

## **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**

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

### **QUALITY POLICY**

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

## **VISION, MISSION AND OBJECTIVES OF THE DEPARTMENT**

### **VISION**

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

### **MISSION**

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

### **OBJECTIVES OF THE DEPARTMENT**

1. To make the students to have a thorough understanding of the basic concepts in the field of Information Technology.
2. 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.
3. To take the students to industries to make them have first hand knowledge on the application of the softwares.
4. To train the students in the development of softwares for solving certain simple problems.
5. To provide training for the development of softskills so as to make the students employable.

## **GRADUATE ATTRIBUTES**

Our Graduates to possess

- 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 intelligence
- Entrepreneurship qualities
- 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 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.

**PO2:** Develop domain knowledge 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 with minds of students by suitable programs.

**PO6:**An ability to make the students think out of the box and solve complex problems arising in step 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 Strength and weakness and balance their own emotions at the time of crisis

**PO10:**An ability to acquire entrepreneurship qualities and to take efforts to became 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 domain 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 with 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 step 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 Strength and weakness and balance their own emotions at the time of crisis.
10	Entrepreneurship qualities	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 life long 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.

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**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 2018 – 2019)**

## 1. REGULATIONS

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

### 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 semester together .

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

### 1.5 Restriction to take the Examinations

- a) Any candidate having arrear paper(s) shall have the option to take the examinations in any arrear paper(s) along with the subsequent regular semester papers.
- b) Candidates who fail in any of the papers shall pass the paper(s) concerned within five years from the date of admission to the said course. If they fail to do so, they shall take the examination in the revised text / syllabus, if any, prescribed for the immediate next batch of candidates. If there is no change in the text / syllabus they shall take the examination in that paper with the syllabus in vogue, until there is a change in the text or syllabus.
- c) In the event of removal of that paper consequent to the change of regulations and / or curriculum after a five year period, the candidates shall have to take up on equivalent paper in the revised syllabus as suggested by the chairman 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
<b>Total</b>	<b>40</b>

**Project Viva Voce**

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

**1.6.2 End Assessment Examination (EAE)**

- Semester examination will be conducted at the end of each semester after completing a minimum of 90 working days.
- End Assessment Examination for the odd semester will generally be held during November and even semester during April.
- The question papers for all the courses will be set by the external examiners.
- The 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)**

<b>Part A</b>	20 Marks	10 Questions - 2 Marks each – Descriptive type
<b>Part B</b>	25 Marks	5 Questions- 5 Marks each – either or type.
<b>Part C</b>	30 Marks	3 Questions out of five questions - 10 Marks each.
<b>Total</b>	75 Mark	

- 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)**

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



7. 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.
8. The students will be allowed to opt for only two papers per semester under the extra credit courses from third semester onwards.
9. The extra credit courses are self learning courses for which only guidance will be provided by the faculty.
10. 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.
11. 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.
12. A candidate may request for re-totalling of his/her answer script by applying application addressing to the Controller of Examination 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.
13. 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.

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

#### Practical

Content	Marks Awarded
Program - 1	20
Program - 2	20
Viva voce	10
Record	10
<b>Total</b>	<b>60</b>

#### Project Viva Voce

Content	Marks Awarded
Dissertation	<b>10</b>
Power Point Presentation	<b>10</b>
Viva Voce	<b>20</b>
<b>Total</b>	<b>40</b>

### 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	RA	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:**

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

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

**For the Entire Programme:**

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

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

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

**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

## M.Sc (Information Technology) (2018-2020)

Sem	Sub code	Study Components	Hrs/ week	CIA	Exam	Total	Credits
<b>Semester – I</b>							
<b>I</b>	18P1ITCT01	<b>Core 1:</b> Advanced Java Programming	4	25	75	100	4
	18P1ITCT02	<b>Core 2:</b> Network Security	4	25	75	100	4
	18P1ITCT03	<b>Core 3:</b> Cyber laws and Security Polices	3	25	75	100	3
	18P1ITCT04	<b>Core 4:</b> Design and Analysis of Algorithms	4	25	75	100	3
	18P1ITCT05	<b>Core 5:</b> Object Oriented Analysis and Design	4	25	75	100	4
	18P1ITCP06	<b>Core 6:</b> Advanced Java Programming - Practical	4	40	60	100	3
	18P1ITCP07	<b>Core 7:</b> Design and Analysis of Algorithms -Practical	3	40	60	100	3
	18P1SBST01	<b>Skill Based Subject 1:</b> Communication Skills	2	50	-	50	2
		<b>Library work</b>	2	-	-	-	-
<b>Total Credits</b>							<b>26</b>
<b>Semester - II</b>							
<b>II</b>	18P2ITCT08	<b>Core 8:</b> Distributed Computing and Linux	5	25	75	100	4
	18P2ITCT09	<b>Core 9:</b> Python Programming	4	25	75	100	4
	18P2ITCT10	<b>Core 10:</b> Web Data Mining	5	25	75	100	4
	18P2ITCP11	<b>Core 11:</b> Linux - Practical	4	40	60	100	3
	18P2ITCP12	<b>Core 12:</b> Python programming - Practical	4	40	60	100	3
		<b>Elective 1:</b>	4	25	75	100	4
	18P2SBST02	<b>Skill Based Subject 2:</b> Mathematics for Competitive Examinations	2	50	-	50	2
		<b>Library work</b>	2	-	-	-	-
<b>Total Credits</b>							<b>24</b>
<b>III</b>	18P3ITCT13	<b>Core 13:</b> Digital Image Processing	4	25	75	100	4
	18P3ITCT14	<b>Core 14:</b> Advanced Computer Networks	4	25	75	100	4
	18P3ITCT15	<b>Core 15:</b> Mobile Applications	4	25	75	100	3
	18P3ITCT16	<b>Core 16:</b> Web Programming	4	25	75	100	3
	18P3ITCP17	<b>Core 17:</b> Network - Practical	3	40	60	100	3
	18P3ITCP18	<b>Core 18:</b> Web Programming –Practical	3	40	60	100	3
		<b>Elective 2:</b>	4	25	75	100	4
	18P3SBST03	<b>Skill Based Subject 3:</b> Technical Seminar and Report Writing	2	50	-	50	2
		<b>Library work</b>	2	-	-	-	-
<b>Total credits</b>							<b>26</b>

