



MALINENI LAKSHMAIAH WOMEN'S ENGINEERING COLLEGE

Pulladigunta (vil), Vatticherukuru (Md), Guntur-17, Andhra Pradesh

Affiliated to JNTUK

DEPARTMENT OF SCIENCE AND HUMANITIES

ACADEMIC YEAR 2022-2023

Name of the Course:	APPLIED PHYSICS	Course Code:	C202
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Course Outcomes:

After the completion of course, the student will be able to

CO No.	Course Outcome Statement	Taxonomy Level
C202.1	Analyze the differences between interference and diffraction with Applications	Analyze L4
C202.2	Apply the concepts to learn the types of lasers.	Apply L3
C202.3	Understand the significance of wave function	Understand L2
C202.4	Explain the application of dielectric and magnetic materials.	Understand L2
C202.5	Identify applications of semiconductors in electronic devices.	Understand L2

Mapping of course outcomes with program outcomes:

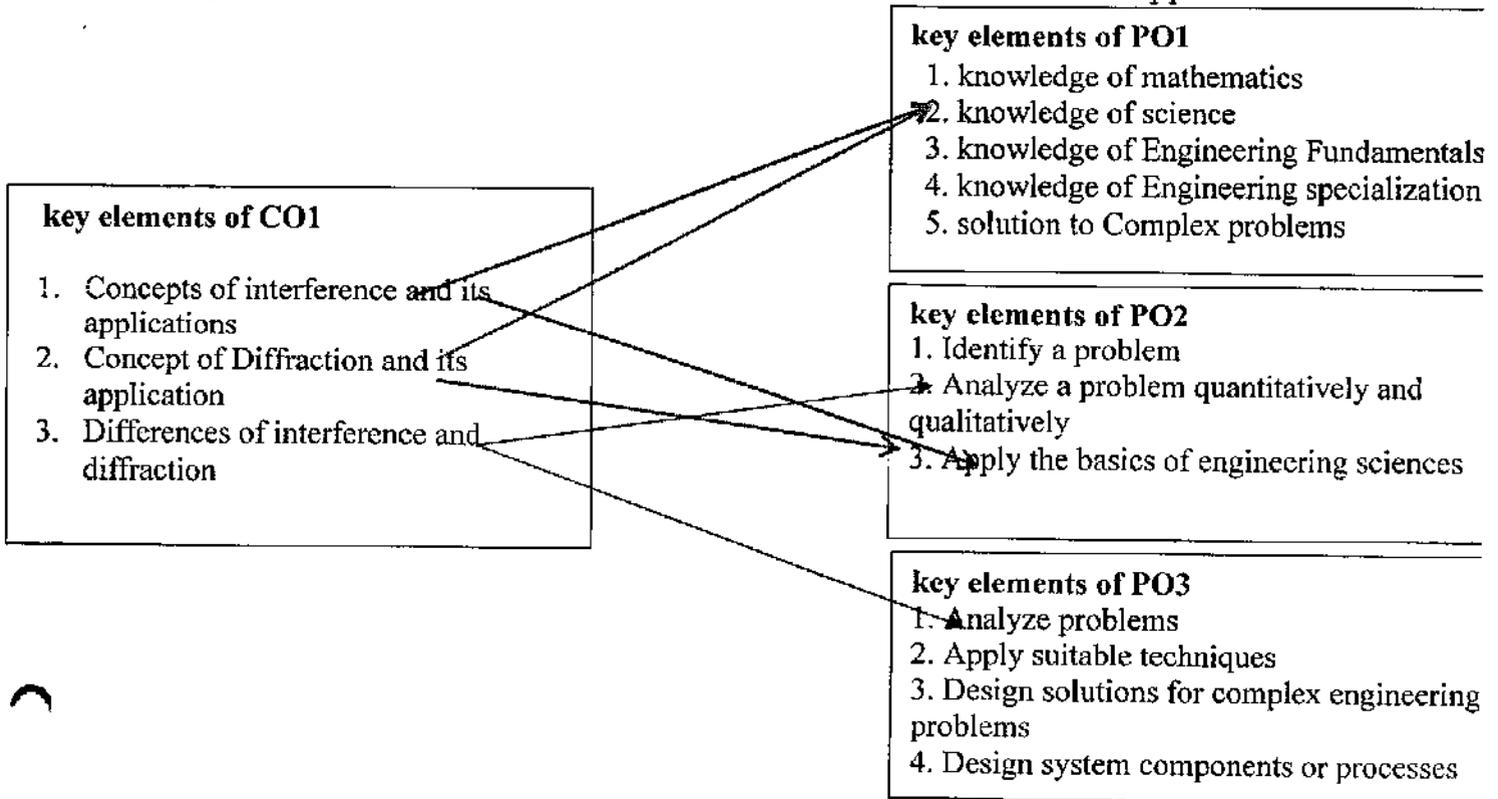
High -3 Medium -2 Low-1

Course Articulation Matrix: Mapping Course Outcomes (COs) with Program Outcomes (POs)

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C202.1	2	3	1											
C202.2	3	1	2											
C202.3	3	2	1											
C202.4	3	2	1											
C202.5	2	3	1											
C202.1-5														

Name and Signature of the Course Coordinator:

CO1: Analyze the differences between Interference and diffraction with applications.



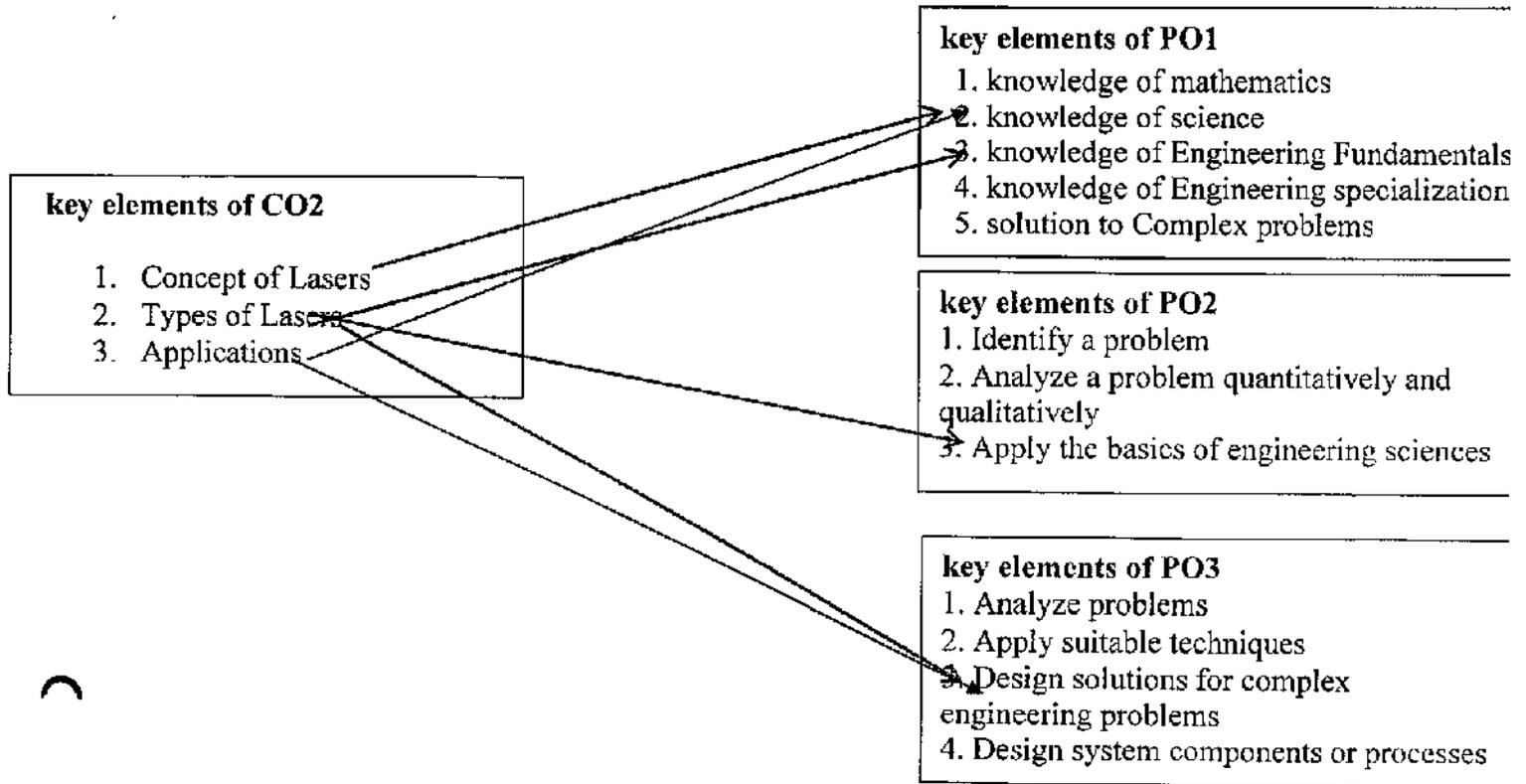
No. of Key elements in CO1: $n = 3$

No. of key elements of CO1 mapping with key elements of PO1= $m=2$, $(m/n)*100=(2/3)*100=66\%=2$

No. of key elements of CO1 is mapping with key elements of PO2= $m=3$, $(m/n)*100=(2/3)*100=100\%=3$

No. of key elements of CO1 is mapping with key elements of PO3= $m=1$, $(m/n)*100=(1/3)*100=33\%=1$

CO2: Apply the concepts to learn the types of lasers.



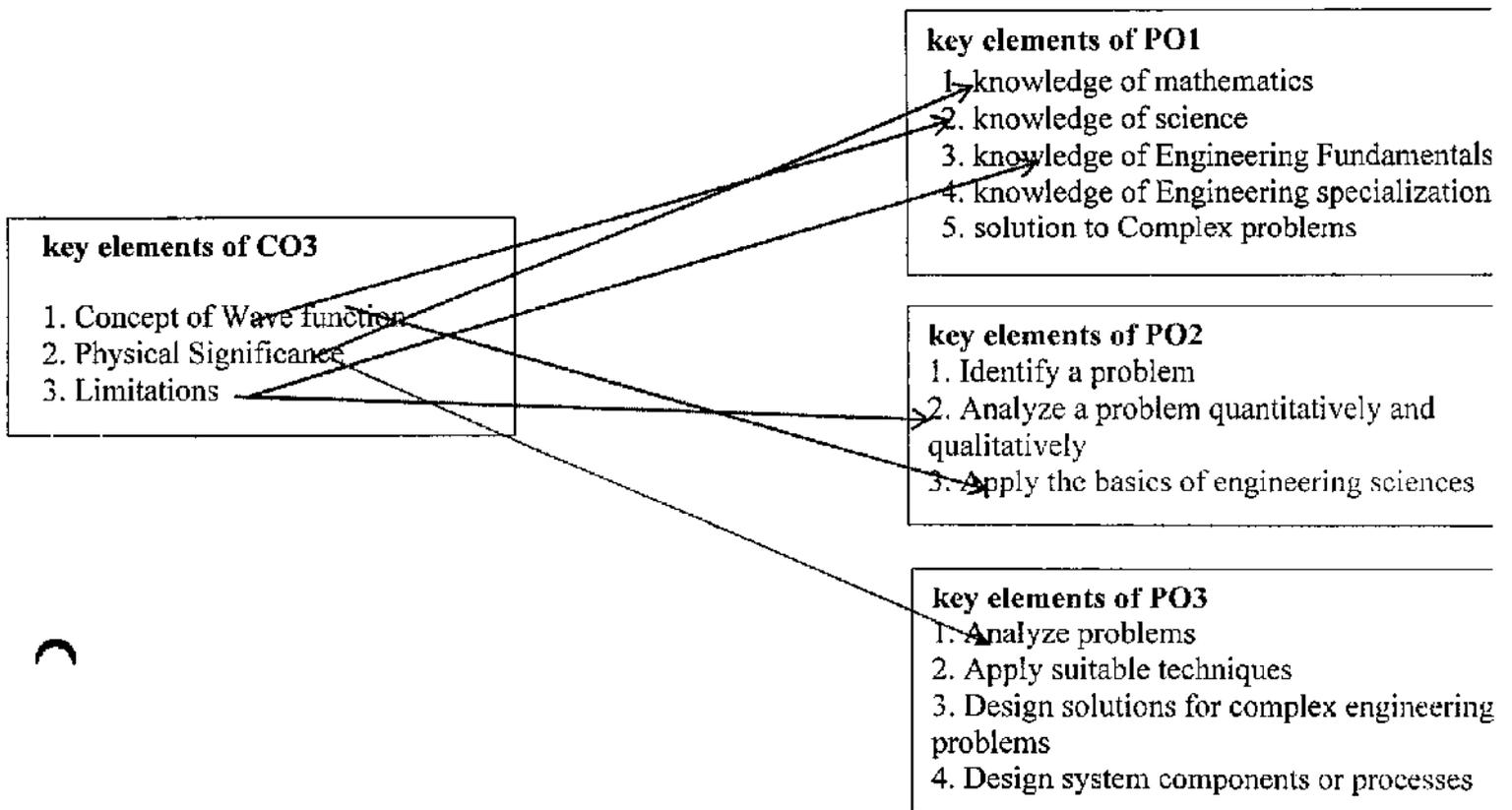
No. of Key elements in CO1: $n = 3$

No. of key elements of CO1 mapping with key elements of PO1 = $m=3, (m/n)*100=(3/3)*100=100\%==3$

No. of key elements of CO1 is mapping with key elements of PO2 = $m=1, (m/n)*100=(1/3)*100=33\%==1$

No. of key elements of CO1 is mapping with key elements of PO3 = $m=2, (m/n)*100=(2/3)*100=66\%==2$

CO3: Analyze the physical significance of wave function.



