

**Rao Bahadur Y Mahabaleswarappa engineering
college,Ballari**

Department of Computer Science & Engineering

**CO-PO
2018-2019
EVEN SEM**



IV sem OOC A/B Section - COURSE OUTCOMES & MAPPING

CO No	Description	17CS42.
CO202.1	Explain the object-oriented concepts and JAVA.	
CO202.2	Develop computer programs to solve real world problems in Java.	
CO202.3	Develop simple GUI interfaces for a computer program to interact with users	
CO202.4	Understand the event-based GUI handling principles using Applets and swings.	

CO	Programme Outcome												Specific Outcome	
	1	2	3	4	5	6	7	8	9	10	11	12	S1	S2
1	3		2	1								1		
2	2	2	3	2								1		
4	1	3	3	2								1		
5	2		1	1								1		
AVG	2	2.5	2.25	1.5								1		

CO No	Justification
1	The content relevance of C202.1 with the PO1, PO3, PO4 and PO12 is high, Medium, low and low so the mapping strength is given as 3, 2, and 1.
2	The content relevance of C202.2 with the PO1, PO2, PO3, PO4 and PO12 is Moderate, Medium, high, Medium and low so the mapping strength is given as 2, 2, 3, 2, and 1
3	The content relevance of C202.3 with the PO1, PO2, PO3, PO4 and PO12 is low, high, Medium and low so the mapping strength is given as 1, 3, 3, 2, and 1
4	The content relevance of C202.4 with the PO1, PO3, PO4, and PO12 is Medium, low and Medium so the mapping strength is given as 2, 1, 1 and 1.



COURSE OUTCOMES & MAPPING

Staff Name: Nagaveni Biradar/Sarvar Begum

Subject: DAA/17CS43

Sem: IV

CO No	Description													
C211.1	Able to understand various problem solving techniques like Divide and conquer ,decrease and conquer, Greedy, Dynamic Programming, Backtracking and Brach and Bound.													
C211.2	Able to analyse the efficiency of various algorithms like searching, sorting, Graph problems.													
C211.3	Able to apply appropriate methods to solve a given problem through algorithm representations.													
C211.4	Able to understand problems related to polynomial time algorithms.													
CO	Programme Outcome												Specific Outcome	
	1	2	3	4	5	6	7	8	9	10	11	12	S1	S2
C211.1	3													
C211.2	3	3		2										
C211.3	3	3	3	2										
C211.4	3													
AVG	3	3	3	2										
CO No	Justification													
C211.1	Students are able to learn the basic concepts of algorithms,So CO1 is mapped to Engineering knowledge(PO1)													
C211.2	Students are able to understand, analyse any given problem by using various algorithmic design techniques . So CO2 is mapped to PO1,PO2. Students are able to conduct investigation of given algorithms in terms their efficiencies. So CO2 is mapped to PO4													
C211.3	Students are able to analyse the given problem statement. So CO3 is mapped to PO2.Students are able to design the algorithms by using various algorithmic design techniques.. So CO3 is mapped to PO3 Students are able to conduct investigation of given algorithms in terms their efficiencies. So CO2 is mapped to PO4													
C211.4	Students are able to understand the concepts related to algorithms which are solved in polynomial time which is mapped to PO1													

Nee CB




Academic Year 2018-19

Sem - 4th sem

SUB: MICROPROCESSORS & MICROCONTROLLERS
COURSE OUTCOMES & MAPPING MCS44

CO No	Description													
C212.1	Differentiate between microprocessors and microcontrollers (L2)													
C2124.2	Design and develop assembly language code to solve problems(L6,L3)													
C2124.3	Gain the knowledge for interfacing various devices to x86 family and ARM processor(L1)													
C2124.4	Demonstrate design of interrupt routines for interfacing devices (L3,L6)													
CO	Programme Outcome												Specific Outcome	
	1	2	3	4	5	6	7	8	9	10	11	12	S1	S2
C204.1	2	2												
C204.2		2	3											
C204.3	3													
C204.4			3											
AVG														
CO No	Justification													
C204.1	Differentiate between microprocessors and microcontrollers (L2),The topics enable the students to differentiate between microprocessors where they study the different architecture ,addressing mode and instructions													
C204.2	Design and develop assembly language code to solve problems (L6,L3).Students are able to write assembly language programs based on the problem statements given.													
C204.3	Gain the knowledge for interfacing various devices to x86 family and ARM processor(L1). Students are able to identify various interfacing techniques.													
C204.4	Demonstrate design of interrupt routines for interfacing devices(L3,L6).Students are able to identify, analyse and implement various interfacing techniques by writing suitable interfacing programmes													