Semester – IV							
IV	18P4ITCV19	Core 19: Project Work and Viva Voce	-	160	40	200	14
<b>Total credits</b>							<b>14</b>
<b>Total</b>			<b>90</b>			<b>2200</b>	<b>90</b>

**Project and Viva Voce:**

Project Work carries 200 marks with 14 credits . The breakup of marks will be as follows:-

Internal assesment :160 Marks ( 40 Marks for 3 reviews and 40 Marks for Record) and External Assesment : 40 Marks (Viva Voce)

List of Electives		
	Sub Code	Subjects
<b>Elective 1</b>	18P2ITET1A	Grid Computing
	18P2ITET1B	Neural Network and Fuzzy Logic
	18P2ITET1C	Management Concepts and Organizational Behaviour
	18P2ITET1D	Wireless Communication
<b>Elective 2</b>	18P3ITET2A	Soft Computing
	18P3ITET2B	Embedded System
	18P3ITET2C	Big Data Analytics
	18P3ITET2D	Software Project Management

<b>Extra Credit Courses</b>		
<b>Sub.Code</b>	<b>Subjects</b>	<b>Credits</b>
18PGCECC01	Future and Options	2
18PGCECC02	Multimedia and its applications	2
18PGCECC03	Brand Management	2
18PGCECC04	Shares and Commodities	2
18PGCECC05	Stress Management	2
18PGCECC06	Derivatives	2
18PGCECC07	Enterprise Resource Planning	2
18PGCECC08	Marketing of Health Services	2
18PGCECC09	Industrial Law	2
18PGCECC10	International Marketing	2
18PGCECC11	Indian Economy and Trade Dependencies	2
18PGCECC12	International Banking	2
18PGCECC13	Cross Culture Management	2
18PGCECC14	International Accounting	2
18PGCECC15	Global Marketing Communication	2
18PGCECC16	Risk and Insurance in International Trade	2
18PGCECC17	Fuzzy Mathematics	2
18PGCECC18	Operation Research	2
18PGCECC19	Financial Accounting	2
18PGCECC20	Management Information System	2
18PGCECC21	Human Resource Management	2
18PGCECC22	Principles of Marketing	2

### Curriculum Structure

<b>S.No.</b>	<b>Courses</b>	<b>No. of Papers</b>	<b>Credits</b>
<b>1</b>	Core Courses	19	76
<b>2</b>	Electives	2	8
<b>3.</b>	Skill Based Subject	3	6
<b>Total</b>			<b>90</b>

**SEMESTER I**

<b>Programme Code</b>	M.Sc IT	<b>Programme Title</b>	Master of Science (Information Technology)	
<b>Course Code</b>	18P1ITCT01	Title : Core 1 : Advanced Java Programming	<b>Batch</b>	2018-2020
			<b>Semester</b>	I
<b>Hrs/week</b>	4		<b>Credits</b>	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

**COURSE OUTCOMES (CO)**

On successful completion of the course, students would 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 : 12)**

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 : 12)**

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 : 14)**

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 : 12)**

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	Edition/Yearof Publication
1.	Joe Wigglesworth and Paula Mc Millan	Java programming: Advanced Topics	Thomson	Third Edition
2.	CayS.Horstman s,Gary Coronell	Core Java Volume II -Advanced Features	PearsonEducation	Eighth Edition,2013
3.	James Goodwill	Developing Java Servlets	Techmedia Publication	2006
4.	Uttam K. Roy	Advanced Java Programming	Oxford University Press	2015

**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 Discussion, Seminar, Assignment, Case studies, Google Classroom

**SEMESTER I**

<b>Programme Code</b>	M.Sc IT	<b>Programme Title</b>	Master of Science (Information Technology)	
<b>Course Code</b>	18P1ITCT02	Title : Core 2 : Network Security	<b>Batch</b>	2018-2020
<b>Hrs/week</b>	4		<b>Semester</b>	I
			<b>Credits</b>	4

**COURSE OBJECTIVES**

Understand the fundamental principles of Network, various network, cryptographic techniques, authentication and its standards.