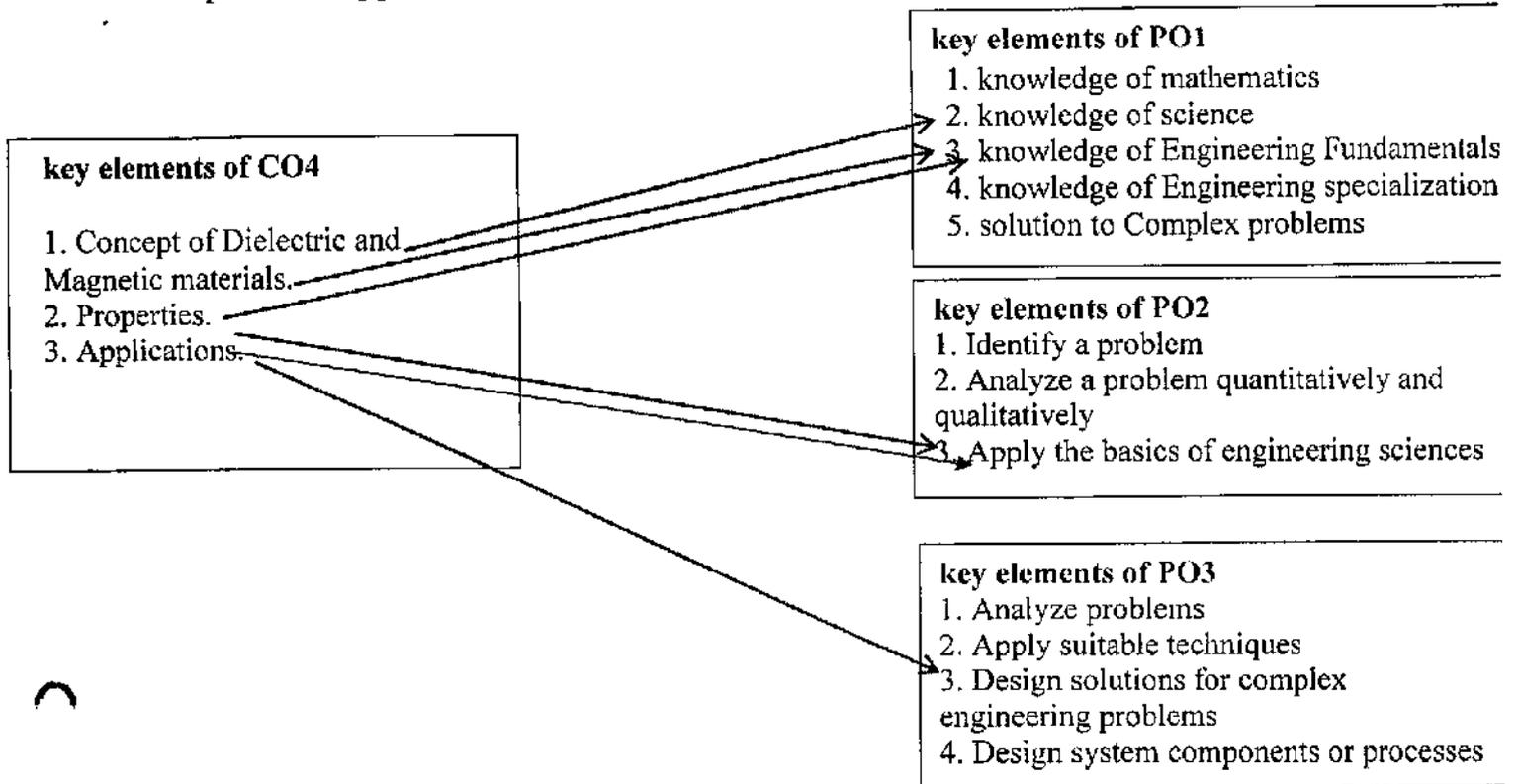
No. of Key elements in CO1: $n = 3$

No. of key elements of CO1 mapping with key elements of PO1= $m=3$, $(m/n)*100=(3/3)*100=100\%==3$

No. of key elements of CO1 is mapping with key elements of PO2= $m=2$, $(m/n)*100=(2/3)*100=66\%==2$

No. of key elements of CO1 is mapping with key elements of PO3= $m=1$, $(m/n)*100=(1/3)*100=33\%==1$

CO4: Explain the applications of Dielectrics and Magnetic materials.



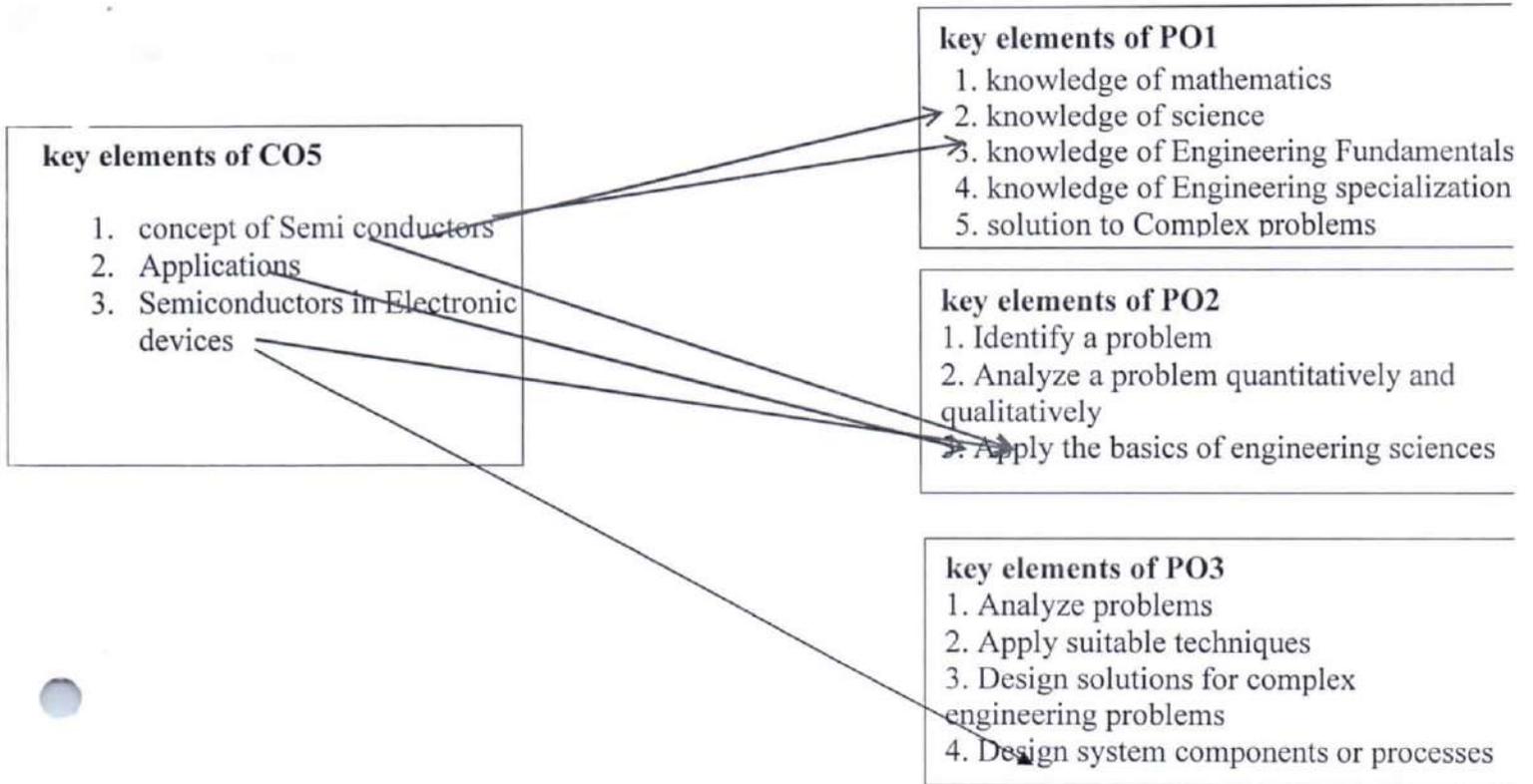
No. of Key elements in CO1: $n = 3$

No. of key elements of CO1 mapping with key elements of PO1= $m=3$, $(m/n)*100=(3/3)*100=100\%=3$

No. of key elements of CO1 is mapping with key elements of PO2= $m=2$, $(m/n)*100=(2/3)*100=66\%=2$

No. of key elements of CO1 is mapping with key elements of PO3= $m=1$, $(m/n)*100=(1/3)*100=33\%=1$

CO5: Identify applications of semiconductors in electronic devices..



