOKS:

1**.** A.Sivakumar, Retail Marketing, Excel Books, Edition-1, 2007.

2.David Gilbert, Retail Marketing Management, Pearsons Education, Edition-2006.

REFERENCE BOOKS:

1**.** Dr.L.Natarajan, Retail Marketing, Margham Publications, Edition-1,2013.

2.S.Banumathi, Retail Marketing, Himalaya Publishing House, Edition-2015.

3.B.B.Mishra, Retail Marketing, Vrinda Publication, Edition-2010

EXTRA CREDIT COURSE

EXPORT AND IMPORT PROCEDURES

Course Code: 2020ECC034 **No.of Credits: 2**

Course Objective:
To enable the students to understand about export and import procedures
To provide adequate knowledge on export and import documentation.
To impact knowledge on export and import procedures.

UNIT I

Introduction to Export Management : Meaning – objectives – scope – Need for and importance of export trade – Distinction between internal trade and international trade – Problems faced by exporters.

UNIT II

Features and Functions of export marketing – Sources of market information – Product planning – Quality control – Export pricing – Export marketing channels – Strategy formulation.

UNIT III

Steps involved in export – Confirmation of order – Production of goods – Shipment – Negotiation – Documents used for export – Commercial documents
– Regulatory documents – ISO Certificate.

UNIT IV

Import Trade law in India – Preliminaries for star ting Import Business – Registration of Importers – arranging finance for Import – Arranging letter of Credit for Imports – Balance of Payments – Liberalization of Imports.

UNIT V

Retirement of Import Documents and RBI's directives for making payment for Imports – Customs clearance of Imported Goods and payments of customs Duty – Imports under special schemes.

TEXT BOOKS:

1.Subramanian Balagopal.T.A.S", Export Marketing",Himalaya Publication House,Mumbai,Edition 1,2010.
2.Francis Cherunilam,"International Trade & Export Management",Himalaya Publication House,Mumbai,Edition 1,2012.

REFERENCES BOOKS :

1.Veera Reddy.P,"Import made Easy",Commercial Law Publication,New Delhi",Edition 5,2001.
2.Mahajan.M.I,"Export Policy Procedure & Documentation",Snow White Publication,Mumbai,Edition 24,2011.
3.A Nabhi : "How to Import 2005-2006",A Nabhi Publications, 1st Edition 2006.

EXTRA CREDIT COURSE

LOGISTICS AND SUPPLYCHAIN MANAGEMENT

Course Code : 2020ECC035 **No. of Credits: 2**

Course Objective: The objective of the subject is to explore
The interlinking between Logistics and supply chain management.
The course seeks to provide the key concepts and solution in the design, operation, control and management of supply chain as integrated systems.
The impact of supply chain in gaining competitive advantage.

UNIT I

Introduction to logistics – Business logistics – marketing logistics – objectives –importance – logistics and customer services – physical supply and distribution –elements and evolution of purchasing and integrated logistics – Integrated logistical activities – strategic integrated logistics management.

UNIT II

Transportation – types – transportation decision making service selection – sea transport, Air, Courier, road and pipe lines – infrastructure – vehicle routing and scheduling – MTO / Intermodal transportation – regulation.

UNIT III

Warehousing – concepts & development – types – operations location analysis –storage – need – functionality and principles – materials handling considerations – packaging – perspectives – purposes – functions – design and costs –Traffic inventory management models – pull and push methods – EOQ – assumptions –policies and control – methods of improved inventory management.

UNIT IV

Logistics information system – system design – Information functionality and principles of information architecture – application of new information technology – EDI standards.

UNIT V

Future management of logistics – logistics and outsourcing – Benefits – third party logistics – value added services – reverse logistics.

TEXT BOOKS:

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
2.Janat Shah, Supply Chain Management, Pearson Education
3.Ballou, Business Logistics/Supply Chain Management, Pearson Education India
4. Chopra & Kalra, Supply Chain Management, Pearson Education India

EXTRA CREDIT COURSE

QUALITY MANAGEMENT

Course Code : 2020ECC036 **No. of Credits: 2**

Course Objective: On successful completion of the course the students should have understood

To introduce the fundamental concepts of total quality management, statistical process control, six sigma and the application of these concepts

To provide a basic understanding of "widely-used" quality analysis tools and techniques.

UNIT I

Definitions – TOM framework, benefits, awareness and obstacles. Quality – vision, mission and policy statements. Customer Focus – customer perception of quality, Translating needs into requirements, customer retention. Dimensions of product and service quality. Cost of quality.