**COURSE OUTCOMES (CO)**

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

CO Number	CO Statement
CO1	Understand 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	Understand 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	PO7	PO8	PO9	PO10	PO11	PO12
CO1	-	✓	✓	✓	-	-	-	-	-	-	-	✓
CO2	-	✓	✓	-	-	-	-	-	-	-	✓	✓
CO3	-	✓	✓	-	-	✓	-	-	-	-	-	✓
CO4	-	✓	✓	-	-	-	-	-	-	-	✓	-
CO5	-	✓	✓	-	-	✓	-	-	-	-	✓	-

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

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

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

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:14)**

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 Asymmetric Key Cryptography, RSA algorithm, Symmetric and Asymmetric key cryptography together, Digital Signatures, Knapsack Algorithm.

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

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	Edition/Year of Publication
1	Atul Kahate	Cryptography and Network Security	Tata Mc.Graw Hill	2008
2	Charlie Kaufman, Radia Perlman and Mike Speciner	Network Security Private Communication in a Public World	Pearson Education, New Delhi	2008
3	Stallings William	Cryptography and Network Security Principles and Practices	Prentice Hall India, New Delhi	2007
4	Stallings William	Network Security Essentials Applications and Standards	Prentice Hall India, New Delhi	2004
5.	V.K.Pachghare	Cryptography and Information Security	PHI , New Delhi	2011

**WEBSITE REFERENCES**

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

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

**SEMESTER I**

<b>Programme Code</b>	M.Sc IT	<b>Programme Title</b>	Master of Science (Information Technology)	
<b>Course Code</b>	18P1ITCT03	Title : Core 3 : Cyber Laws and Security Policies	<b>Batch</b>	2018-2020
<b>Hrs/week</b>	3		<b>Semester</b>	I
			<b>Credits</b>	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 would be able to

<b>CO Number</b>	<b>CO Statement</b>
<b>CO1</b>	Explain the basic concepts of Cyber Law & Ethics of Cyber Law.
<b>CO2</b>	Indicate the various Data Encryption Methodologies.
<b>CO3</b>	Enumerate about the Cyber Crime factors & Preventive Measures.
<b>CO4</b>	Demonstrate the use of Digital Signatures & Certificates .
<b>CO5</b>	Recognize and Detect Cyber Attacks.

**MAPPING WITH PROGRAMME OUTCOMES**

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

**SYLLABUS****UNIT - I****(Hours: 8)**

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 – E commerce in India –Privacy Factor – cyber law in E-commerce.

**UNIT - II****(Hours: 9)**

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: 9)**

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 - Strategy for prevention of Computer crime – Amendments.

**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: 9)**

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	Edition/Year of Publication
1.	Dr.B.Kirubashini., P.Kavitha	Cyber Law	Nandhini Pathippagam	2013
2.	Suresh T.Viswanathan., N.Chanrababu Naidu	Indian Cyber Laws with Cyber Glossary	Bharath Law House PVT .LTD	2001
3.	Dean Armstrong, Dan Hyde, Sam Thomas	Cyber Security Laws & Practice	Jordans Publishing Limited	2017
4.	Dr.B.Kirubashini., P.Kavitha	Cyber Law	Nandhini Pathippagam	2013
5.	Suresh T.Viswanathan., N.Chanrababu Naidu	Bharath Law House		2001

**WEBSITE REFERENCES**

1. <https://www.tutorialspoint.com> › ... › Cyber Law - Quick Guide
2. [meity.gov.in/cyber-security](https://meity.gov.in/cyber-security)
3. [gvpce.ac.in/syllabi/MTech15-16/cyber-security/clsp](https://gvpce.ac.in/syllabi/MTech15-16/cyber-security/clsp)
4. [kenes-exhibitions.com](https://kenes-exhibitions.com) › Cyber Security Conference
5. <https://www.wileyindia.com/introduction-to-information-security-and-cyber-laws.htm>

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

**SEMESTER I**

<b>Programme Code</b>	M.Sc IT	<b>Programme Title</b>	Master of Science (Information Technology)	
<b>Course Code</b>	18P1ITCT04	Title : Core 4 : Design and Analysis of Algorithms	<b>Batch</b>	2018-2020
			<b>Semester</b>	I
<b>Hrs/week</b>	4		<b>Credits</b>	3

**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.

**COURSE OUTCOMES (CO)**

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

<b>CO Number</b>	<b>CO Statement</b>
<b>CO1</b>	Describe about fundamentals of algorithmic problem solving and the analysis frameworks.
<b>CO2</b>	Explain various design and analysis techniques such as greedy algorithms, Divide and conquer
<b>CO3</b>	Discuss various algorithm design techniques for dynamic programming techniques
<b>CO4</b>	Explain backtracking, decrease and conquer techniques.
<b>CO5</b>	Summarize the concepts of P, NP and NP Complete problems

**MAPPING WITH PROGRAMME OUTCOMES**

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

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

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 : 12)**

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 : 12)**

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 : 11)**

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 : 13)**

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 decision Problem(CDP) – Chromatic Number Decision Problem(CNDP) – Directed Hamilton Cycle(DHC)