No .of Key elements in CO1: $n = 3$

No. of key elements of CO1 mapping with key elements of PO1= $m=2, (m/n)*100=(2/3)*100=67\%==2$

No. of key elements of CO1 is mapping with key elements of PO2= $m=3, (m/n)*100=(3/3)*100=100\%==3$

No. of key elements of CO1 is mapping with key elements of PO3= $m=1, (m/n)*100=(1/3)*100=34\%==1$

M. Prasad
Faculty Signature

A. Stealy
H.O.D
Dept. of Science & Humanities
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DEPARTMENT OF SCIENCE & HUMANITIES

ACADEMIC YEAR 2022-2023

SEMESTER-II

Name of the Course:	APPLIED CHEMISTRY	Course Code:	C125
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Course Outcomes:

After the completion of course, the student will be able to

CO No.	Course Outcome Statement	Taxonomy Level
C215.1	Describe the structure, properties and applications of polymers.	Understand
C215.2	To know the Quality and Composition of fuels.	Remember
C215.3	Explain the mechanism of corrosion and apply the few corrosion control methods.	Understand
C215.4	Illustrate the importance of advanced materials in engineering.	Understand
C215.5	stimulate the non conventional energy source to produce electric power.	Understand

Mapping of course outcomes with program outcomes:

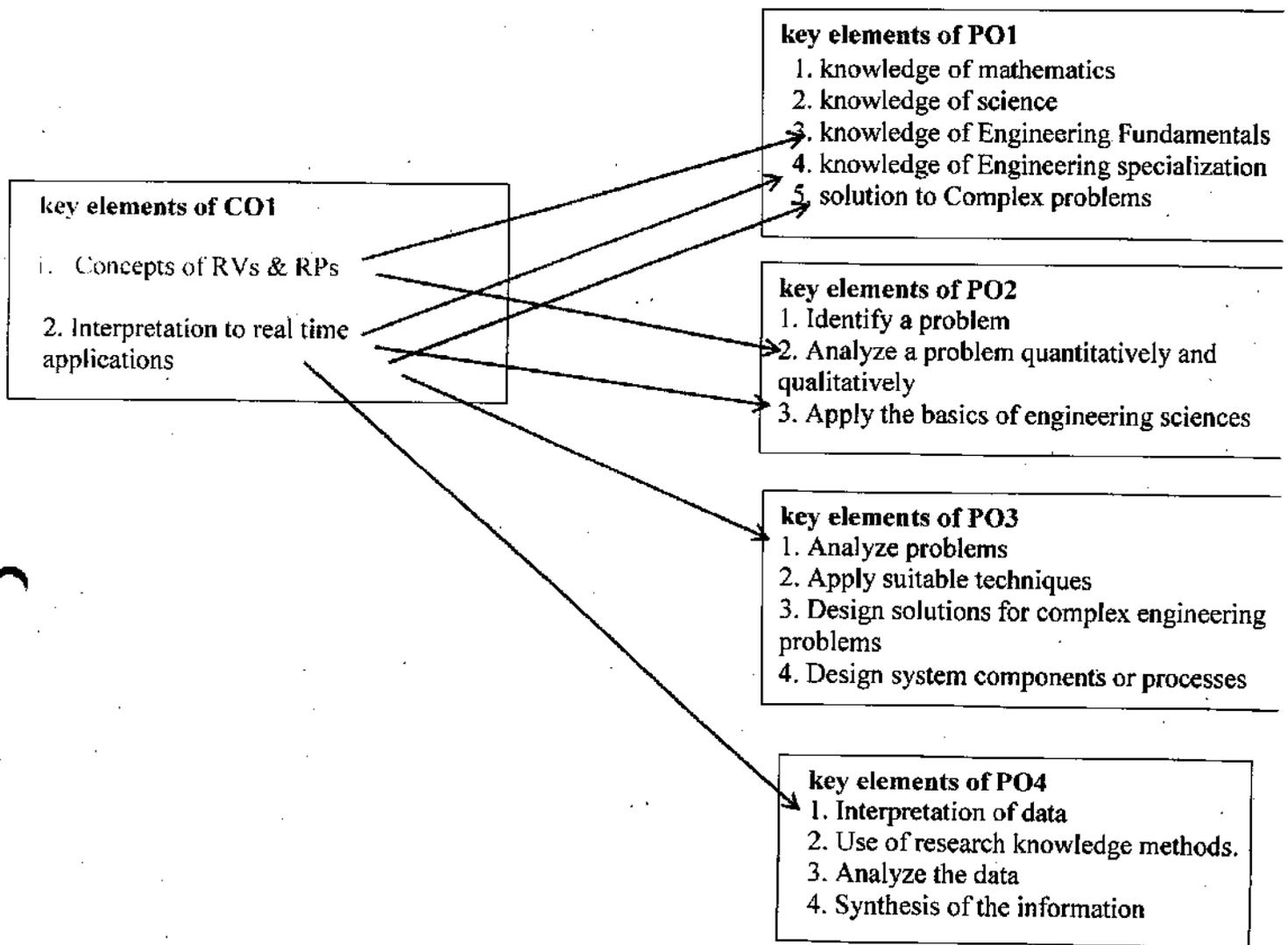
High -3 Medium -2 Low-1

Course Articulation Matrix: Mapping Course Outcomes (COs) with Program Outcomes (POs)

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C215.1	3	2				-	-	-	-	-	-	-	-	-
C215.2	2	3				-	-	-	-	-	-	-	-	-
C215.3	3	2				-	-	-	-	-	-	-	-	-
C215.4	2	2				-	-	-	-	-	-	-	-	-
C215.5	3	3				-	-	-	-	-	-	-	-	-
15.1-5	2.67	2.34	1.83	1.83		-	-	-	-	-	-	-	-	-

Name and Signature of the Course Coordinator:		
Name and Signature of the Course Instructor(s):		

CO1: Interpret the concepts of random variables and stochastic processes in real time applications



No. of Key elements in CO1: $n = 2$

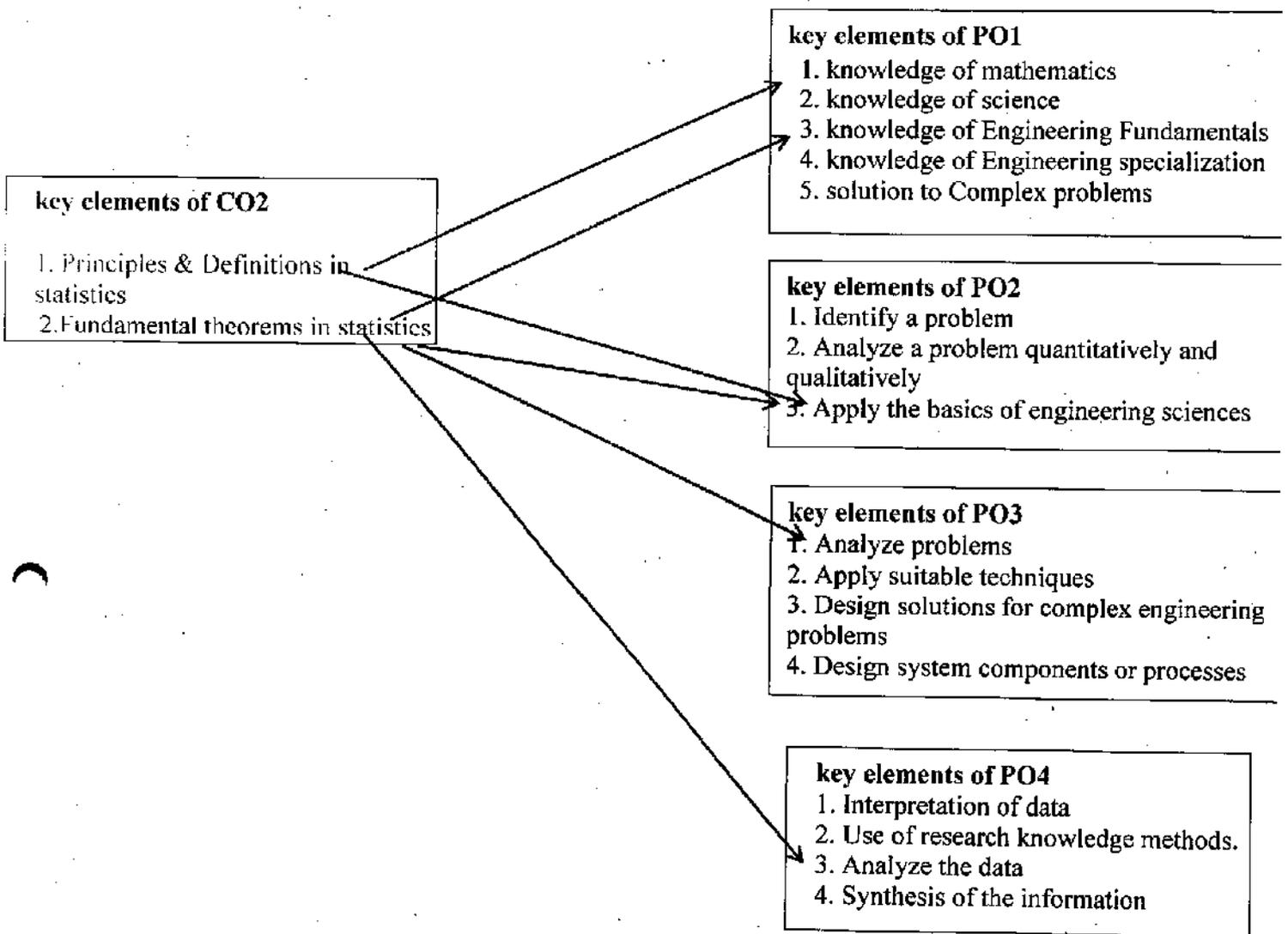
No. of key elements of CO1 mapping with key elements of PO1 = $m = 2(m/n) * 100 = (2/2) * 100 = 100\% = 3$

No. of key elements of CO1 is mapping with key elements of PO2 = $m = 2(m/n) * 100 = (2/2) * 100 = 100\% = 3$

No. of key elements of CO1 is mapping with key elements of PO3 = $m = 1(m/n) * 100 = (1/2) * 100 = 50\% = 2$

No. of key elements of CO1 is mapping with key elements of PO4 = $m = 1(m/n) * 100 = (1/2) * 100 = 50\% = 2$

CO2: Use the principle definitions, fundamental theorems, and important relationship in statistics



No. of Key elements in CO1: $n = 2$

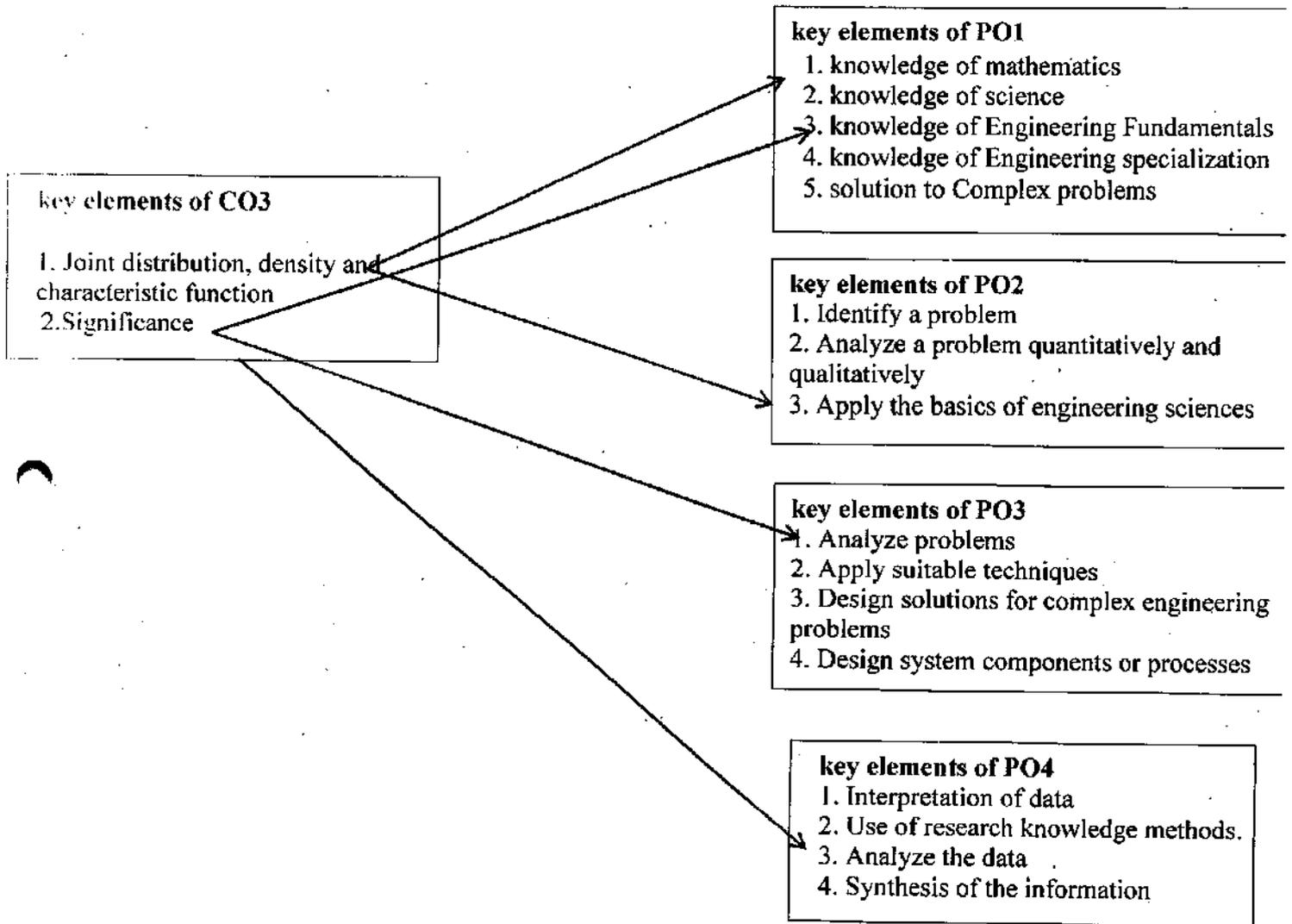
No. of key elements of CO1 mapping with key elements of PO1 = $m = 2(m/n) * 100 = (2/2) * 100 = 100\% = 2$

No. of key elements of CO1 is mapping with key elements of PO2 = $m = 2(m/n) * 100 = (2/2) * 100 = 100\% = 2$

No. of key elements of CO1 is mapping with key elements of PO3 = $m = 1(m/n) * 100 = (1/2) * 100 = 50\% = 1$

No. of key elements of CO1 is mapping with key elements of PO4 = $m = 1(m/n) * 100 = (1/2) * 100 = 50\% = 1$

CO3: Describe about the significance of Joint distribution function, Joint density function and characteristic functions.