UNIT II

Overview of the contributions of Deming, Juran Crosby, Masaaki Imai, Feigenbaum, Ishikawa, Taguchi techniques – introduction, loss function, parameter and tolerance design, signal to noise ratio. Concepts of Quality circle, Japanese 5S principles and 8D methodology.

UNIT III

Meaning and significance of statistical process control (SPC) – construction of control charts for variables and attributed. Process capability – meaning, significance and measurement – Six sigma concepts of process capability. Reliability concepts – definitions, reliability in series and parallel, product life characteristics curve. Total productive maintenance (TMP) – relevance to TQM, Terotechnology. Business process re-engineering (BPR) – principles, applications, reengineering process, benefits and limitations.

UNIT IV

Quality functions development (QFD) – Benefits, Voice of customer, information organization, House of quality (HOQ), building a HOQ, QFD process. Failure mode effect analysis (FMEA) – requirements of reliability, failure rate, FMEA stages, design, process and documentation. Seven old (statistical) tools. Seven new management tools. Bench marking and POKA YOKE.

UNIT V

Introduction to IS/ISO 9004:2000 – quality management systems – guidelines for performance improvements. Quality Audits. TQM culture, Leadership – quality council, employee involvement, motivation, empowerment, recognition and reward.

TEXT BOOK:

1.R. Janakiraman and R,K Gopal, Total Quality Management, PHI Learning, 1st Edition 2009.

REFERENCE BOOKS:

1. Howard S.Taylor and Francis, Quality Management Systems, New century Publications, Edition 2000

2. L.Suganthi Anand Samuel, Total Quality Management,PHI learing, 1st Edition 2009,

3.Joseph M.Juran, Quality Handbook, Mc Grawhill,6th Edition .

4.Bell Desmond Heivemann, Managing Quality,Butterworth Publications, Edition 1994.

EXTRA CREDIT COURSE

MANAGEMENT OF SMALL AND NEW ENTERPRISES

Course Code : 2020ECC037 **No. of Credits: 2**

Course Objective: On successful completion of the course the students should have understood
Identification, organization and building of new enterprise
To prepare, analyze and execute business plan
The logical decision making in business

UNIT I

Entrepreneurship: Small Scale Introduction Institutional- Small scale Enterprises – Infrastructure-Entrepreneurial Competencies for Small Scale Enterprises -Institutional Interface

UNIT II

Establishing small scale enterprises -opportunities scanning—choice of enterprise - market assessment for sse - choice of technology and selection of site

UNIT III

Small scale enterprises — getting organized- financing the new/small enterprise - preparation of the business plan - ownership structure and organization framework

UNIT IV

Operating the small scale enterprise - financial management issues in SSE -operations management issues in SSE- Marketing management issues in SSE - organizational relations in SSE

UNIT V

Performance appraisal and growth strategies - management performance lessons growth and Assessment and control from stabilization - strategies for stabilization and successful strategies Growth entrepreneurs of small - managing family enterprises

TEXT BOOK:

1.Prof.Nirali Pandt, Management of new and small Enterprise, Dotcom Publications, 5th Edition,2016.

REFERENCE BOOKS:

1.C.S.Prasad, Small and Mdium Enterprise in global Perspective, New Century Publications, I Edition, 2009
2.Taxmann, Small and Medium Enterprises in India, Tax mann Publication, Edition 2013.
3.Karen Patten Ayman, Information Technology for small business, Sprnger publications, Edition 2012.
4.Sarika Lohana, Medium,Micro and Small Enterprises, New century Publications, 1st Edition 2014.

EXTRA CREDIT COURSE

TOURISM MANAGEMENT

CourseCode : 2020ECC038 **No. of Credits: 2**

Course Objective: On successful completion of the course the students should have understood
The handling of human resource in the context of complex work situations of the tourism industry.
The complexities of marketing the tourism product
The challenges and rewards of Tourism industry

UNIT I

History of Tourism both International and National, Definition, nature, importance, components and typology of tourism.

UNIT II

Concepts of domestic and international tourism, recent trends. Organization of both national and international in world in promotion and development – WTO, IATA, UPTAA, AI, IATO, etc.

UNIT III

Growth and development of tourism in India, National Action Plan 1992.

UNIT IV

Impacts of tourism-economics, social, physical and environmental, Tourism trends world over and its futuristic study.

UNIT V

Emerging trends in tourism—health tourism, adventure tourism, ecotourism .