**REFERENCE BOOKS**

S. No.	Author Name	Title of the Book	Publisher	Edition/Year of Publication
1.	Ellis Horowitz, Sartaj Sahni & Sanguthevar Rajasekaran	Computer Algorithms	Galgotia.	2011
2.	T.H. Cormen, C.E. Leiserson, R.L. Rivest and C. Stein	Introduction to Algorithms	PHI Learning private limited	2012 Fourth Edition
3.	A. Aho, J. Hopcroft, & J. Ullman	The Design and Analysis of Computer Algorithms	Addison Wesley	1974

**WEBSITE REFERENCES**

1. [https://www.tutorialspoint.com/design\\_and\\_analysis\\_of\\_algorithms/index.htm](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](http://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 Discussion, Seminar, Assignment, Case studies, Google Classroom

**SEMESTER I**

<b>Programme Code</b>	M.Sc IT	<b>Programme Title</b>	Master of Science (Information Technology)	
<b>Course Code</b>	18P1ITCT05	Title : Core 5: Object Oriented Analysis and Design	<b>Batch</b>	2018-2020
<b>Hrs/week</b>	4		<b>Semester</b>	I
			<b>Credits</b>	4

**COURSE OBJECTIVES**

To specify, analyze and design the use case driven requirements for a particular system and reshaping the model related to event driven state of object and transform them into implementation specific layouts.

**COURSE OUTCOMES (CO)**

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

<b>CO Number</b>	<b>CO Statement</b>
<b>CO1</b>	Elaborate the operations of object oriented principles by Unified Modelling Language (UML).
<b>CO2</b>	Analyse an application by applying object-oriented programming with unique methodologies.
<b>CO3</b>	Explain the transformation of a problem definition into a coherent statement of system's requirements.
<b>CO4</b>	Demonstrate how a software design may be represented as a set of interacting objects that manage their own state and behaviour using object oriented design.
<b>CO5</b>	Recognize the concepts and notations used for drawing the Use Case Diagrams, Class Diagrams under different approaches.

**MAPPING WITH PROGRAMME OUTCOMES**

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



**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 : 11)**

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

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

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 : 11)**

Object-Oriented Design: Object-oriented Design Process – Object-Oriented Design Axioms – Corollaries – Design Patterns - Designing classes – Case Study.

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

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	Edition/Year of Publication
1.	Ali Bahrami	Object Oriented Systems Development	Irwin-McGraw Hill, New Delhi	2008 International Edition
2.	Gredy Booch	Object Oriented Analysis and Design With Applications	Addison Wesley, New York	1994 Second Edition
3.	Martin Fowler	UML Distilled	PHI Education,	2002 Third Edition
4.	Rumbaugh, James, Jacobson, Ivar, and Booch, Grady	The Unified Modeling Language Reference Manual	Addison Wesley, New York	2008 Third Edition

## **WEBSITE REFERENCES**

1. <http://www.codemanship.co.uk>
2. <https://www.slideshare.net/dhirajmusings/software-requirement-analysis-using-uml>
3. <http://www.ooaduml.com>
4. <https://www.uml-diagrams.org/uml-object-oriented-concepts.html>

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

**SEMESTER I**

<b>Programme Code</b>	M.Sc IT	<b>Programme Title</b>	Master of Science (Information Technology)	
<b>Course Code</b>	18P1ITCP06	Title : Core 6: Advanced Java Programming- Practical	<b>Batch</b>	2018-2020
			<b>Semester</b>	I
<b>Hrs/week</b>	4		<b>Credits</b>	3

**COURSE OBJECTIVES**

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

**COURSE OUTCOMES (CO)**

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

<b>CO Number</b>	<b>CO Statement</b>
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**

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

## **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**

<b>Programme Code</b>	M.Sc IT	<b>Programme Title</b>	Master of Science (Information Technology)	
<b>Course Code</b>	18P1ITCP07	Title : Core 7 : Design and Analysis of Algorithms - Practical	<b>Batch</b>	2018-2020
			<b>Semester</b>	I
<b>Hrs/week</b>	3		<b>Credits</b>	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 would be well-versed in

<b>CO Number</b>	<b>CO Statement</b>
<b>CO1</b>	Use the Quicksort, Merge Sort and Topological ordering techniques for sorting the numbers.
<b>CO2</b>	Calculate N Queen's problem using BackTracking.
<b>CO3</b>	Calculate the shortest path using Dijkstra's algorithm, Kruskal's algorithm, Floyd's algorithm and Travelling salesman problem.
<b>CO4</b>	Calculate 0/1 Knapsack problem using Dynamic Programming.
<b>CO5</b>	Calculate the subset of a given set and check the graph connection using BFS and DFS.

**MAPPING WITH PROGRAMME OUTCOMES**

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

## SYLLABUS

1. Write a C program to demonstrate Quicksort method.
2. Write a C program to implement Merge Sort algorithm.
3. Write a C program to obtain Topological ordering of vertices.
4. Write a C Program to illustrate Warshall's algorithm.
5. Write a C program to implement 0/1 Knapsack problem using Dynamic Programming.
6. Write a C Program to find shortest paths to other vertices using Dijkstra's algorithm.
7. Write a C program to demonstrate Kruskal's algorithm
8. Write a C program to implement N Queen's problem using Back Tracking.
9. Write a C program to demonstrate Traveling Salesperson problem.
10. Write a C program to implement Prim's algorithm and Floyd's algorithm .
11. Write a C program to check whether a given graph is connected or not using DFS method.
12. Write a C Program to to demonsrate BFS method.