No. of Key elements in CO1: $n = 2$

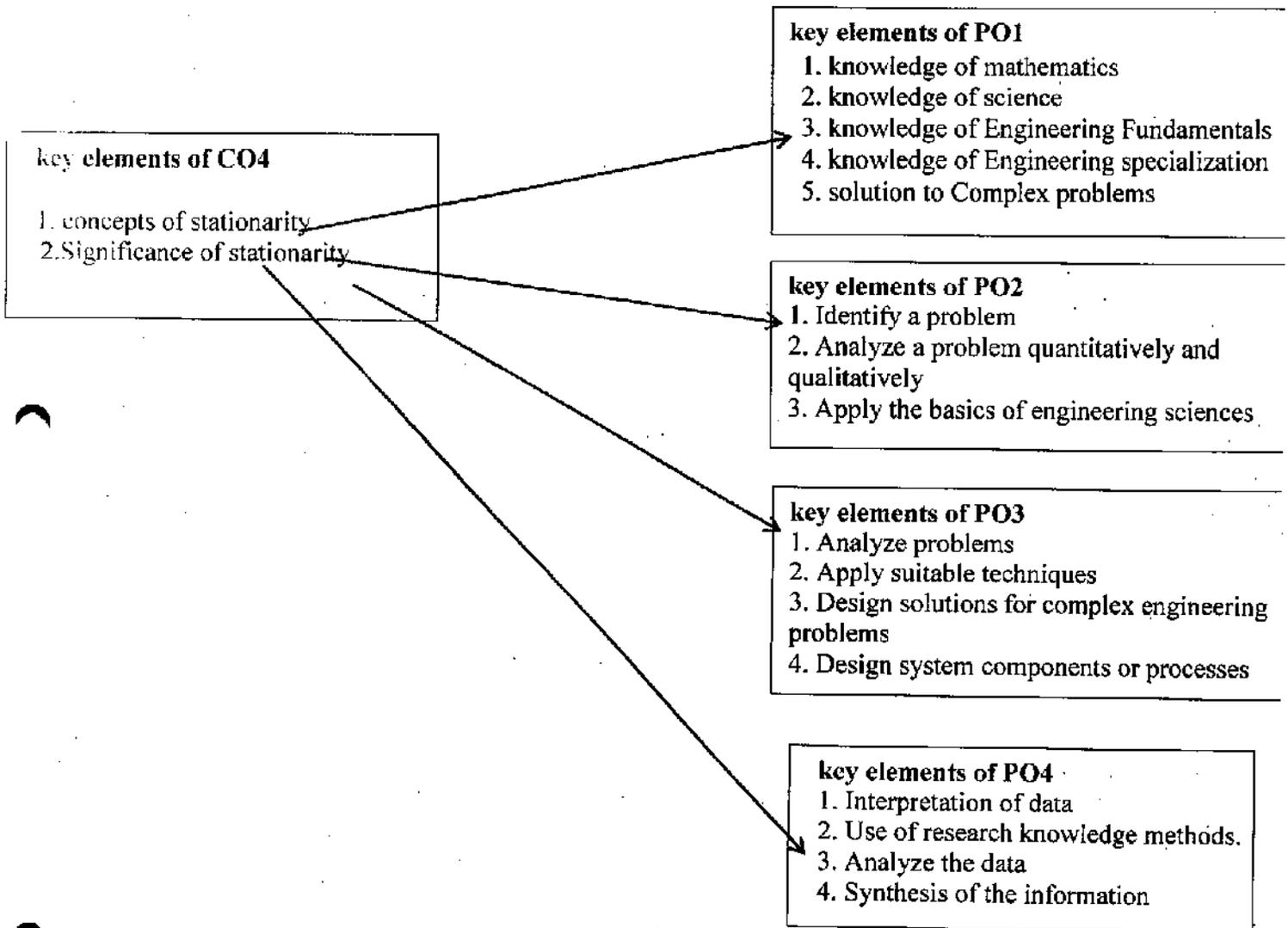
No. of key elements of CO1 mapping with key elements of PO1 = $m = 2(m/n) * 100 = (2/2) * 100 = 100\% = 3$

No. of key elements of CO1 is mapping with key elements of PO2 = $m = 2(m/n) * 100 = (2/2) * 100 = 100\% = 3$

No. of key elements of CO1 is mapping with key elements of PO3 = $m = 1(m/n) * 100 = (1/2) * 100 = 50\% = 2$

No. of key elements of CO1 is mapping with key elements of PO4 = $m = 1(m/n) * 100 = (1/2) * 100 = 50\% = 2$

CO4: Explain the concepts of stationary and wide-sense stationary, and their significance and evaluate its condition.



No. of Key elements in CO1: $n = 2$

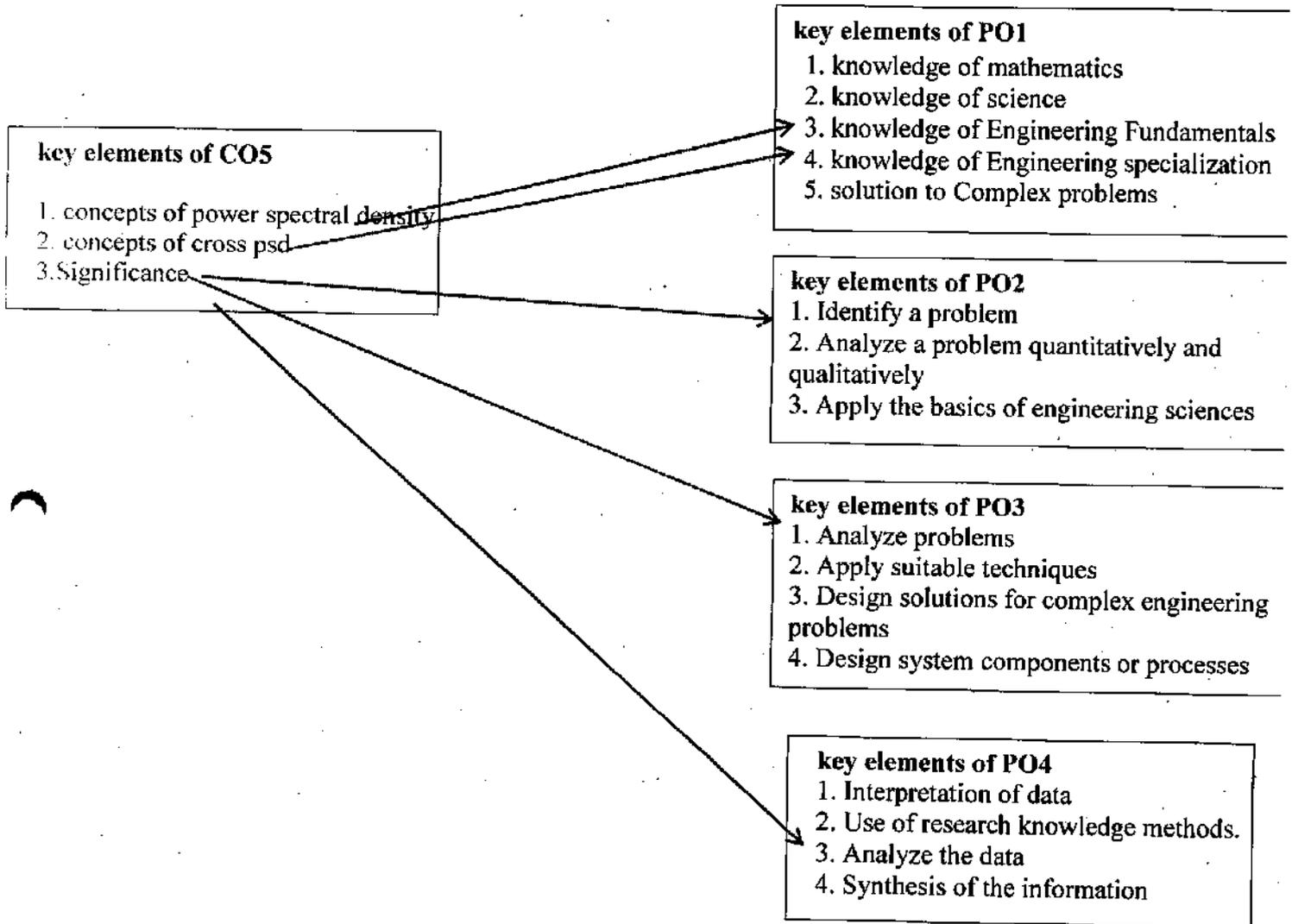
No. of key elements of CO1 mapping with key elements of PO1 = $m = \frac{1}{2} \times 100 = 50\% = 2$

No. of key elements of CO1 is mapping with key elements of PO2 = $m = \frac{1}{2} \times 100 = 50\% = 2$

No. of key elements of CO1 is mapping with key elements of PO3 = $m = \frac{1}{2} \times 100 = 50\% = 2$

No. of key elements of CO1 is mapping with key elements of PO4 = $m = \frac{1}{2} \times 100 = 50\% = 2$

CO5: Explain the concepts of power spectral density and cross power density of random processes.