(V. Shirs Kumar)



CO No	Justification
CO1	<ul style="list-style-type: none">Students are able to apply the knowledge of Data Communication networks, a network engineering specialization to provide solutions of the evolving business needs and data centres. Hence the CO1 is substantially correlated to PO1: Engineering Knowledge. The mapping strength is demonstrated in the above table as '3'.Students are able to identify, formulate and review the literature of the network technology using the concepts of data computing, operating system and computer networks/interfaces. Hence the CO1 is substantially correlated to PO2: Problem analysis. The mapping strength is demonstrated in the above table as '3'. CO1 is moderately correlated to PO3 & PO4 with a mapping strength 2.Students are able to apply, identify, formulate and review the literature of the storage technology using the concepts of data computing, operating system and computer networks/interfaces. CO1 is moderately correlated to PS01: Computer Networking. The mapping strength is demonstrated in the above table as '2'.
CO2	<ul style="list-style-type: none">Students are able to identify, formulate and review the literature of the storage technology using the concepts of data computing, operating system and computer networks/interfaces. Hence the CO2 is substantially correlated to PO2: Problem analysis. The mapping strength is demonstrated in the above table as '2'.
CO3	<ul style="list-style-type: none">Students are able to identify, formulate and review the literature of the storage technology using the concepts of data computing, operating system and computer networks/interfaces. Hence the CO3 is substantially correlated to PO2: Problem analysis. The mapping strength is demonstrated in the above table as '3'.
CO4	<ul style="list-style-type: none">Students are able to apply the knowledge of Data Communication networks, a network engineering specialization to provide solutions of the evolving business needs and data centres. Hence the CO1 is substantially correlated to PO1: Engineering Knowledge. The mapping



strength is demonstrated in the above table as '3'.

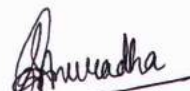
- Students are able to identify, formulate and review the literature of the storage technology using the concepts of data computing, operating system and computer networks/interfaces. Hence the CO1 is moderately correlated to PO2: Problem analysis. The mapping strength is demonstrated in the above table as '2'.
- Students are able to design the solutions for business engineering problems and design the processes that provide an effective solution for the end users. Hence the CO4 is **moderately** correlated to PO3 Design/Development of solutions. . The mapping strength is demonstrated in the above table as '2'.

Students are able to analyze and interpret variety of storage technologies, backup and recovery technologies and synthesis the information to provide the solution for storage network applications. . Hence the CO4 is **moderately** correlated to PO4 Design/Development of solutions. The mapping strength is demonstrated in the above table as '3'

- CO4 is **moderately** correlated to PSO1: Computer Networking. The mapping strength is demonstrated in the above table as '2'.



RAGHU KUMAR K-S -


[Dr. Anuradha S. G.]



COURSE OUTCOMES & MAPPING

Staff Name: Nagaveni Biradar/Sarvar Begum/Roshan.D

Subject: DAA Lab /17CSL47

Sem: IV

CO No	Description													
C217.1	Design algorithms using appropriate design techniques (brute-force, divide and conquer, greedy, dynamic programming, etc.)													
C217.2	Implement a variety of algorithms such as sorting, graph related, combinatorial, etc., in a high level language													
C217.3	Analyze and compare the performance of algorithms using language features.													
C217.4	Apply and implement learned algorithm design techniques and data structures to solve real world problems.													
CO	Programme Outcome												Specific Outcome	
	1	2	3	4	5	6	7	8	9	10	11	12	S1	S2
C217.1	3	3	3	2	3									
C217.2	3	3	3	2	3									
C217.3	3	3		2	3									
C217.4	3	3	3	2	3									
Average	3	3	3	2	3									
PO No	Justification													
PO1	Students are able to understand the basics of algorithms, basics of using java Programs using eclipse.													
PO2	Students are able to analyse the various algorithms using the concepts of java programming language													
PO3	Students are able to implement the various algorithms using the concepts of java programming language													
PO4	Students are able to conduct investigation of given algorithms in terms their efficiencies.													
PO5	Students are able to use the modern tool like JDK, Eclipse													

SB

CO No	Justification
1	Basic of all microprocessor architectures are discussed. It also discusses the instruction set architectures of various microprocessors
2	Includes the design and implementation details of ALP of 8086 and all the 32 bit microprocessors. Basic Programs are implemented using 8086 ALP programming.MASM is used as tool to implement the ALP.
3	Basics of all the Interfacing devices and the hardware circuitry is discussed .Programs relating to the interfacing using 8086 are executed.
4	Difference and implementation details of Various processors and architectures are discussed.