TEXT BOOKS:

1. Rajan chauhan, Tourism Management, APH Publishing Corporation- Edition-2012.

REFERENCE BOOKS:

1.David Weaver Laura Lawton, Tourism Management, Jhon Wiley & Sons Inc., Edition-2, 2006.
2. Ratandeep Singh, Tourism and Transport Management, Kanishka Publishiners, Edition-1, 2008.
3.Atul Shrivastava, Tourism Planning & Management, Anmol Publications Pvt., Ltd., Edition-2010.
4. Vandhana Joshi, Achana Biwal, Tourism Operations & `Management, Oxford University Press, Edition-1, 2009.

EXTRA CREDIT COURSE

EVENT MANAGEMENT

Course Code: 2020ECC039 **No. of Credits: 2**

Course Objective: On successful completion of the course the students should have understood
Organization and management of events
The management of accounting and financial aspects in organizing an event
Planning the logistics and coordinating the technical aspects

UNIT I

Why Event Management, Requirement of Event Manager, Analyzing the events, Scope of the Event, Decision-makers, Technical Staff, Developing Record-Keeping Systems, Establishing Policies & Procedures

UNIT II

Preparing a Planning Schedule, Organizing Tasks, Assigning Responsibility, and Communicating, Using the Schedule Properly, The Budget, Overall Planning tips, Checklists, Expert Resources, Computer Software Required.

UNIT III

Who are the people on the Event, Locating People, Clarifying Roles, Developing content Guidelines, Participant Tips, Reference Checks, Requirement Forms, Introduction, Fees & Honorariums, Expense Reimbursement, Travel Arrangements, Worksheets.

UNIT IV

Types of Events, Roles & Responsibilities of Event Management in Different Events, Scope of the Work, Approach towards Events

UNIT V

Introduction to PR – Concept, Nature, Importance, Steps, Limitations, Objectives Media – Types of Media, Media relations, Media Management PR strategy and planning – identifying right PR strategy, Brain Storming sessions, Event organization, writing for PR

TEXT BOOKS:

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,
4. D. G. Conway, The Event Manager's Bible: The Complete Guide to Planning and Organising a Voluntary or Public Event, Viva Books 1st Edition 2010.

EXTRA CREDIT COURSE

HOSPITALITY MANAGEMENT

CourseCode: 2020ECC040 **No. of Credits: 2**

Course Objective : On successful completion of the course the students should have understood

To plan and execute hospitality events in coordination with back-of-the-house managers

To Design and evaluate a hospitality operations plan, employing control systems and technologies, with guest preferences

To Supervise and coordinate personnel, demonstrating clear communication and cultural sensitivity

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:

1.Jhon R.Walker, Introduction to Hospitality Management, Pearson India, Edition-2, 2008.

REFERENCE BOOKS:

1.Teason.D, Principles of Management for Hospitality Industry, Routledge, Edition 2009.
2. Dr.Saurabh Dixit, Tourism & Hospitality Management, APH Publishing Corporation, Edition-2013.
3. Gajanan Shirke, Hospitality Management, Shorff Publishers, Edition-2011.
4. Aadesh Sinha, Hospitality Operation Management, Centrum Press, Edition-2012

EXTRA CREDIT COURSE

CONSUMER BEHAVIOUR

Course Code : 2020ECC041 **No. of Credits: 2**

Course Objective: On successful completion of the course the students should have understood

Consumer motivation and perception
Learning and attitude
Consumer decision making

UNIT-I

Introduction - Consumer Behaviour — definition - scope of consumer behaviour — Discipline of consumer behaviour — Customer Value Satisfaction — Retention — Marketing ethics.

UNIT –II

Consumer research — Paradigms — The process of consumer research - consumer motivation — dynamics — types — measurement of motives — consumer perception

UNIT – III

Consumer Learning — Behavioural learning theories — Measures of consumer learning — Consumer attitude — formation — Strategies for attitude change

UNIT – IV

Social class Consumer Behaviour — Life style Profiles of consumer classes — Cross Cultural Customers Behaviour Strategies.

UNIT-V

Consumer Decision Making — Opinion Leadership — Dynamics — Types of consumer decision making — A Model of Consumer Decision Making

TEXT BOOKS:

1. Leon G. Schiffman, Joseph Wisenblit, Consumer Behaviour, Pearson publication, 11th Edition, 2015.

REFERENCE BOOKS:

1. Sathis K Batra, Shhkazmi, Consumer Behaviour, Excel publication, 2nd Edition, 2008.
2. Suja R.Nair, Consumer Behaviour, Himalaya publication, 1st Edition, 2016.
3. Majumdar, Ramanuj, Consumer Behaviour, Prentice Hall India Learning Pvt Ltd, 7th Edition, 2009.
4. Rajneesh Krishna, Consumer Behaviour, Oxford University Press,1st Edition, 2014.