No. of Key elements in CO1: $n = 3$

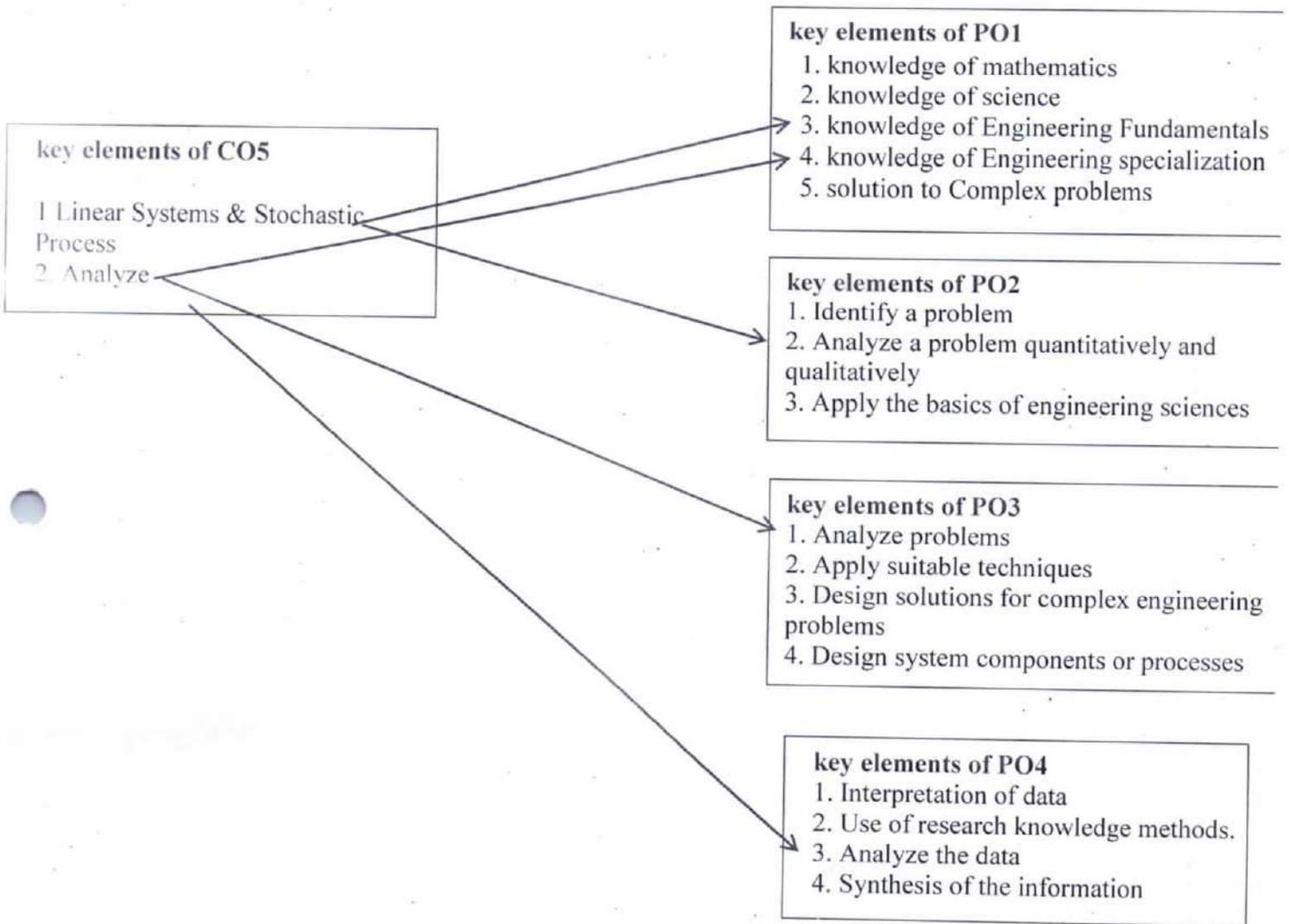
No. of key elements of CO1 mapping with key elements of PO1 = $m = 2(m/n) * 100 = (2/3) * 100 = 67\% = 2$

No. of key elements of CO1 is mapping with key elements of PO2 = $m = 1(m/n) * 100 = (1/3) * 100 = 34\% = 1$

No. of key elements of CO1 is mapping with key elements of PO3 = $m = 1(m/n) * 100 = (1/3) * 100 = 34\% = 1$

No. of key elements of CO1 is mapping with key elements of PO4 = $m = 1(m/n) * 100 = (1/3) * 100 = 34\% = 1$

CO6: Analyze linear systems using the theory of stochastic processes.



No. of Key elements in CO1: $n = 2$

No. of key elements of CO1 mapping with key elements of PO1 = $m = 2(m/n) * 100 = (2/2) * 100 = 100\% = 3$

No. of key elements of CO1 is mapping with key elements of PO2 = $m = 1(m/n) * 100 = (1/2) * 100 = 50\% = 2$

No. of key elements of CO1 is mapping with key elements of PO3 = $m = 1(m/n) * 100 = (1/2) * 100 = 50\% = 2$

No. of key elements of CO1 is mapping with key elements of PO4 = $m = 1(m/n) * 100 = (1/2) * 100 = 50\% = 2$

P. Dhanraj
SIGNATURE OF THE FACULTY



MALINENI LAKSHMAIAH WOMEN'S ENGINEERING COLLEGE

(Approved by AICTE, Affiliated to JNTUK)

(An ISO9001:2008 Certified Institution)

Pulladigunta (Village), Vatticherukuru (Mandal),

Guntur-522017, Andhra Pradesh, India

Department of Computer Science and Engineering

COURSE OUTCOMES WITH PO & PSO MAPPING

COURSE: MATHEMATICS-II	DEGREE: B.Tech(ECE)
COURSE CODE: C109	YEAR: I SEMESTER: II
REGULATION: R20	COURSE TYPE: REGULAR
ACADEMIC YEAR : 2022-23	CREDITS: 3

By the end of the course student will be able to:

CO. NO	COURSE OUT COME	TAXONOMY LEVEL
C109.1	Determine the rank of a matrix and solve the system of linear algebraic equations	Understand
C109.2	Determine the eigen values and eigen vectors of a matrix and discuss the nature of Quadratic forms	Understand
C109.3	Evaluate approximating the roots of algebraic and transcendental equations by iterative methods.	Apply
C109.4	Apply Newton's forward ,backward and Lagranges for equal and unequal intervals.	Apply
C109.5	Evaluate the real definite integrals and solve the first order ordinary differential equations by numerical methods.	Apply

CO: PO and PSO Mapping

Mapping of Course Outcomes with Program Outcomes:

Strong -3 Moderate -2 Slight -1

PO / CO	MFCS	2017-18	4	0	0	3	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	
C109.1		Determine the rank of a matrix and solve the system of linear algebraic equations	3				3	1													
C109.2		Determine the eigen values and eigen vectors of a matrix and discuss the nature of Quadratic for	3	1			3	1													
C109.3		Evaluate approximating the roots of algebraic and transcendental equations by iterative methods.	2	1			2	1													
C109.4		Apply Newton's forward ,backward and Lagranges for equal and unequal intervals.	1	1			1	1													
C109.5		Evaluate the real definite integrals and solve the first order ordinary differential equations by numerical methods.	1	1			1	1													
TOTAL							10	5													
No of Co's Mapping with Po/Pso							5	5													
Average							2	1													

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Dept. of Science & Humanities
Malineni Lakshmaiah Women's Engineering College
Pulladigunta, GUNTUR



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Pulladigunta (Village), Vatticherukuru (Mandal),
Guntur-522017, Andhra Pradesh, India

Department of Science and Humanities

COURSE OBJECTIVES & OUTCOMES

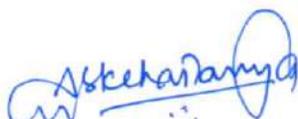
COURSE : MATHEMATICS-II	DEGREE: B.Tech(ECE)
COURSE CODE: C109	YEAR: I SEMESTER: II
REGULATION: R20	COURSE TYPE: REGULAR
ACADEMIC YEAR : 2022-23	CREDITS: 3

Course Objectives:

- To instruct the concept of Matrices in solving linear algebraic equations
- To elucidate the different numerical methods to solve nonlinear algebraic equations
- To disseminate the use of different numerical techniques for carrying out numerical integration.
- To equip the students with standard concepts and tools at an intermediate to advanced level mathematics to develop the confidence and ability among the students to handle various real world problems and their applications.

COURSE OUTCOME:

CO. NO	COURSE OUT COME	TAXONOMY LEVEL
C109.1	Determine the rank of a matrix and solve the system of linear algebraic equations	understand
C109.2	Determine the eigen values and eigen vectors of a matrix and discuss the nature of Quadratic forms	Understand
C109.3	Evaluate approximating the roots of algebraic and transcendental equations by iterative methods.	Apply
C109.4	Apply Newton's forward ,backward and Lagranges for equal and unequal intervals.	APPLY
C109.5	Evaluate the real definite integrals and solve the first order ordinary differential equations by numerical methods.	Apply


Faculty Incharge


HOD
Dept. of Science & Humanities
Malineni Lakshmaiah Women's Engineering College
Pulladigunta, GUNTUR-522017



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 Pulladigunta, Vatticherukuru Mandal, Guntur, Andhra Pradesh-522017.
 Approved by AICTE, New Delhi Affiliated to JNTUK.
DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING



ACADEMIC YEAR 2022-2023

Name of the Course:	DIGITAL COMMUNICATIONS	Course Code:	C304
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Course Outcomes (COs):

After the completion of the course, the student will be able to

Course	Outcomes	
C304.1	Analyze the wave form Coding techniques of digital communication systems in PCM, DPCM, DM, ADM and also mention the effect of Noise, drawbacks.	4
C304.2	Analyze ASK, FSK, PSK, DPSK, DEPSK, QPSK, M-ary PSK, ASK, FSK, similarity of BFSK and BPSK Modulation and demodulation techniques with coherent and non coherent matched and optimum filters.	4
C304.3	Apply knowledge of average information, entropy, information rate and mutual information to evaluate channel capacity.	3
C304.4	Analyze Shannon- Fano , Huffman source encoder with efficiency and also linear block codes	4
C304.5	Apply Time domain, transform domain, graphical approach to encode convolution codes and decode convolution codes using viterbi algorithm.	3

Course Articulation Matrix: Mapping Course Outcomes (COs) with Program Outcomes (POs)

COs/ POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C304.1	1	3	3	2	2	1	-	-	-	-	-	1		
C304.2	2	3	3	3	2	-	-	-	-	-	-	-		
C304.3	3	3	3	3	3	-	-	-	-	-	-	3		
C304.4	2	3	3	3	2	-	-	-	-	-	-	-		
C304.5	2	3	3	3	3	-	-	-	-	-	-	-		

1. Slight ($20 < C < 40$)

2. Moderate ($40 < C < 70$)

3. Substantial ($C > 70$)

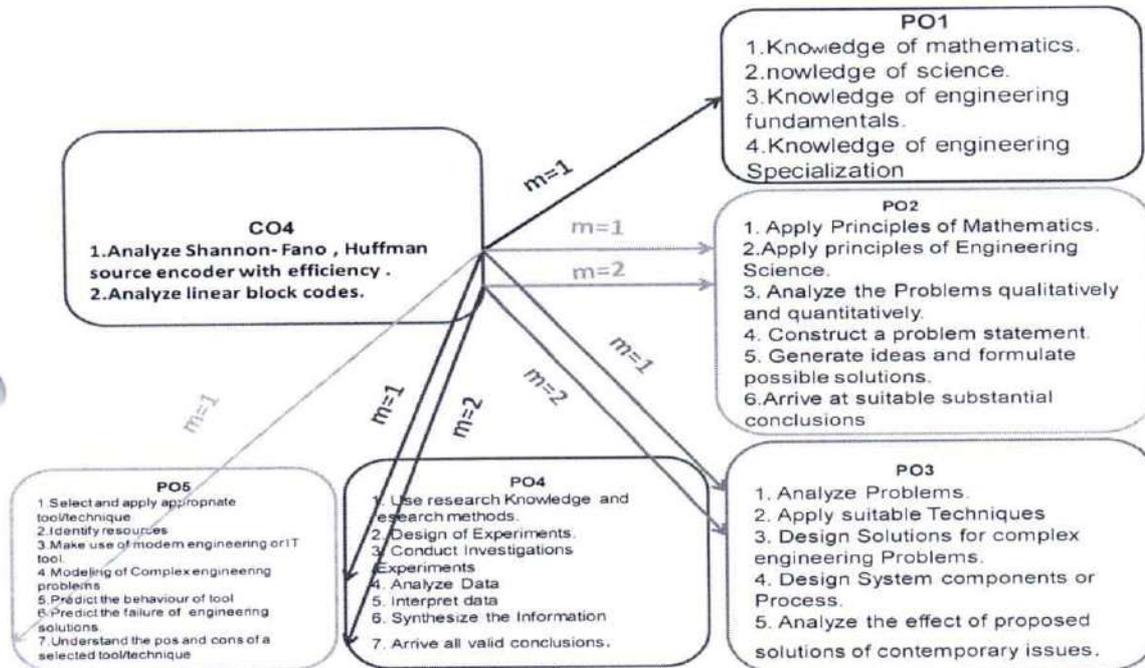
Name and Signature of the Course Coordinator:	Dr.K.Gouthami	
Name and Signature of the Course Instructor(s):		

Head, ECE

CO1: Analyze the wave form coding techniques of digital communication systems in PCM, DPCM, DM, and ADM and also mention the effect of Noise, drawbacks

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CO4. Analyze Shannon- Fano, Huffman source encoder with efficiency and also linear block codes



- Number of Key elements in CO4: $n = 2$
- Number of key elements of CO4 mapping with key elements of PO1: $m=1$
Percentage of Correlation, $\%C = (m/n) * 100$
 $= (1/2) * 100 = 50\%$ (Moderate)
- Number of key elements of CO4 is mapping with key elements of PO2: $m=2$
Percentage of Correlation, $\%C = (m/n) * 100$
 $= (2/2) * 100 = 100\%$ (Substantial)
- Number of key elements of CO4 is mapping with key elements of PO3: $m=2$
Percentage of Correlation, $\%C = (m/n) * 100$
 $= (2/2) * 100 = 100\%$ (Substantial)
- Number of key elements of CO4 is mapping with key elements of PO4: $m=2$
Percentage of Correlation, $\%C = (m/n) * 100$
 $= (2/2) * 100 = 100\%$ (Substantial)
- Number of key elements of CO4 is mapping with key elements of PO5: $m=1$
Percentage of Correlation, $\%C = (m/n) * 100$
 $= (1/2) * 100 = 50\%$ (Moderate)

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CO3: Apply knowledge of average information, entropy, information rate and mutual information to evaluate channel capacity.