COURSE OUTCOMES & MAPPING

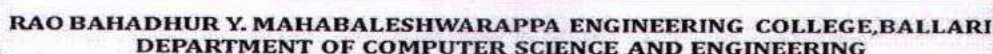
Staff Name: J NageshBabu/Kavitha J

Subject: Computer Graphics/15CS62

Sem: VI

CO No		Description													
		The students should be able to:													
C310.1		Design and implement algorithms for 2D graphics primitives and attributes													
C310.2		Illustrate Geometric transformations on both 2D and 3D objects.													
C310.3		Apply concepts of clipping and visible surface detection in 2D and 3D viewing, and Illumination Models													
C310.4		Decide suitable hardware and software for developing graphics packages using OpenGL													
CO	Programme Outcome												Specific Outcome		
	1	2	3	4	5	6	7	8	9	10	11	12	S1	S2	
C310.1	3	2	3	2	2										
C310.2		3	3	2	2										
C310.3	2	3	2	2	2										
C310.4	2	2	2	2	2										
Average	2.3	2.5	2.5	2	2										
PO No		Justification													
PO1		Students are able to learn the concepts of graphics, functions in openGL clipping, interaction models and apply the concepts to solve engineering problems,so C310.1,C310.3, C310.4 is moderately mapped to PO1(Engg Knowledge)													
PO2		Able to identify, formulate and analyse problems, so, C310.1-C310.4 is moderately mapped to PO2													
PO3		Able to design solutions for line drawing 2D and 3D transformations clipping , visible surface detection in 2D and 3D viewing, and Illumination Modelsso C310.1-C310.4 is moderately mapped to PO3													
PO4		Able to conduct investigations of various algorithms so C310.1-C310.4 is moderately mapped to P5													
PO5		C316.1-C316.4 are moderately mapped with the weightage 2 with appropriate usage of open source openGL													

Kavitha



ACCREDITED BY NATIONAL BOARD OF ACCREDITATION

Academic Year 2018-19

VI scm

The students should be able to:

Staff name : Dr. Sapna . B . Kulkarni

CO No	Justification
1	Students are able to learn, Analyse and design the solutions of cyber security algorithms, so CO1 is mapped to PO1 ,PO2,PO3 and PO4.
2	Students are able to learn, Analyse and design the solutions of Public key cryptographic Techniques, so CO1 is mapped to PO1 ,PO2,PO3 and PO4.
3	Students are able to learn, Analyse and design the solutions of Key management Techniques, so CO1 is mapped to PO1 ,PO2,PO3 and PO4.
4	Students are able to learn and Analyse the IEEE 802.11 wireless LAN Security and IT Act and Cyber laws,so CO1 is mapped to PO1 and PO2.



Academic Year 2018-19

SS & OS LAB (15CSL67)-6 SEM - COURSE OUTCOMES & MAPPING

CO No	Description
C307.1	Design and implement programs using LEX & YACC tools.
C307.2	Design and implement different types of CPU scheduling algorithms used in Operating system.
C307.3	Implement Page Replacement Memory Management algorithms.
C307.4	Implement Bankers algorithm - a resource allocation & deadlock avoidance algorithm.

CO	Programme Outcome												Specific Outcome	
	1	2	3	4	5	6	7	8	9	10	11	12	S1	S2
1	1	3			2	2			2			2		2
2	1	3			2	2			2			2		2
3	1	3			2	2			2			2		
4	1	3			2	2			2			2		
AVG	1	3			2	2			2			2		2

CO No	Justification
1	Students are able to learn, Analyse , design and implement the programs using LEX & YACC tools so CO1 is mapped to PO1 ,PO2,PO5 , PO6 ,PO9 and PO12.
2	Students are able to Evaluate different types of CPU scheduling algorithms used in Operating system so CO1 is mapped to PO1 ,PO2,PO5 , PO6 ,PO9 and PO12.
3	Students are able to Implement page replacement memory management algorithms so CO1 is mapped to PO1 ,PO2,PO5 , PO6 , ,PO9 and PO12
4	Students are able to Implement deadlock handling algorithms CO1 is mapped to PO1 ,PO2,PO5 , PO6 , ,PO9 and PO12

COURSE OUTCOMES

Subject :Engineering Mathematics III		Staff-In charge: Sangameshwar/Ambika G.M
Subject Code:15MAT31		
Semester:III		
CO1	Know the use of periodic signals and Fourier series to analyze circuits and system communications.	
CO2	Explain the general linear system theory for continuous-time signals and digital signal processing using the Fourier Transform and Z Transform.	
CO3	Ability to know various statistical methods, Correlation, Regression analysis and curve fitting and employ numerical methods to solve algebraic and transcendental equations, Interpolation and integration.	
CO4	Gain the knowledge of Green's Theorem, Divergence Theorem and Stokes theorem in various applications in the field of electro-magnetic and gravitational fields and fluid flow problems. And determine the extremals of functions and solve the problems of calculus of variations.	