## WEBSITE REFERENCES

1. [https://www.tutorialspoint.com/design\\_and\\_analysis\\_of\\_algorithms/index.htm](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](http://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 :** Power point presentation, Lab Assignments, Observation

**SEMESTER-I**

<b>Programme Code</b>	M.Sc.IT	<b>Programme Title</b>	Master of Science (Information Technology)	
<b>Course Code</b>	18P1SBST01	Title: Skill Based Subject 1: Communication Skills- I	<b>Batch</b>	2018-2020
<b>Hrs/ Week</b>	2		<b>Semester</b>	I
			<b>Credits</b>	2

**COURSE OBJECTIVES**

- To encourage students' analytical and creative skills in order that they will be prepared to address a wide variety of challenges in their professional life.
- To enhance the opportunities of the students to excel in their corporate environment or business negotiations in the global business scenario.

**COURSE OUTCOMES (CO)**

In successful completion of the course the students will be able to

<b>CO Number</b>	<b>CO Statement</b>
CO1	adept the use of the spoken words in Interpersonal Communication, small group interaction and public speaking.
CO2	adept the use of the written word for informational, persuasive and creative purpose.
CO3	enhance and develop confidence, skills related to the creative writing such as film and video.
CO4	understand various styles in Technical Communication and to apply techniques in writing and speaking.
CO5	identify the types of listening during conversation.

**MAPPING WITH PROGRAMME OUTCOMES**

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

**Unit –I- Communication Theory****(Hours:10)**

- Process of Communication  
Corporate Communication
- Communication through Body Language  
Personal Appearance  
Posture  
Gesture

- Facial Expression
- Eye Contact
- 3.Communication through Technology
  - Word Processor
  - Desktop Publisher
  - Power point Presentation
  - Electronic mail
  - Voice mail

**Unit II- Oral Communication****(Hours:10)**

- 1.Seminar and Conferences
  - Types of Discussion groups
  - Conducting Seminars
  - Organising Conferences
- 2.Audio-Visual aids
  - Basic Principles & Guidelines
  - Types of Audio-Visual aids & thier use
- 3.Effective Speaking
  - Presentation and Speeches

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

- 1.Memorandum Writing
- 2.Research Papers & Articles
- 3.Advertising & Job Description

**TEXT BOOKS**

S.No.	Author Name	Title of the Book	Publisher	Year /Edition
1	Meenakshi Raman	Communication Skills	Oxford University Press	2009
2	Krishna Mohan	Developing Communication Skills	(Macmillan)	2013

**REFERENCE BOOKS**

S.No.	Author Name	Title of the Book	Publisher	Year /Edition
1	Course team, Bharathiyar University	Communication Skills a multi-skill course	Macmillan Publishers India LTD.	2009
2	Shalini Aggarwal	Essential Communication Skills	Ane Books Pvt.Ltd. New Delhi	2009
3	Joyce Pereire	Technical English – II	Vijay Nicole Imprints Pvt.Ltd.	2014

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



**SEMESTER II**

<b>Programme Code</b>	M.Sc IT	<b>Programme Title</b>	Master of Science (Information Technology)	
<b>Course Code</b>	18P2ITCT08	Title : Core 8:Distributed Computing And Linux	<b>Batch</b>	2018-2020
<b>Hrs/week</b>	5		<b>Semester</b>	II
			<b>Credits</b>	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.

**COURSE OUTCOMES (CO)**

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

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

**MAPPING WITH PROGRAMME OUTCOMES**

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

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**SYLLABUS**

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

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: 15)**

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: 15)**

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: 14)**

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: 17)**

Linux Operating systems : Introduction – History of Linux – Software Features – Differences between Linux and Other Operating System – hardware requirements - sources of Linux Information – Linux Startup and Setup : 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 – System Administration – Shells in Linux - Shell operations: Command Line – Standard Input/Output- Redirection – Pipes – Shell Scripts – Shell Variables - Arithmetic Shell Operations – Control Structures.

**REFERENCE BOOKS**

S. No	Author Name	Title of the Book	Publisher	Edition/Year of Publication
1.	Andrew S.Tanenbaum and Marten Van Steen	Distributed Systems Principles and Paradigms	PHI	2004
2.	Pradeep K.Sinha	Distributed Operating Systems	PHI	2004 Indian Edition
3.	George coulouris, Jean Dollimore and Tim Kindberg	Distributed Systems Concepts and Design	Pearson Education	2002 Third Edition
4.	Richard Petersen	The Complete Reference – Linux	TMH	2004 Fifth Edition

**WEBSITE REFERENCES**

- 1.[http://en.wikipedia.org/wiki/List\\_of\\_distributed\\_computing\\_projects](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 Discussion, Seminar, Assignment, Case studies, Google classroom.