- PO12**
1. Recognize the need for learning
 2. Preparing learning plan
 3. Self learning or individual learning.
 4. demonstrate awareness on what to learn based on technology change.

- PO6**
1. Apply contextual knowledge to Hold paramount the safety, health, and welfare of the public
 3. Apply the knowledge to solve Legal and cultural issues
 4. Responsibility towards professional engineering practice such as -Consultation, Investigation, Evaluation, Planning, Design, Construction of machines, Equipment, Processes -projects

- PO5**
1. Select and apply appropriate tool/technique.
 2. Identify resources
 3. Make use of modern engineering or IT tool.
 4. Modeling of Complex engineering problems.
 5. Predict the behaviour of tool
 6. Predict the failure of engineering solutions.
 7. Understand the pos and cons of a selected tool/technique

- CO3**
1. Apply knowledge of average information, entropy, information rate and mutual information to evaluate channel capacity.

- PO4**
1. Use research Knowledge and research methods.
 2. Design of Experiments.
 3. Conduct Investigations Experiments
 4. Analyze Data
 5. Interpret data
 6. Synthesize the information
 7. Arrive all valid conclusions.

- PO1**
1. Knowledge of mathematics.
 2. knowledge of science.
 3. Knowledge of engineering fundamentals.
 4. Knowledge of engineering Specialization

- PO2**
1. Apply Principles of Mathematics.
 2. Apply principles of Engineering Science.
 3. Analyze the Problems qualitatively and quantitatively.
 4. Construct a problem statement.
 5. Generate ideas and formulate possible solutions.
 6. Arrive at suitable substantial conclusions

- PO3**
1. Analyze Problems.
 2. Apply suitable Techniques
 3. Design Solutions for complex engineering Problems.
 4. Design System components or Process.
 5. Analyze the effect of proposed solutions of contemporary issues.

- Number of Key elements in CO3: n = 1
- Number of key elements of CO3 mapping with key elements of PO1: m=1
Percentage of Correlation, %C = (m/n) * 100
= (1/1) * 100 = 100% (Substantial)
- Number of key elements of CO3 is mapping with key elements of PO2: m=1
Percentage of Correlation, %C = (m/n) * 100
= (1/1) * 100 = 100% (Substantial)
- Number of key elements of CO3 is mapping with key elements of PO3: m=1
Percentage of Correlation, %C = (m/n) * 100
= (1/1) * 100 = 100% (Substantial)
- Number of key elements of CO3 is mapping with key elements of PO4: m=1
Percentage of Correlation, %C = (m/n) * 100
= (1/1) * 100 = 100% (Substantial)
- Number of key elements of CO3 is mapping with key elements of PO5: m=1
Percentage of Correlation, %C = (m/n) * 100
(1/1) * 100 = 100% (Substantial)
- Number of key elements of CO3 is mapping with key elements of PO12: m=1
Percentage of Correlation, %C = (m/n) * 100
= (1/1) * 100 = 100% (Substantial)

CO5: Apply Time domain, transform domain, graphical approach to encode convolution codes and decode convolution codes using Viterbi algorithm.

CO5
1. Apply Time domain, transform domain, graphical approach to encode convolution codes .
2. Decode convolution codes using viterbi algorithm.

m=1

m=1

m=2

m=1

m=2

PO1

1. Knowledge of mathematics.
2. Knowledge of science.
3. Knowledge of engineering fundamentals.
4. Knowledge of engineering Specialization

PO2

1. Apply Principles of Mathematics.
2. Apply principles of Engineering Science.
3. Analyze the Problems qualitatively and quantitatively.
4. Construct a problem statement.
5. Generate ideas and formulate possible solutions.
6. Arrive at suitable substantial conclusions

PO3

1. Analyze Problems.
2. Apply suitable Techniques
3. Design Solutions for complex engineering Problems.
4. Design System components or Process.
5. Analyze the effect of proposed solutions of contemporary issues.

PO5

1. Select and apply appropriate tool/technique
2. Identify resources
3. Make use of modern engineering or IT tool.
4. Modeling of Complex engineering problems.
5. Predict the behaviour of tool
6. Predict the failure of engineering solutions.
7. Understand the pos and cons of a selected tool/technique

PO4

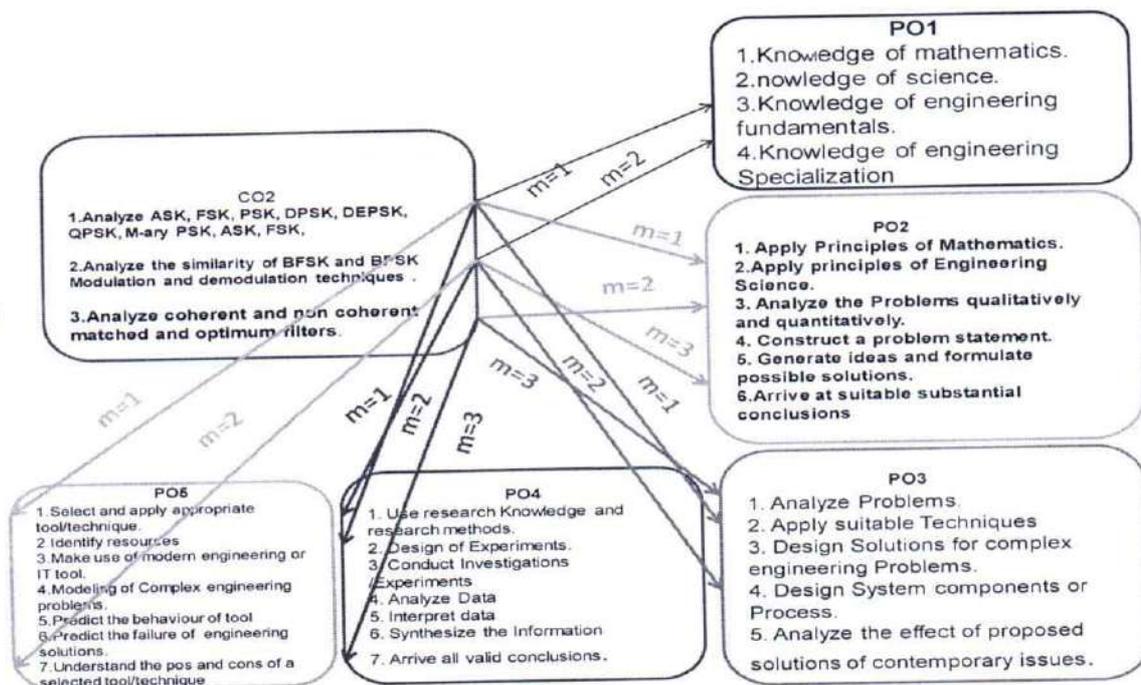
1. Use research Knowledge and research methods.
2. Design of Experiments.
3. Conduct Investigations /Experiments
4. Analyze Data
5. Interpret data
6. Synthesize the Information
7. Arrive all valid conclusions.

- Number of Key elements in CO5: n = 2
- Number of key elements of CO5 mapping with key elements of PO1: m=1
Percentage of Correlation, %C = (m/n) * 100
= (1/2) * 100 = 50% (Moderate)
- Number of key elements of CO5 is mapping with key elements of PO2: m=2
Percentage of Correlation, %C = (m/n) * 100
= (2/2) * 100 = 100% (Substantial)
- Number of key elements of CO5 is mapping with key elements of PO3: m=2
Percentage of Correlation, %C = (m/n) * 100
= (2/2) * 100 = 100% (Substantial)
- Number of key elements of CO5 is mapping with key elements of PO4: m=2
Percentage of Correlation, %C = (m/n) * 100
= (2/2) * 100 = 100% (Substantial)
- Number of key elements of CO5 is mapping with key elements of PO5: m=2
Percentage of Correlation, %C = (m/n) * 100
= (2/2) * 100 = 100% (Substantial)

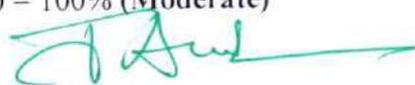


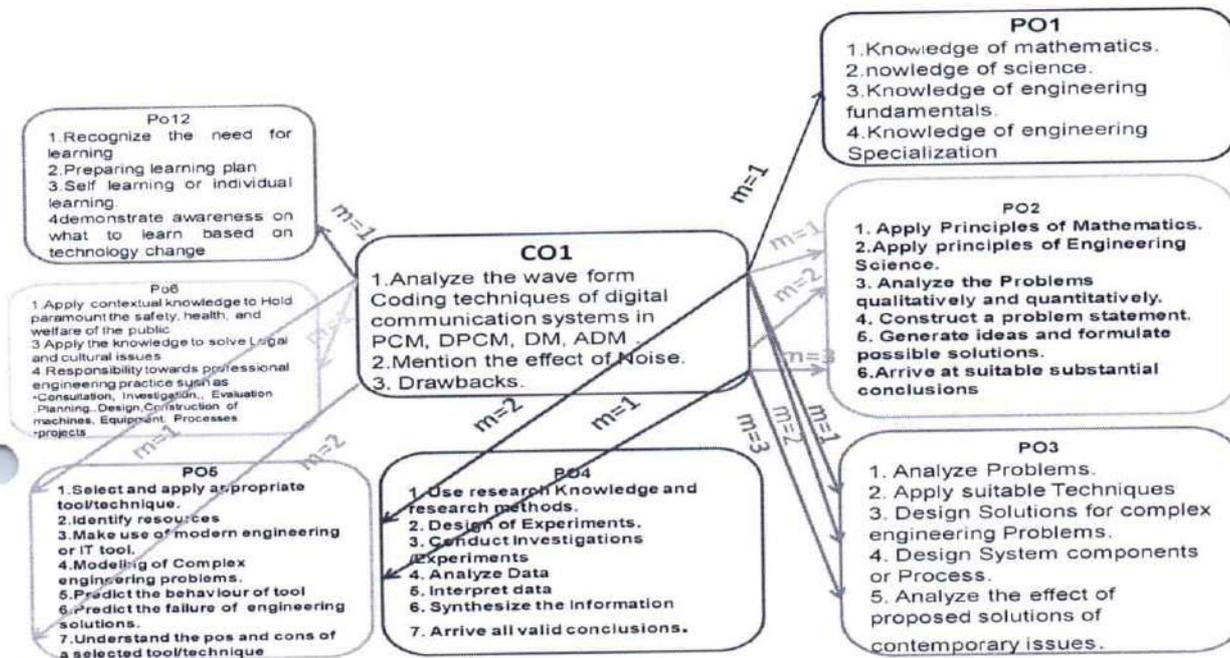
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CO2. Analyze ASK, FSK, PSK, DPSK, DEPSK, QPSK, M-ary PSK, ASK, FSK, similarity of BFSK and BPSK Modulation and demodulation techniques with coherent and non coherent matched and optimum filters