CO-PO MAPPING MATRIX

[illegible]



SSCD ✓

COURSE OBJECTIVES, COURSE OUTCOMES & MAPPING

Course Objectives:

ISC563

Define System Software such as Assemblers, Loaders, Linkers and Macro processors.

Familiarize with source file, object file and executable file structures and libraries.

Describe the front-end and back-end phases of compiler and their importance to students.

COURSE OUTCOMES:

CO No	Description													
At the end of the course the student will be able to:														
C313.1	To Understand the Fundamental concepts of system software such as assemblers, loaders, linkers and macro processors.													
C313.2	To demonstrate the assembly of source file, object file and executable file structures , libraries and also lexical analyzers and parsers.													
C313.3	To analyze different approaches in building lexical analyzers and various parsing techniques available for syntax analysis.													
C313.4	To interpret various variants of syntax trees and various methods of intermediate code generation for procedures.													
CO	Programme Outcome												Specific Outcome	
	1	2	3	4	5	6	7	8	9	10	11	12	S1	S2
1	3											2		
2	3	3	3									2		
3		3	3									2		
4	3	3	3									2		
AVG	3	3	3									2		

Signature
Rajeshwar



Academic Year 2018-19

CO	PO	Justification
C604.1	PO1	Students will be able to understand the fundamentals of system software.
C604.2	PO1	Students will be able to understand and solve object code calculations.
	PO2	Students will be able to identify various phases of compiler
	PO3	Students will be able to identify the process flow in lexical analysis
C604.3	PO2	Students will be able to identify and analyse the problem using different parsing techniques.
	PO3	Students will be able to identify and solve the problem using different parsing techniques.
C604.4	PO1	Students will be able to understand the concept of code generation.
	PO2	Students will be able to identify and analyse different coding techniques.
	PO3	Students will be able generate the code.



COURSE OUTCOMES & MAPPING

FACULTY : APARNA.KS/SARVAR BEGUM

SUBJECT:OS/15CS64

SEM:6

CO No	Description													
C312.1	To demonstrate the need for OS, different types & structure of the operating systems and outline the core function of the operating system.													
C312.2	To apply suitable techniques for managing the different resources and compare the algorithms on which the core functions of the operating systems are built													
C312.3	To describe the usage of memory , file system ,secondary storage and able to compare and evaluate the algorithms of these core functions of the OS.													
C312.4	To Realize the different concepts of OS in platform of usage through case studies													
CO	Programme Outcome												Specific Outcome	
	1	2	3	4	5	6	7	8	9	10	11	12	S1	S2
C312.1	2	2			1				2	2		2		
C312.2	2	2	2		1				2	2		2		
C312.3	1	3	2		1				2	2		2	1	1
C312.4	1	3			1				2	2		2	1	1
AVG	1.25	2.25	2		1				2	2		2	1	1
PO's		Justification												
PO1,PO2,PO3		Students are able to learn the basic knowledge of operating system(Basics of Process management, memory, storage etc) for understanding and analyzing the different issues of operating system .So COs are mapped to PO1,PO2,PO3												
PO5,PO9,PO10,PO12		Students are able to use the knowledge acquired to implement the various algorithms of operating system in the form of mini project using python (tkinter module) and demonstrate the same using other ICT tools like Durecorder, Toontastics etc. So CO's are mapped to PO5,PO9,PO10,PO12.												

SB
26/06/19



COURSE OUTCOMES & MAPPING

CO No	Description
CS205.1	Students will able to design a software system , components or process to meet needs within realistic constraints
CS205.2	Students will able to assess professional and ethical responsibility and functions on multi-disciplinary teams
CS205.3	Students will able to use the technology, skills and modern engineering tools for engineering practice
CS205.4	Students will able to analyze, design , implement ,verify, validate, apply and maintain software systems or parts of software systems

CO	Programme Outcome												Specific Outcome	
	1	2	3	4	5	6	7	8	9	10	11	12	S1	S2
1	2			3		2		2				2		3
2								3	3	3				3
3					3									3
4		3	3		3							2		3
AVG	2	3	3	3	3	2		2.5	3	3				3