EXTRA CREDIT COURSE

HUMAN RESOURCE MANAGEMENT

Course Code : 2020ECC042 **No. of Credits: 2**

Course Objectives:

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

UNIT I

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

UNIT II

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

UNIT III

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

UNIT IV

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

UNIT V

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

TEXT BOOKS:

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

REFERENCES BOOKS:

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

EXTRA CREDIT COURSE

PRINCIPLES AND PRACTICE OF MARKETING SERVICES

CourseCode: 2020ECC043 **No. of Credits: 2**

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

UNIT I

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

UNIT II

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

UNIT III

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

UNIT IV

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

UNIT V

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

REFERENCE BOOKS:

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

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

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

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

EXTRA CREDIT COURSE

CONSUMER MARKETING

Course code: 2020ECC044 **No. of Credits: 2**

Course Objectives:

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

To understand the customer value chain and their demography.

To understand market segmentation and their uses.

UNIT I

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

UNIT II

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

UNIT III

Learning Theories and their application- Brand Loyality- Brand Extention- Conditioning Theories- Cognitive Learning Theory- Attitude and Attitribute theory- Cognitive Dissonance- Self Concept- Development of Self- Fashion – Cosmetics- and Conspicious Consumption

UNIT IV

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

UNIT V

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

TEXT BOOKS:

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

REFERENCE BOOKS:

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

EXTRA CREDIT COURSE

MARKETING OF HEALTH SERVICES

CourseCode: 2020ECC045 **No. of Credits: 2**

Course Objectives:

To enable the students understand about health services.

To make the students aware of different marketing mix in health industry.

To confer knowledge about online health services .

UNIT – I

Marketing plans for services: process, strategy formulation, resource allocation and monitoring services communications- customer focused services- service quality- SERV QUAL model

UNIT – II

Hospital services- Selecting Health Care Professionals- Emerging trends in Medicare- Marketing Medicare – Thrust areas for Medicare services.

UNIT – III

Marketing Mix for Hospitals- Product Mix- Promotion Mix- Price Mix- Place Mix- Strategic Marketing for Hospitals.

UNIT – IV

Online Health Services- Organization of Online Health Care Business- On-line Marketing and On-line financial & clinical transaction.

UNIT – V

Legal system: Consumer Rights & Protection, medicine safety rules- Food & Nutrition Security in India - Health Promotion Agencies

Note: Question paper shall cover 100% Theory

REFERENCE BOOKS:

1. Richard K. Thomas, Health Services Marketing, A Practitioner's Guide, Edition-2, 2008.
2. Zeithaml, Services Marketing, Mcgraw Hill Education, Edition-6, 2013.
3. Lovelock, Services Marketing, Pearson India, Edition-7, 2011.
4. Er.I.C. N.Berkowitz, Essentials of Health care Marketing , Jones & Bartlett Learning,

EXTRA CREDIT COURSE

INTERNATIONAL BANKING

Course Code: 2020ECC046 **No. of Credits: 2**

Course Objectives:

The course aims to provide the students with a sound grasp of the practices of modern international banking the central themes and issues will be examined in an international and comparative context.

UNIT-I

Global trends and development in international banking – Outline of international banking and finance. Wholesale banking – Retail banking – Private banking – Interbank business – Regulatory framework – BASEL-II.

UNIT-II

International financial centers – Offshore banking units – Special Economic Zones – Foreign exchange management control – International loan agreements – International debt management.

UNIT-III

Asset liability management – Profitability of international banking operations – Investment banking – Correspondent banking – Bank Regulation: Regulation and prudential supervision of banks in the UK and EU. International regulatory and supervisory convergence. Regulating the multifunctional bank.

UNIT-IV

International financial institutions – IMF, IBRD, BIS, IFC, ADB, WTO – international competitiveness – implications and effectiveness and country risk.

UNIT-V

Treasury and risk management – bank risk management – letters of credit mechanism – buyers and sellers credit – bilateral and counter trade.

TEXT BOOKS:

1.Indian Institute of Banking and Finance, International Banking, Macmillan, Edition-2011.

REFERENCE BOOKS:

1.Ruonarayan Bose, Fundamentals of International Banking, Laxmi Publications, Edition-2014.
2.Indaian Institute of Banking and Finance, International Banking Operations, Macmillan, Edition-2017.
3.Yoon S. Park, International Banking and Financial Centers, Springer Publications, Edition-2011.
4.Emmanuel N Roussakis, International Banking, Greenwood Press, Edition-1983.

EXTRA CREDIT COURSE

E-COMMERCE

Course Code: 2020ECC047 **No. of Credits: 2**

Course Objectives:

To provide knowledge about Electronic Commerce.

To enable the students understand the technology of e-Commerce for Business Application.