**SEMESTER II**

<b>Programme Code</b>	M.Sc IT	<b>Programme Title</b>	Master of Science (Information Technology)	
<b>Course Code</b>	18P2ITCT09	Title : Core 9 : Python Programming	<b>Batch</b>	2018-2020
<b>Hrs/week</b>	4		<b>Semester</b>	II
			<b>Credits</b>	4

**COURSE OBJECTIVE:** To enable the students to Learn Syntax, semantics and create Functions in Python and Understand Regular expressions in constructing Data Structures and Build Web Services.

**COURSE OUTCOMES (CO)**

On successful completion of the course, students would 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	Understand 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	-	✓	✓	-	-	✓	-	-	-	✓	-	✓

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**SYLLABUS**

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**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:12)**

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- Aliasing-List arguments-Dictionaries-counters-Dictionaries and files-Looping.

**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:14)**

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, Using Web Services, 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	Edition/ Year of Publication
1	Charles Severance	Python for Informatics	CreateSpace Independent Publishing Platform, First Edition	2013
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	2012
3	Mark Lutz	Learning Python	O'Reilly Media, Fifth Edition	2013
4	Wesley Chun	Core Python Applications Programming	Prentice Hall India, New Delhi, Third Edition	2012
5.	Alex Martelli	Python in a Nutshell	O'Reilly Media, Second Edition	2006

**WEBSITE REFERENCES:**

1. <https://pythonprogramming.net>
2. <https://www.sanfoundry.com/python-problems-solutions>
3. [https://www.tutorialspoint.com/python/python\\_linked\\_lists.htm](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 Discussion, Seminar, Assignment, Case studies, Google classroom.

**SEMESTER II**

<b>Programme Code</b>	M.Sc IT	<b>Programme Title</b>	Master of Science (Information Technology)	
<b>Course Code</b>	18P2ITCT10	Title : Core 10: Web Data Mining	<b>Batch</b>	2018-2020
<b>Hrs/week</b>	5		<b>Semester</b>	II
			<b>Credits</b>	4

### COURSE OBJECTIVES

To recognize the knowledge discovery issues in web mining by mastering different algorithm in order to implement in various information retrieval applications.

### COURSE OUTCOMES (CO)

On successful completion of the course, students would 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 : 14)**

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 : 16 )**

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 : 15)**

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:15 )**

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 : 15)**

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	Edition/Year of Publication
1.	Bing Liu	Web Data Mining - Exploring Hyperlinks, Contents and Usage Data	Springer	2011 Second Edition
2.	Guandong Xu, Yanchun Zhang, Lin Li	Web Mining and Social Networking: Techniques and Applications Springer, First Edition	Springer	2010 First Edition
3.	Zdravko Markov, Danie IT. Larose,	Data Mining the Web: Uncovering Patterns in Web Content, Structure, and Usage	John Wiley & Sons, Inc.	2007
4.	Soumen Chakrabarti	Mining the Web: Discovering Knowledge from Hypertext Data	Morgan Kaufmann Edition	2003

**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 Discussion, Seminar, Assignment, Case studies, Google classroom.

**SEMESTER II**

<b>Programme Code</b>	M.Sc IT	<b>Programme Title</b>	Master of Science (Information Technology)	
<b>Course Code</b>	18P2ITCP11	Title : Core 11:Linux - Practical	<b>Batch</b>	2018-2020
			<b>Semester</b>	II
<b>Hrs/week</b>	4		<b>Credits</b>	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 would be well-versed in

CO Number	CO Statement
CO1	Use test ,copy, delete and rename command in a file.
CO2	Write a shell script program to display string,current date, user name, list of files and directories
CO3	Use menu driven and case conversion to perform some operations in shell script
CO4	Calculate sum of digits,biggest of three numbers, count the number of lines,even or odd number,number of characters, words and lines in a file,grade of student's marks in shell script
CO5	Develop a scientific calculator and Fibonacci series using 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

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.
5. Study of shell script (Programming , Logical & Conditional Operators,)
6. Study of General Purpose Utility Commands.
7. Study of File System Navigation Commands Text Processing Tools.

### **WEBSITE REFERENCES**

- 1.<https://en.wikipedia.org/wiki/Linux>
- 2.<https://www.linux.org/>
- 3.<https://www.ubuntu.com/>
- 4.<https://www.gnu.org/gnu/linux-and-gnu.en.html>
- 5.<https://opensource.com/resources/linux>

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

### **SEMESTER II**

<b>Programme Code</b>	M.Sc IT	<b>Programme Title</b>	Master of Science (Information Technology)	
<b>Course Code</b>	18P2ITCP12	Title : Core 12 :Python Programming- Practical	<b>Batch</b>	2018-2020
<b>Hrs/week</b>	4		<b>Semester</b>	II
			<b>Credits</b>	3

## COURSE OBJECTIVES

To write, test, and debug simple Python programs.

**COURSE OUTCOMES:** At the end of the practical session, students would be well-versed in

CO Number	CO Statement
CO1	Develop proficiency in creating based 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

<b>Programme Code</b>	M.Sc. IT	<b>Programme Title</b>	Master of Science (Information Technology)	
<b>Course Code</b>	18P2SBST02	Title : Skill Based Subject 2: Mathematics for Competitive Examinations	<b>Batch</b>	2018-2021
<b>Hrs/week</b>	2		<b>Semester</b>	II
			<b>Credits</b>	2

### COURSE OBJECTIVES

To enable the Students

- To make the students to understand verbal reasoning, analogy and problem solving.
- To acquire knowledge in coding and decoding of letters and words.
- To solve problems related to blood relations, puzzles and non-verbal reasoning.