CO No	Justification
1	CO1 is mapped to PO11(engineering knowledge) PO4 (conduct investigation of complex problems) PO6 (engineering and society) PO8(ethics) and PO12 (life long learning) are very much relevant to understanding ,investigation ,ethics and lifelong learning so relevance is moderate
2	CO2 is mapped to PO8 (ethics) PO9 individual and team work PO10(communication) are very much relevant to understanding ,investigation ,ethics and lifelong learning so relevance is High
3	CO3 is mapped to PO5 (modern tool usage) and so relevance is High
4	CO4 is mapped to PO2 (problem Analysis) PO3 (Design / development of solutions) PO5 (Modern Tool usage) so relevance is High



Academic Year 2018-19

COURSE OUTCOMES & MAPPING

STAFF NAME:- Dr. Veer Gangadhar Swamy / Vinutha Prashanth / Sridevi MaliPatil	SEM:- VI	SEC:- A/B
COURSE NAME:- Python Application Programming	COURSE CODE:- 15CS664	

CO No	Description
C314.1	Examine Python syntax and semantics and be fluent in the use of Python flow control and functions
C314.2	Demonstrate proficiency of handling Strings and Files in Python
C314.3	Create, run and manipulate Python programs using core data structures like Lists, Dictionaries, Tuple and Regular expressions
C314.4	Interpret the concept of Object-Oriented Programming as used in Python and implement exemplary applications related to Network programming, Web Services and Databases in Python.

CO	Programme Outcome												Specific Outcome	
	1	2	3	4	5	6	7	8	9	10	11	12	S1	S2
1	3	2			3									
2	3	2			3									
3	3	2			3									
4	3	2	2		3									2
AVG	3	2	2		3									

Justification

- **PO1:** Students will be able to understand the fundamental concepts of Python Programming language like Python data types, flow control statements, functions, strings, list, tuple, dictionary, regular expressions, files, classes and objects etc.
- **PO2:** Students will be able to identify, solve the given problem using various concepts of Python programming knowledge.
- **PO3:** Students will be able to design the software solutions to various problems using object-oriented concepts, Web services, Networking and Database Programming.
- **PO5:** Students will be able to understand the working of the modern tool (python, Liclipse/Eclipse/PyCharm/Anaconda etc).

VI sem

COURSE OUTCOMES & MAPPING

CO No	Description
C313.1	Able to learn basic concepts of data warehousing and modelling, data cubes, OLAP operations.
C313.2	Able to understand data mining tasks, challenges, Data mining types and data quality.
C313.3	Able to understand and apply association algorithms to generate association rules for the given data.
C313.4	Able to understand different techniques of clustering and classification to apply the same techniques for problem solving.

CO	Program Outcome												Specific Outcome	
	1	2	3	4	5	6	7	8	9	10	11	12	S1	S2
1	3	2							1	1		2		1
2	3								1	1		2		1
3	3	3	2	2	1				1	1		2		1
4	3	3	2	2	1				1	1		2		1
AVG	3	2.6	2	2	1				1	1		2		1

CO No	Justification
C313.1	Students have to apply basic fundamental knowledge of DBMS(PO1), and analyse where data warehousing, OLAP operations(PO2) are used. Students must communicate and work in a team to submit assignment which consists of development of DMW algorithm (PO3,4) in python and recordings of concepts of DMW(PO9,10). DMW subject is needed and has to be updated throughout the life of a student (PO12).
C313.2	
C313.3	
C313.4	

Academic Year 2018-19

SS & OS LAB (15CSL67)-6 SEM - COURSE OUTCOMES & MAPPING

CO No	Description
C307.1	Design and implement programs using LEX & YACC tools.
C307.2	Evaluate different types of CPU scheduling algorithms used in Operating system.
C307.3	Implement Page Replacement Memory Management algorithms.
C307.4	Implement Bankers algorithm - a resource allocation & deadlock avoidance algorithm.

CO	Programme Outcome												Specific Outcome	
	1	2	3	4	5	6	7	8	9	10	11	12	S1	S2
1	1	3			2	2			2			2		2
2	1	3			2	2			2			2		2
3	1	3			2	2			2			2		
4	1	3			2	2			2			2		
AVG	1	3			2	2			2			2		2

CO No	Justification
1	Students are able to learn, Analyse , design and implement the programs using LEX & YACC tools so CO1 is mapped to PO1 ,PO2,PO5 , PO6 ,PO9 and PO12.
2	Students are able to Evaluate different types of CPU scheduling algorithms used in Operating system so CO1 is mapped to PO1 ,PO2,PO5 , PO6 ,PO9 and PO12.
3	Students are able to Implement page replacement memory management algorithms so CO1 is mapped to PO1 ,PO2,PO5 , PO6 , ,PO9 and PO12
4	Students are able to Implement deadlock handling algorithms CO1 is mapped to PO1 ,PO2,PO5 , PO6 , ,PO9 and PO12