- Number of Key elements in CO2: $n = 3$
- Number of key elements of CO2 mapping with key elements of PO1: $m=2$
Percentage of Correlation, $\%C = (m/n) * 100$
 $= (2/3) * 100 = 66.6\%$ (Moderate)
- Number of key elements of CO2 is mapping with key elements of PO2: $m=3$
Percentage of Correlation, $\%C = (m/n) * 100$
 $= (3/3) * 100 = 100\%$ (Substantial)
- Number of key elements of CO2 is mapping with key elements of PO3: $m=3$
Percentage of Correlation, $\%C = (m/n) * 100$
 $= (3/3) * 100 = 100\%$ (Substantial)
- Number of key elements of CO2 is mapping with key elements of PO4: $m=3$
Percentage of Correlation, $\%C = (m/n) * 100$
 $= (3/3) * 100 = 100\%$ (Substantial)
- Number of key elements of CO2 is mapping with key elements of PO5: $m=2$
Percentage of Correlation, $\%C = (m/n) * 100$
 $= (2/3) * 100 = 66.6\%$ (Moderate)


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- Number of Key elements in CO1: $n = 3$
- Number of key elements of CO1 mapping with key elements of PO1: $m=1$ Percentage of Correlation, $\%C = (m/n) * 100$
 $= (1/3) * 100 = 33.3\%$ (Slight)
- Number of key elements of CO1 is mapping with key elements of PO2: $m=3$
Percentage of Correlation, $\%C = (m/n) * 100$
 $= (3/3) * 100 = 100\%$ (Substantial)
- Number of key elements of CO1 is mapping with key elements of PO3: $m=3$
Percentage of Correlation, $\%C = (m/n) * 100$
 $= (3/3) * 100 = 100\%$ (Substantial)
- Number of key elements of CO1 is mapping with key elements of PO4: $m=2$
Percentage of Correlation, $\%C = (m/n) * 100$
 $= (2/3) * 100 = 66.6\%$ (Moderate)
- Number of key elements of CO1 is mapping with key elements of PO5: $m=2$
Percentage of Correlation, $\%C = (m/n) * 100$
 $= (2/3) * 100 = 66.6\%$ (Moderate)
- Number of key elements of CO1 is mapping with key elements of PO6: $m=1$
Percentage of Correlation, $\%C = (m/n) * 100$
 $= (1/3) * 100 = 33.3\%$ (Slight)
- Number of key elements of CO1 is mapping with key elements of PO12: $m=1$
Percentage of Correlation, $\%C = (m/n) * 100$
 $= (1/3) * 100 = 33.3\%$ (Slight)


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COURSE :UML AND DESIGN PATTERNS	DEGREE: B.Tech
COURSE CODE: R1941052	YEAR: IV SEMESTER: I
REGULATION: R19	COURSE TYPE: REGULAR
ACADEMIC YEAR : 2022-2023	CREDITS: 3

After the completion of course, the student will be able to:

CO No.	Course Outcome Statement	Taxonomy Level
C403.1	CO1: Design the use case view and logical view of Weather mapping system.	Apply
C403.2	CO2: Design the implementation, process and deployment views of weather mapping system	Apply
C403.3	CO3: Develop CORBA interfaces and components of Weather mapping system	Apply
C403.4	CO4: Design a use case diagram for Librarian scenario	Analyse
C403.5	CO5: Develop a design using UML for various creational and structural patterns.	Apply
C403.6	CO6: Develop a design using UML for various behavioral patterns.	Apply

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Course Outcomes	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO1 0	PO1 1	PO1 2	PSO 1	PSO 2	PSO 3
CO1: Design the use case view and logical view of Weather mapping system.	3	3	3		3							2	1		3
CO2: Design the implementation, process and deployment views of weather mapping system	3	3	3		3							2	3		3
CO3: Develop CORBA interfaces and components of Weather mapping system	3	3	3		3							2	2		3
CO4: Design a use case diagram for Librarian scenario	3	3	3		3							2	1		3
CO5: Develop a design using UML for various creational and	3	3	3		3							2	1		3



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structural patterns.																		
CO6: Develop a design using UML for various behavioral patterns.	3	3	3		3									2	1			3

Note: 1-Graduateattains

2-Graduateis able/achieve

3-Graduateis made/

Course Instructor: 


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COURSE : Cryptography & Network Security	DEGREE: B.Tech
COURSE CODE: R1941051	YEAR: IV SEMESTER: I
REGULATION: R19	COURSE TYPE: REGULAR
ACADEMIC YEAR : 2022-2023	CREDITS: 3

After the completion of course, the student will be able to:

CO No.	Course Outcome Statement	Taxonomy Level
C401.1	Apply the Mathematics of Cryptography and Cryptographic attacks to find message.	Apply
C401.2	Apply the algorithms of cryptography, including encryption/ decryption and hash functions efficiently	Apply
C401.3	Use of different authentication, digital signature schemes and key management for security of data.	Apply
C401.4	Analyze the network, transport and application layers and outline appropriate security protocols for security issues.	Analyse
C01.5	Identify various intrusion detection systems and be able to achieve highest system security.	Apply

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COURSE : SOFTWARE PROJECT MANAGEMENT	DEGREE: B.Tech
COURSE CODE: R1941054E	YEAR: IV SEMESTER: I
REGULATION: R19	COURSE TYPE: REGULAR
ACADEMIC YEAR : 2022-2023	CREDITS: 3

After the completion of course, the student will be able to:

CO No.	Course Outcome Statement	Taxonomy Level
C403.1	CO-1: Understand the basic concepts and issues of software project management	Apply
C403.2	CO-2: Implement the project plans through managing people, communications and change	Apply
C403.3	CO-3: Select and employ mechanisms for tracking the software projects	Apply
C403.4	CO-4: Conduct activities necessary to successfully complete and close the Software projects	Analyse
C403.5	CO-5: Develop the skills for tracking and controlling software deliverables	Apply



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CO: PO and PSO Mapping:

Mapping of course outcomes with program outcomes:

Strong -3 Moderate -2 Slight -1

Course Outcomes	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	PSO-1	PSO-2	PSO-3
CO-1: Understand the basic concepts and issues of software project management	2							1	2		3				3
CO-2: Implement the project plans through managing people, communications and change							2	1	1		3				3
CO-3: Select and employ mechanisms for tracking the software projects	1	1	2	1					2		2				2
CO-4: Conduct activities necessary to successfully complete and close the Software projects				2					3		2				2
CO-5: Develop the skills for tracking and controlling software deliverables					2				2		2				2
CO-6: Create project plans that address real-world management challenges		3							1		3				2



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JUSTIFICATION FOR CO-PO-PSO CORRELATION:

JUSTIFICATION FOR CO-PO MAPPING

MAPPING	Slight1 / Moderate-2 / Strong-3	JUSTIFICATION
C401.1-PO1	2	Graduate is able to apply Mathematics of Cryptography and Cryptographic attacks to find message which can contribute to the basic engineering knowledge
C401.1-PO2	3	Graduate is made identify the basic maths analyze and formulate solutions for some problems
C401.2-PO1	1	Graduate attains
C401.2-PO2		Graduate attains
C401.2-PO3		Graduate attains
C401.2-PO4		Graduate attains
C401.3-PO2		Graduate attains
C401.3-PO3		Graduate attains
C401.3-PO4		Graduate attains
C401.3-PO6		Graduate attains



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C401.3-PO12		Graduateattains
C401.4-PO2		Graduateattains
C401.4-PO3		Graduateattains
C401.4-PO4		Graduateattains
C401.5-PO1		Graduateattains
C401.5-PO2		Graduateattains
C401.5-PO3		Graduateattains
C401.5-PO4		Graduateattains

Note: 1-Graduateattains

2-Graduateis able/achieve

3-Graduateis made/

P. Nagaraj
Course Instructor:

J. A. Reddy
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COURSE :CLOUD COMPUTING	DEGREE: B.Tech
COURSE CODE: R1941053	YEAR: IV SEMESTER: I
REGULATION: R19	COURSE TYPE: REGULAR
ACADEMIC YEAR : 2022-2023	CREDITS: 3

CourseOutcomes&CO-PO-PSOMappingandJustification

Subject	CloudComputing	15CS565
COURSEOUTCOMES:		
CONo.	Oncompletionofthiscourse,studentswillbeableto:	Cognitive Level
C404.1	UnderstandtheconceptsandterminologiesofCloudcomputingand virtualization.	L2
C404.2	UnderstandtheCloudcomputingarchitectureandtheAnekacloudcomputing platform.	L2
C404.3	UnderstandprogrammingapplicationswithThreadandTask-based applicationmodels.	L2
C404.4	UnderstandDataintensivecomputingandMap-Reduceprogramming model.	L2
C404.5	UnderstandtheCloudplatformsinindustrysuchasAmazonwebservices,GoogleAppEngine,MicrosoftAzureandCloudscientific applications.	L2



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CO-PO-PSOMAPPING

CONo.	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
15CS565.1	1	1	-	-	-	-	-	-	-	-	-	1	-	-	2
15CS565.2	1	1	-	-	-	-	-	-	-	-	-	1	-	-	2
15CS565.3	1	1	-	-	-	-	-	-	-	-	-	1	-	-	2
15CS565.4	1	1	-	-	-	-	-	-	-	-	-	1	-	-	2
15CS565.5	1	1	-	-	-	-	-	-	-	-	-	1	-	-	2
Avg. Mapping	1.0	1.0	-	-	-	-	-	-	-	-	-	1.0	-	-	2.0



CO-PO-PSOJUSTIFICATION

CONo.	PO/PSO	CL	Justification
15CS565.1	PO1	1	Slightly mapped as students will be able to understand the principles of the cloud computing and virtualization.
	PO2	1	Slightly mapped as students will be able to identify working principles of cloud.
	PO12	1	Slightly mapped as students can apply the concepts of cloud computing and virtualization in continuing professional development.
	PSO3	2	Moderately mapped as students can use the concepts of cloud computing and virtualization for cloud solutions.
15CS565.2	PO1	1	Slightly mapped as students will be able to understand the Cloud computing architecture.
	PO2	1	Slightly mapped as students will be able to identify the services of Aneka cloud computing platform.
	PO12	1	Slightly mapped as students can apply the concepts of Cloud computing architecture in continuing professional development.
	PSO3	2	Moderately mapped as students can use the concepts of Aneka cloud computing platform for cloud solutions.
15CS565.3	PO1	1	Slightly mapped as students will be able to understand the Thread and Task-based cloud application models.
	PO2	1	Slightly mapped as students will be able to identify the services of Thread and Task-based cloud application models.
	PO12	1	Slightly mapped as students can apply the concepts of Thread and Task-based application cloud models in continuing professional development.
	PSO3	2	Moderately mapped as students can use the concepts of Thread and Task-based application models in developing cloud applications.
15CS565.4	PO1	1	Slightly mapped as students will be able to understand the Map-Reduce programming.
	PO2	1	Slightly mapped as students will be able to identify the services of Data intensive computing.
	PO12	1	Slightly mapped as students can apply the concepts of Map-Reduce programming in continuing professional development.
	PSO3	2	Moderately mapped as students can use the concepts of Data intensive computing developing Data intensive applications.



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15CS565.5	PO1	1	Slightly mapped as students will be able to understand the Amazon web services, Google AppEngine, Microsoft Azure and Cloud scientific applications.
	PO2	1	Slightly mapped as students will be able to identify the services of Amazon web services, Google AppEngine and Microsoft Azure.
	PO12	1	Slightly mapped as students can apply the concepts of Amazon web services, Google AppEngine and Microsoft Azure in continuing professional development.
	PSO3	2	Moderately mapped as students can use the concepts of Cloud scientific applications for developing cloud applications.