### COURSE OUTCOMES (CO)

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

CO Number	CO Statement
CO1	Recognise the analogous pair
CO2	Identify the Series
CO3	Translate the coding and decoding of letters and words.
CO4	Determine the problems related to blood relations,puzzles and non-verbal reasoning.

### MAPPING WITH PROGRAMME OUTCOMES

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

### SYLLABUS

#### UNIT I

(Hours:06)

Verbal reasoning-Analogy-Completing the analogous pair-Simple analogy-choosing the analogous pair

#### UNIT II

(Hours:06)

Series Completion – Number Series – Alphabet Series

#### UNIT III

(Hours:06)

Coding – Decoding – Letter Coding- to form the code for another word(coding)- To find the word by analysing the given code(Decoding) – Number coding – When numerical code values are assigned to words- Number to letter coding – When alphabetical code values are assigned to the numbers.

#### UNIT IV

(Hours:06)

Blood relations-Deciphering jumbled up descriptions- Relation puzzle- Logical venn diagram.

**UNIT V****(Hours:06)**

Non- verbal reasoning series – fire figure series- four figure series-Analogy- choosing one element of a similarly related pair.

**TEXT BOOK**

S. No.	Author Name	Title of the Book	Publisher	Year / Edition
1	R.S.Agarwal	A Modern approach to verbal and Non -verbal reasonin	S.Chand and company limited,New Delhi	2004

**REFERENCE BOOKS**

S. No.	Author Name	Title of the Book	Publisher	Year / Edition
1	R.V.Praveen	Quantiative aptitude and reasoning	PHI Learning pvt.Ltd	2012

**WEBSITE REFERENCE**

- <https://www.indiabix.com/non-verbal-reasoning/questions-and-answers/>
- <http://www.sawaal.com/aptitude-reasoning/non-verbal-reasoning-question-and-answers.html>

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

**SEMESTER II**

<b>Programme Code :</b>	M.Sc IT	<b>Programme Title</b>	Master of Science (Information Technology)	
<b>Course Code :</b>	18P2ITET1A	Title : Elective 1 : Grid Computing	<b>Batch</b>	2018-2020
			<b>Semester</b>	II
<b>Hrs/week</b>	4		<b>Credits</b>	4

### COURSE OBJECTIVES

To enable the students

- To be familiar with the fundamental components of Grid environments, such as authentication, authorization, resource access, and resource discovery.
- To design and implement Grid computing applications using Globus or similar toolkits .
- To justify the applicability, or non-applicability, of Grid technologies for a specific application.

### COURSE OUTCOMES (CO)

On successful completion of the course, students would 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	Understand 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	Able to understand where the grid computing could be effectively utilized by illustrations of 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 : 12)**

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 : 12)**

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 : 12)**

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 : 12)**

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

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

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	Year / Edition
1.	Daniel Minoli	A Networking Approach to Grid Computing	Wiley Publication	2005
2.	Ahmar Abbas	Grid Computing –A Practical Guide to Technology and Applications	Charles River Media Publication.	2004
3.	Barry Wilkinson	Grid Computing Techniques and Applications	CRC Press	2003

**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](https://techterms.com/definition/grid_computing)

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

**SEMESTER II**

<b>Programme Code</b>	M.Sc IT	<b>Programme Title</b>	Master of Science (Information Technology)	
<b>Course Code</b>	18P2ITET1B	Title : Elective 1 : Neural Networks and Fuzzy Logic	<b>Batch</b>	2018-2020
			<b>Semester</b>	II
<b>Hrs/week</b>	4		<b>Credits</b>	4

## COURSE OBJECTIVES

To enable the Students

- To learn about the basics of neural networks and its applications.
- To know about artificial neural networks and its processes.
- To understand about Feed forward neural networks, competitive learning neural networks and their various methodologies.

## COURSE OUTCOMES (CO)

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

CO Number	CO Statement
CO1	Understand the fundamental theory and concepts of neural networks, neuro - modeling, several neural network paradigms and its applications.
CO2	Analyze the concepts of fuzzy sets, knowledge representation using fuzzy rules, approximate reasoning, fuzzy inference systems, and fuzzy logic control and other machine intelligence applications of fuzzy logic.
CO3	Understand the basics of an evolutionary computing paradigm known as genetic algorithms and its application to engineering optimization problems.
CO4	Understand concept of classical and fuzzy sets, fuzzification and defuzzification, with which they can be able to apply the conceptual things to the real world electrical and electronics problems and applications.
CO5	Compare analysis between human and computer, Artificial Neural Networks models, characteristics of ANN's learning strategies, learning rules and basics of fuzzy logic.