Academic Year 2018-19

COURSE OUTCOMES & MAPPING

Staff Name: Dr. Anuradha S G/J NageshBabu/Kavitha J/Chidananda

Subject: CG lab/15CSL68

Sem: VI

CO No	Description
	The students should be able to:
C316.1	Illustrate the concepts of line drawing, polygon filling and clipping algorithms using OpenGL.
C316.2	Experiment with 2D and 3D geometric transformations using OpenGL.
C316.3	Design and develop 3D objects using principles of lighting, shading and curves using OpenGL.
C316.4	Create and build computer graphics applications for real world problems using OpenGL.

CO	Programme Outcome												Specific Outcome	
	1	2	3	4	5	6	7	8	9	10	11	12	S1	S2
C316.1	2	2	3		2									
C316.2	2	2	3		2									
C316.3	2	2	3		2									
C316.4	2	3	3		2				2	2	2	2		2
Average	2	2.25	3		2				2	2	2	2		2

PO No	Justification
PO1	C316.1-C316.4 are moderately mapped with the weightage 2 & are addressed through all lab exercises specific to computer graphics programming in OpenGL .
PO2	C316.1-C316.4 are moderately mapped with the weightage 2.25 & are formulated and analysed for solving computer graphics problems.
PO3	C316.1-C316.4 are moderately mapped with the weightage 3 and are involved in design and development of computer graphics solutions using OpenGL.
PO5	C316.1-C316.4 are moderately mapped with the weightage 2 with appropriate usage of open source OpenGL.



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PO9	C316.4 are moderately mapped with the weightage 2 and are addressed by individual and group work in mini project
PO10	C316.4 are moderately mapped with the weightage 2 and are addressed by individual in report writing, presentation and viva of mini project
PO11	C316.4 are moderately mapped with the weightage 2 and are demonstrated through understanding of CG concepts & implementing in openGL with skill set to work as a member in team and also represent as a leader.
PO12	C316.4 are moderately mapped with the weightage 2 and addressing the real world problem meeting the changing needs of society
PSO2	C316.4 are moderately mapped with the weightage 2 by understanding the SDLC and demonstrating through mini project.

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15CS81

Academic Year 2018-19

INTERNET OF THINGS

SEM - VIII A & B.

COURSE OUTCOMES & MAPPING

CO No	Description													
C212.1	Interpret the impact and challenges posed by IoT networks leading to new architectural models.													
C2124.2	Compare and contrast the deployment of smart objects and the technologies to connect them to network.													
C2124.3	Appraise the role of IoT protocols for efficient network communication.													
C2124.4	Elaborate the need for Data Analytics and Security in IoT. And also illustrate different sensor technologies for sensing real world entities and identify the applications of IoT in Industry.													
CO	Programme Outcome												Specific Outcome	
	1	2	3	4	5	6	7	8	9	10	11	12	S1	S2
C204.1	3													
C204.2		3												
C204.3		3												
C204.4		3												
AVG	3	3												
CO No	Justification													
C204.1	Assess the genesis and impact of IoT applications, architectures in real world. Illustrate diverse methods of deploying smart objects and connect them to network.													
C204.2	Compare different Application protocols for IoT.													
C204.3	Compare different Application protocols for IoT. Infer the role of Data Analytics and Security in IoT.													
C204.4	Identify sensor technologies for sensing real world entities and understand the role of IoT in various domains of Industry.													

(Signature)

(V. Shikumar)

(Signature)

(Bengi Veerasha Gowda)



COURSE OUTCOMES & MAPPING

CO No	Description
	ISCS82
C01	Able to Illustrate the concept of HDFS and MapReduce framework.
C02	Able to Examine Hadoop related tools for Big Data Analytics and operate basic Hadoop Administration
C03	Able to Assess the role of Business Intelligence, Data warehousing and Visualization in decision making
C04	Able to Infer the importance of core data mining and text mining techniques for data analytics

CO	Programme Outcome												Specific Outcome	
	1	2	3	4	5	6	7	8	9	10	11	12	S1	S2
1	2	2		2								2	2	
2	3	3		3								2		
3	2	2		2								2		
4	2	2		2								2	2	
AVG	2.25	2.25		2.25								2	2	