To make the student aware of the Techniques in the Application of e-Commerce.

UNIT I

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

UNIT II

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

UNIT III

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

UNIT IV

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

UNIT V

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

TEXT BOOKS:

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

REFERENCE BOOKS:

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

EXTRA CREDIT COURSE

INTERNATIONAL ACCOUNTING

CourseCode: 2020ECC048 **No. of Credits: 2**

Course Objective:

To make the students understand the concept and nuances of international accounting standards and practices for international business firms the importance of financial reporting in international environment.

UNIT-I

Objective of International Financial Reporting – Concept International Accounting Practices, introduction to inter corporate investments – intercompany 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 – Intercompany 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:

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;
3. Frederick D.S. Choi,International Accounting,Pearson Education; Edition 5, 2007
4. Shirin Rathore ,International Accounting,PHI, Edition 2,2011.

EXTRA CREDIT COURSE

CORPORATE SOCIAL RESPONSIBILITY AND GOVERNANCE

Course Code: 2020ECC049 **No. of Credits: 2**

Course Objectives:

- To make the students to understand the concepts of corporate governance
- To gain knowledge on legislative framework of corporate governance and Corporate Social Responsibility and good corporate citizenship.
- To understand the Business Ethics and Genesis**.**

UNIT-I:

Evolution -Concept-Principles and development-Management structure for corporate governance-Board structure-Stake holder's relationship committee-Appraisal of Board performance-Transparency and disclosure.

UNIT-II:

Legislative framework of corporate governance:UK,USA,India-Corporate communication-Art and Craft of investors relation-Shareholders activism-Investor protection-changing role of Institutional Investors

UNIT-III:

Corporate social responsibility and good corporate citizenship:Various governance forums-Common Wealth Association for Corporate Governance-Organization for Economic Cooperation Development (OECD)-International Corporate Governance Network (ICGN)-National Foundation for Corporate Governance(NFCG)

UNIT-IV:

Business Ethics-Business dilemma versus decision-Dilemma resolution process-Business ethics as a strategic management tool-stakeholders protection-corporate leadership

UNIT-V:

Genesis-Meaning-Nature-Objectives-Scope of Corporate Sustainability. Legal framework - conventions and treaties on environmental- Health and safety-Social security issues.

TEXT BOOKS:

1. Corporate Governance in India : An Evaluation by Das, Subash Chandra.
2. Baxi CV-Corporate Social Responsibility And Governance – Excel books 2006.

EXTRA CREDIT COURSE
ENTERPRISE RESOURCE PLANNING

Course Code: 2020ECC050 **No.of Credits: 2**

Course Objectives:

- To enable the students undrstand about the different organizational processes and work flows in ERP.
- To bestow knowledge on ERP services and Business Process Re-engineering .
- To give knowledge on ERP project and its implementation.

UNIT 1

ERP: Introduction : Define – Functional Module in ERP System – Evolution of ERP Systems - Characteritics of ERP – Process Intergration With ERP Systems. Benefits of ERP Applications – Technology Behind ERP Systems. **ERP Market and Vendors:** ERP Market – ERP Vendors – Service Oriented Architecture - ERP Package features.

UNIT II

Extended ERP Services: Defining Extended ERP – SCM and ERP – ERP and BI – ERP and E-Commerce. **Business Process Re-engineering And ERP:** Defining Business Process Reengineering- Enterprise redesign principles – Business process reengineering - BPR and Change Management – Different Approaches BPR Implementaion – Methodology for BPR Implementaion – Role of IT in BPR – BPR and EPR Systems – BPR sucess / failure factors.

UNIT III

Planning for ERP – Planning for ERP Implementation – Understanding Organizational Requirements. - Understanding Economic and Strategies Justification – Analysing Project Scope – Determing Resources – Creating Budget for ERP Implementation – Selecting the Right ERP Package- Preparing Organizations for ERP Implementation. **Implementation of ERP:** Designing for ERP systems – ERP implementation approaches – ERP implementation Life cycle.

UNIT IV

Managing ERP Projects: Risk Failure factors in ERP Implementation – Examples of ERP Failure- Mitigating implementation risks – Management and complexity of Large scale ERP Projects- Training users to use ERP Systems. - Evaluating ERP Projects.

UNIT V

ERP Going live and post implementation: 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 Boundaries:** Service oriented architecture – Enterprises application integration – Application Services provider – Model for ERP implementation.

TEXT BOOKS:

1. Enterprise Resource Planning by Alexis Leon
2. Enterprise Resource Planning Concepts: Understanding the Power of ERP for Today's Businesses by Dr Jill O'Sullivan and Gene Caiola