## MAPPING WITH PROGRAMME OUTCOMES

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

## SYLLABUS

**UNIT I (Hours : 12)**

Introduction: 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 : 12)**

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 : 12)**

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 : 12)**

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

**UNIT V (Hours : 12)**

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	Edition/Year of Publication
1.	Simon Haykin	Neural Networks	Pearson Education	2006
2.	James A. Freeman and David M. Skapura	Neural Networks Algorithms, Applications and Programming Techniques	Pearson Education	2002
3.	B.Yegnanarayana	Artificial Neural Networks	Prentice Hall Inc	2006
4.	L. Fu	Neural Networks in Computer Intelligence	Tata McGraw Hill,	1994

**WEB REFERENCES**

1. <https://www.tutorialspoint.com> › Fuzzy Logic › Fuzziness in Neural Networks
2. <https://en.wikipedia.org/wiki/Neuro-fuzzy>
3. [www.philadelphia.edu.jo/academics/qhamarsheh/page.php?id=35](http://www.philadelphia.edu.jo/academics/qhamarsheh/page.php?id=35)
4. <https://www.sciencedirect.com/science/article/pii/S1876610211046030>
5. [users.monash.edu/~app/CSE5301/Lnts/LaD.pdf](http://users.monash.edu/~app/CSE5301/Lnts/LaD.pdf)

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

**SEMESTER II**

<b>Programme Code</b>	M.Sc IT	<b>Programme Title</b>	Master of Science (Information Technology)	
<b>Course Code</b>	18P2ITET1C	Title : Elective 1 : Management Concepts and Organizational Behaviour	<b>Batch</b>	2018-2020
<b>Hrs/week</b>	4		<b>Semester</b>	II
			<b>Credits</b>	4

### COURSE OBJECTIVES

To enable the Students

- To describe the nature and scope of management.
- To know the difference between management and administration; to understand various levels of management.
- To describe the various skills that are necessary for successful managers.

### COURSE OUTCOMES (CO)

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

CO Number	CO Statement
CO1	Elucidate & Evolution, Principles, importance and Functions of Management in an Organization.
CO2	Explain the application of Attribution, learning and Motivation theories in assessing performance and Satisfaction.
CO3	Possess the skills of Individual decision making, problem solving and balancing ones emotions.
CO4	Know the process of effectively managing a group and individual and the group behaviour.
CO5	Understand the traits necessary to become a leader.

### 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)**

Meaning and definition of Management - Evolution of management - Systems and contingency approaches for understanding organizations - social responsibility of management.

#### UNIT - II

**(Hours : 10)**

Principles and importance of Management - Universality of Management Principles - The Management process - Management Functions Skills and rolls in an Organization.

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

Perception - Factors influencing perception - Attribution theory - Applications in organization Learning - Theories of learning and Implications for performance and satisfaction - Theories of Motivation and Implications for performance and satisfaction in organizations.

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

Personality - Concept - Theories - Major personality attributes influencing O.B - Values attitudes and Job satisfaction - Individual decision-making and problem solving and Emotional intelligence and its applications in O.B - Organizational Commitment.

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

Understanding and Managing group process - characteristics of work group - work group behaviour and productivity - Styles and skills in leadership and communication - Group decision making.

**REFERENCE BOOKS**

S. No	Author Name	Title of the Book	Publisher	Edition/Year of Publication
1.	Koontz, H and Wechrich	Essentials of Management	New York, McGraw Hill	1995 Tenth Edition
2.	Luthans, F	Organizational Behaviour	New York, McGraw Hill,	1995 Seventh Edition
3.	Robbins S.P	Management	Prentice hall Inc	1996 Fifth Edition

**WEBSITE REFERENCES**

1. [www.sxccal.edu/.../MBA-ManagementConceptsOrganisationalBehaviour](http://www.sxccal.edu/.../MBA-ManagementConceptsOrganisationalBehaviour)
2. <https://swayam.gov.in/course/274-management-concept-and-organizational-behavior>
3. [www.ddegjust.ac.in/studymaterial/mcom/mc](http://www.ddegjust.ac.in/studymaterial/mcom/mc)
4. <https://www.scribd.com/.../Management-Final-Management-Concepts>
5. <https://www.scribd.com/.../Management-Concepts-Organisational-Beh>

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

**SEMESTER II**

<b>Programme Code</b>	M.Sc IT	<b>Programme Title</b>	Master of Science (Information Technology)	
<b>Course Code</b>	18P2ITET1D	Title : Elective 1 : Wireless Communication	<b>Batch</b>	2018-2020
<b>Hrs/week</b>	4		<b>Semester</b>	II
			<b>Credits</b>	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 would 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:15)

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:15)**

Equalisation – Adaptive equalization, Linear and Non-Linear equalization, Zero forcing and LMS Algorithms. Diversity – Micro and Macrodiversity, 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	Edition/Year of Publication
1.	Rappaport, T.S.	Wireless Communications	Pearson Education	2010 Second Edition
2.	Andreas.F. Molisch	Wireless Communications	John Wiley – India	2006.
3.	David Tse, Pramod Viswanath	Fundamentals of Wireless Communication	Cambridge University Press	2005
4.	Upena Dalal	Wireless Communication	Oxford University Press	2009
5.	Van Nee, R. and Ramji Prasad	OFDM for Wireless Multimedia Communications	Artech House	2000

**WEBSITE REFERENCES**

1. [https://www.engineersgarage.com/articles/wireless\\_communication](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>

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