CO No	Justification
1	Students are able to apply the knowledge, identify, analyse , recognise the need for lifelong learning and Illustrate the concept & working of HDFS and MapReduce framework so C01 is mapped to PO1 ,PO2,PO4 and PO12.
2	Students are able to apply the knowledge, formulate, analyse , recognise the need for lifelong learning , understand, interpret and solve Hadoop related tools for Big Data Analytics and operate basic Hadoop Administration so C02 is mapped to PO1 ,PO2,PO4 and PO12
3	Students are able to apply the knowledge, identify, analyse, recognise the need for lifelong learning , compare the role of Business Intelligence, Data warehousing and Visualization in decision making so C03 is mapped to PO1 ,PO2,PO4 and PO12
4	Students are able to apply the knowledge, identify, analyse , recognise the need for lifelong learning , to demonstrate the importance of core data mining and text mining techniques for data analytics so C04 is mapped to PO1 ,PO2,PO4 and PO12

Academic Year 2018-19

Staff Name: PAMPAPATH B M	Sem: VIII	Sec: B
Course Name: Network Management	Course Code:15CS833	

COURSE OUTCOMES & MAPPING

CO No	Description
C4011.1	Analyze the issues and challenges pertaining to management of emerging network technologies
C411.2	Apply network management standards to manage practical networks
C411.3	Infer SNMP for managing the network and RMON for monitoring the behavior of the network
C411.4	Understand and analyze Broadband Access Networks, Broadband Access Technology
C411.5	Identify the various components of network and formulate the scheme for managing them

CO	Programme Outcome												Specific Outcome	
	1	2	3	4	5	6	7	8	9	10	11	12	S1	S2
C4011.1	2	3								1		2	2	
C411.2	2	2								1		2	2	
C411.3	2	2								1		2	2	
C411.4	2	3								1		2	2	
C411.5	2	2								1		2	2	
AVG	2	2.4								1		2	2	

CO No	Justification
1	The content relevance of C411.1 with the PO1, PO2 and PO10 is Medium, Medium and Medium so the mapping strength is given as 2, 2 and 2.



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2	The content relevance of C411.2 with the PO1, PO2 and PO10 is high, high and Medium so the mapping strength is given as 2, 2, and 2.
3	The content relevance of C411.3 with the PO1, PO2, PO10 and PO11 is low, Medium, Medium and Medium so the mapping strength is given as 3, 3, 2, 2 and 2.
4	The content relevance of C411.4 with the PO2, PO3, PO4, PO5 and PO12 is Medium, Medium, high, high and Low so the mapping strength is given as 2,2,3,3 and 1.
5	The content relevance of C411.5 with the PO2, PO10, PO11 is Medium, Medium, high, high and Low so the mapping strength is given as 2,2,3,3 and 1.

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COURSE OUTCOMES & MAPPING

CO No	Description	15CS833 NM
C4011.1	Analyze the issues and challenges pertaining to management of emerging network technologies	
C411.2	Apply network management standards to manage practical networks	
C411.3	Infer SNMP for managing the network and RMON for monitoring the behavior of the network	
C411.4	Understand and analyze Broadband Access Networks, Broadband Access Technology	
C411.5	Identify the various components of network and formulate the scheme for managing them	

CO	Programme Outcome												Specific Outcome	
	1	2	3	4	5	6	7	8	9	10	11	12	S1	S2
C4011.1	2	2								1		2	2	
C411.2	2	2								1		2	2	
C411.3	2	2								1		2	2	
C411.4	2	2								1		2	2	
C411.5	2	2								1		2	2	
AVG	2	2								1		2	2	

CO No	Justification
1	The content relevance of C411.1 with the PO1, PO2 and PSO1 is Medium so the mapping strength is given as 2 and PO10 as 1.
2	The content relevance of C411.2 with the PO1, PO2 and PSO1 is Medium so the mapping strength is given as 2 and PO10 as 1.



Academic Year 2018-19

3	The content relevance of C411.3 with the PO1, PO2 and PSO1 is Medium so the mapping strength is given as 2 and PO10 as 1.
4	The content relevance of C411.4 with the PO1, PO2 and PSO1 is Medium so the mapping strength is given as 2 and PO10 as 1.
5	The content relevance of C411.5 with the PO1, PO2 and PSO1 is Medium so the mapping strength is given as 2 and PO10 as 1.



UNIX

15CS744

COURSE OUTCOMES & MAPPING

CO No	Description
C404.1	Able to Understand the role of systems programming and to study the basic principles of Unix / POSIX system calls.
C404.2	Able to grasp the basic principles of Unix file system.
C404.3	Able to know the concepts of UNIX processes and signals.
C404.4	Able to understand the implementation knowledge of IPC.

CO	Programme Outcome												Specific Outcome	
	1	2	3	4	5	6	7	8	9	10	11	12	S1	S2
C404.1	2	2										2	2	2
C404.2	2	2										2	2	2
C404.3	2	2	2									1	2	2
C404.4	2	2	2									1	2	2
AVG	2	2.25	2.25	2	3								2	2

CO No	Justification
1	Students would be able to understand the basic principles of UNIX. The content relevance of C404.1 with the PO1, PO2, PO12, PSO1, and PSO2 are medium so the mapping strength is given as 2.
2	Students would be able to know about file system. The content relevance of C404.2 with the PO1, PO2, PO12, PSO1 and PSO2 are medium so the mapping strength is given as 2.
3	The content relevance of C404.3 with the PO1, PO2, PO3, PSO1 and PSO2 are medium, so the mapping strength is given as 2 and PO12 as 1.
4	The content relevance of C404.4 with the PO1, PO2, PO3 and PSO1 and PSO2 are medium so its value is assigned as 2 and PO12 as 1.

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CO PO REPORT

2018 – 2019

ODD SEM



17CS32

COURSE OUTCOMES & MAPPING

CO No	Description
	At the end of the course , students will be able to
C202.1	Explain the operation of JFETs and MOSFETs, Operational Amplifier circuits and their application.
C202.2	Explain and demonstrate Combinational Logic, Simplification Techniques using Karnaugh Maps, Quine McClusky technique.
C202.3	Demonstrate Operation of Decoders, Encoders, Multiplexers, Adders and Subtractors, working of Latches, Flip-Flops.
C202.4	Design of Counters, Registers and A/D & D/A converters

CO	Programme Outcome												Specific Outcome	
	1	2	3	4	5	6	7	8	9	10	11	12	S1	S2
1	3													
2	3	3	3		1									
3	3	3	3		1									
4	3	3	3		1									
AVG	3	3	3		1									

Justification

- **PO1:** Students will be able to understand the fundamental concepts of Analog and Digital Electronics.
- **PO2:** Students will be able to identify, formulate the problem using various concepts of POS, SOP and Quine McClusky.
- **PO3:** Students will be able to design solutions to various problems using Design concepts of ADE
- **PO5:** Students will be able to understand the working of the modern tool to write VHDL codes and various electronic simulators.



DS COURSE OUTCOMES & MAPPING

CO No	Description
C203.1	Able to classify data structures and describe structures, arrays and strings.
C203.2	Able to Analyze and illustrate the Linear data structures.
C203.3	Able to Analyze and illustrate the Non Linear data structures.
C203.4	Able to design and develop programs on Linear and Nonlinear Data structures.

CO	Programme Outcome												Specific Outcome	
	1	2	3	4	5	6	7	8	9	10	11	12	S1	S2
1	3												1	1
2	3	3											2	2
3	3	3		2									2	2
4	3		3	2									3	3
AVG	3	3	3	2									2	2

CO No	Justification
1	The content relevance of C203.1 with the PO1, PSO1 and PSO2 is high, low and low so the mapping strength is given as 3, 1 and 1.
2	The content relevance of C203.2 with the PO1, PO2, PSO1 and PSO2 is high, high Medium and Medium so the mapping strength is given as 3, 3, 2, 2 and 2.
3	The content relevance of C203.3 with the PO1, PO2, PO4, PSO1 and PSO2 is high, high Medium and Medium so the mapping strength is given as 3, 3, 2, 2 and 2.
4	The content relevance of C203.4 with the PO1, PO3, PO4, PSO1 and PSO2 is high, high Medium and Medium so the mapping strength is given as 3, 3, 2, 3 and 3.



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Academic Year 2018-19

17CS34✓

COURSE OUTCOMES & MAPPING – CO (17CQ34)

CO No	Description
C204.1	Able to explain the basic organization of a computer system.
C204.2	Able to demonstrate functioning of different sub systems such as processor, input/output and memory.
C204.3	Able to illustrate hardwired control and microprogrammed control pipelining, embedded and other computing systems .
C204.4	Able to build simple arithmetic and logical units.

CO	Programme Outcome												Specific Outcome	
	1	2	3	4	5	6	7	8	9	10	11	12	S1	S2
1	2													2
2	2	3		3										2
3	2			3	2									2
4	2	2	2							2				2
AVG	2	2.5	0.5	1.5	0.5					0.5				2
CO No	Justification													
C204.1	C01- PO1 covers Engineering Knowledge about computer organization and computer networks													
C204.2	C02-PO1,2,4, use research-based knowledge and research methods including design of experiments, analysis and interpretation of information.													
C204.3	C03-PO1,4,5, Covers Problem solving, design and development of algorithms by different tools.													
C204.4	C04-PO1,2,3,10- ,students are able to work in team and develop communication skills													