Prepared by

JBrundhaElci

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Dr.M.Ramakrishna

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Department of Computer Science and Engineering**COURSE OUTCOMES WITH PO & PSO MAPPING**

COURSE: MACHINE LEARNING	DEGREE: B.Tech
COURSE CODE: R1941051	YEAR: IV SEMESTER: II
REGULATION: R19	COURSE TYPE: REGULAR
ACADEMIC YEAR : 2022-2023	CREDITS: 3

By the end of the course student will be able to:

CO No.	Course Outcome Statement	Taxonomy Level
C411.1	Apply the ingredients of machine learning techniques to solve real world problems	3(Apply)
C411.2	Analyze machine learning techniques for classification, regression, and clustering problems and concept learning	4 (Analyze)
C411.3	Analyze the Tree models and Rule models to develop solutions to real world problems	4(Analyze)
C411.4	Analyze the Linear models, Distance-based models and Probabilistic models to develop solutions to real world problems	4(Analyze)
C411.5	Extend the machine learning concept to construct, transform and select features of different models.	4(Extend)
C411.6	Apply Dimensionality Reduction (PCA) to reduce the number of features in the large dataset, Artificial Neural Networks (ANNs) as a machine learning tool to solve real world problems	3 (Apply)



JUSTIFICATION FOR CO-PO-PSO CORRELATION

. Key Elements Correlation Technique to map CO-PO

Justification of CO- PO Mapping						
CO Key Elements	n	PO	Justification of CO- PO Mapping	m	$\%C = \left(\frac{m}{n}\right) \times 100$	C
CO411.1 (Apply machine learning techniques)	1	PO1	<ul style="list-style-type: none"> Apply Machine Learning techniques = Apply Knowledge of engineering specialization 	1	$\%C = \left(\frac{1}{1}\right) \times 100 = 100$	3
CO411.2 (Apply machine learning techniques , Classify problems in to classification, regression, and clustering problems, Analyse the problem to get feasible solution)	3	PO1	<ul style="list-style-type: none"> Apply Machine Learning techniques = Apply Knowledge of engineering specialization To solve real world problems = Apply Knowledge of engineering specialization 	1	$\%C = \left(\frac{1}{3}\right) \times 100 = 33.33$	1
	3	PO2	<ul style="list-style-type: none"> Apply Machine Learning techniques = Apply first principles of engineering specialization Classify problems = Formulate problems Analyse the problem to get feasible solution = analyze complex engineering problems 	3	$\%C = \left(\frac{3}{3}\right) \times 100 = 100$	3
	3	PO3	<ul style="list-style-type: none"> Analyse the problem to get feasible solution = develop solution for system components or processes 	1	$\%C = \left(\frac{1}{3}\right) \times 100 = 33.33$	1
CO411.3 Analyze the Tree models and Rule models to	2	PO2	<ul style="list-style-type: none"> Analyse Machine Learning different models = formulate complex engineering problems 	1	$\%C = \left(\frac{1}{2}\right) \times 100 = 50$	2

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develop solutions to real world problems	2	PO3	<ul style="list-style-type: none"> Analyse Machine Learning different models = design system components or processes Develop solutions to real world problems = Design solutions for complex engineering problems 	2	$\%C = \left(\frac{2}{2}\right) \times 100 = 100$	3
CO411.4 Analyze the Linear models	2	PO2	Analyze Machine Learning different models= formulate complex engineering problems	1	$\%C = \left(\frac{1}{2}\right) \times 100 = 50$	2
,Distance-based models and Probabilistic models to develop solutions to real world problems	2	PO3	<ul style="list-style-type: none"> Analyze Machine Learning different models = design system components or processes Develop solutions to real world problems = Design solutions for complex engineering problems 	2	$\%C = \left(\frac{2}{2}\right) \times 100 = 100$	3
CO411.5 Extend the machine learning concept, Preliminary solutions, select features of different models.	3	PO2	<ul style="list-style-type: none"> Extend Machine Learning concept = Analyse engineering problem 	1	$\%C = \left(\frac{1}{3}\right) \times 100 = 33.33$	1
	3	PO3	<ul style="list-style-type: none"> Develop preliminary solutions = design system components or processes Select different features =design systems and components 	2	$\%C = \left(\frac{2}{3}\right) \times 100 = 66.67$	2
	3	PO4	<ul style="list-style-type: none"> Interpretation of data to select features of different models = interpretation of data 	1	$\%C = \left(\frac{1}{3}\right) \times 100 = 33.33$	1
CO411.6 ApplyDimens ionality Reduction (PCA) to reduce the	2	PO1	<ul style="list-style-type: none"> Apply ANN concept s = Apply Knowledge of engineering specialization Use of machine learning tool = Apply Knowledge of engineering specialization 	2	$\%C = \left(\frac{2}{2}\right) \times 100 = 100$	3

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number of features in large data set and the concept of Artificial Neural Networks(ANNs) as a machine learning tool to solve real world problems					
	2	PO5	ANN as Machine learning tool = apply appropriate techniques, resources, and modern engineering	1	$\%C = \left(\frac{1}{2}\right) \times 100 = 50$
					2

JUSTIFICATION FOR CO-PO MAPPING:

Note: 1-Graduatesattains

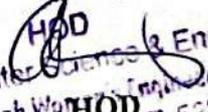
2-Graduatesare able/achieve

3-Graduatesare made

Course Instructor

Program Coordinator


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COURSE OBJECTIVES & OUTCOMES

COURSE : Computer Networks	DEGREE: B.Tech
COURSE CODE: R2031051	YEAR: III SEMESTER: I
REGULATION: R20	COURSE TYPE: REGULAR
ACADEMIC YEAR : 2022-2023	CREDITS: 3

After the completion of course, the student will be able to:

CO No.	Course Outcome Statement	Taxonomy Level
C301.1	Utilize the network topologies for various models.	Apply
C301.2	Apply different types of transmission media and techniques for error detection and correction.	Apply
C301.3	Analyze MAC protocols for channel allocation.	Apply
C301.4	Classify the routing and congestion control algorithms.	Analyse
C301.5	Design various protocols for security, Authentication and data transmission .	Apply



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Mapping of course outcomes with program outcomes:

Strong -3 Moderate -2 Slight -1

PO / CO	CN	2018- 19	4	2	0	3	PO 1	PO 2	PO3	P O 4	PO 5	PO 6	P O 7	PO 8	PO 9	PO 10	PO 11	PO1 2	PSO 1	PS O 2		
C321.1		Utilize the network topologies for various models .					2	3			2										3	
C321.2		Apply different types of transmission media and techniques for error detection and correction.					2	2	3	2	2										2	
C321.3		Analyze MAC protocols for channel allocation.					1	2	2	3	2	1							1		2	
C321.4		Classify the routing and congestion control algorithms.					2	2	2	3	2									2	2	
C321.5		Design various protocols for security, Authentication and data transmission .					1	2	2	2	2									1	2	
TOTAL							8	11	9	10	10	1							1	3	11	
No of Co's Mapping With PO/ PSO							5	5	4	4	5	1								1	2	5
Average							1.6	2.2	2.25	2.5	2	1								1	1.5	2.2



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Department of Computer Science and Engineering

CO: PO and PSO Mapping with Justification:

CO	Justification
CO1	CO1 is strongly mapped with PO2 because strongly we apply principals of mathematics. CO1 is moderately mapped with PO1 and PO5 because moderately we apply engineering fundamentals and applying appropriate technique/tool.
CO2	CO2 is moderately mapped with PO1, PO2, PO4 and PO5 because moderately we apply engineering fundamentals and applying appropriate technique. CO2 is strongly mapped with PO2, PO3, PO4, because strongly use design suitable methodology.
CO3	CO6 is slightly mapped with PO1, PO6 and PO12 because we apply engineering fundamentals, relevant engineering practices and there is a lifelong learning. CO6 is moderately mapped with PO3, PO2, PO5 because moderately we analyze the problem and applying appropriate technique/tool. CO6 is strongly mapped with PO4 because strongly we analyze data and generate ideas, formulate possible solutions
CO4	CO4 is moderately mapped with PO1, PO2, PO3, PO5 because moderately we apply engineering fundamentals, design suitable technique and identify resources. CO4 is strongly mapped with PO4 because strongly design suitable technique and conduct experiments.
CO5	CO5 is slightly mapped with PO1 because slightly we apply engineering fundamentals. CO5 is moderately mapped with PO2, PO3, PO4, PO5 because moderately we design and apply suitable technique/tool and analyze data.

Course Instructor: *M.K.*

Program Coordinator

T. PRINCE
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PULLADIGUNTA, GUNTUR-17

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HOD Science & Environment
Malineni Lakshmaiah Women's Engineering College
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Department of Computer Science and Engineering

COURSE : Artificial Intelligence.	DEGREE: B.Tech
SUBJECT CODE: R203105A	YEAR: III SEMESTER: I
REGULATION: R20	COURSE TYPE: REGULAR
ACADEMIC YEAR : 2022-2023	CREDITS: 3

After the completion of course, the student will be able to:

CO No.	Course Outcome Statement	Taxonomy Level
C304.1	Discuss about the understanding and basic of language and game playing. Interprets different types of AI agents	Knowledge Understand (Level1 and level2)
C304.2	Differentiate between the uninformed search and informed search technic.	Analyzing (Level14)
C304.3	Compare fundamentals of knowledge representation (Logic-based, Frame-based, Semantic Nets), Inferenceand Theorem proving	Analyzing (Level 4)
C304.4	Apply knowledge representation, reasoning and machine learning techniques to real-time application systems	Apply (Level 3)
C304.5	Understanding the applications of Expert System and maintenance of Expert System Techniques.	Understand (Level1 and level2)
C304.6	Understanding the Fuzzy Logic solutions in the Given Problems.	Understand (Level1 and level2)



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	s to real-time applicatio nsystems														
C313.5	Understanding the applications of Expert System and maintenance of Expert System Techniques.	2	2	1	-	-	-	-	-	-	-	-	-	1	2
C313.6	Understanding the Fuzzy Logic solutions in the Given Problems.	2	2	1											1
TOTAL		13	12	10										3	9
No of Co's Mapping With Po/Pso		5	5	4	-	-	-	-	-	-	-	-	-	5	5
Average		2.6	2.4	2.5	-	-	-	-	-	-	-	-	-	0.6	1.



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JUSTIFICATION FOR CO-PO-PSO CORRELATION:

JUSTIFICATION FOR CO-PO MAPPING

MAPPING	Slight1 / Moderate-2 / Strong-3	JUSTIFICATION
C313.1-PO1	3	Graduate is made
C313.1-PO2	2	Graduate is able
C313.1-PO3	1	Graduate attains
C313.2-PO1	2	Graduate is able
C313.2-PO2	2	Graduate is able
C313.2-PO3	3	Graduate is made
C313.3-PO1	2	Graduate is able
C313.3-PO2	2	Graduate is able
C313.3-PO3	3	Graduate is made
C313.4-PO1	2	Graduate is able
C313.4-PO2	1	Graduate attains



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C313.4-PO4	3	Graduate is made
C313.4-PO5	2	Graduate is able
C313.5-PO1	2	Graduate is able
C313.5-PO2	2	Graduate is able
C313.5-PO3	1	Graduate attains
C313.5-PO5	2	Graduate is able
C313.5-PO12	2	Graduate is able

Note: 1- Graduate attains

2- Graduate is able /achieve

3- Graduate is made/

Course Coordinator(s):
A. Anjali

Program Coordinator

T. Prasad
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SUBJECT NAME: DESIGN AND ANALYSIS OF ALGORITHMS	DEGREE: B.Tech
SUBJECT CODE: R2031052	YEAR: III SEMESTER: I
REGULATION: R20	COURSE TYPE: REGULAR
ACADEMIC YEAR: 2022-2023	CREDITS: 3

After the completion of course, the student will be able to:

CO.NO	Description	Taxonomy Level
C302.1	Analyze algorithms, improve the efficiency of algorithms and ability to understand and estimate the performance of algorithm.	Analyse
C302.2	Apply divide and conquer designing method for development of algorithms to realistic problems, such as binary search, quick sort, merge sort, and analyze them.	Apply
C302.3	Describe and apply greedy method to solve various problems, such as knapsack problem, job sequencing with deadlines, Prim's, Kruskal's algorithms.	Apply
C302.4	Explain and Apply dynamic programming to various problems, such as All - Pairs Shortest Paths, Single - Source Shortest paths General Weights, String Edition, 0/1 Knapsack and Reliability Design problem	Analyse
C302.5	Discuss and Analyze Backtracking technique to various problems, such as N-queen problem, sum of subsets problem, graph colouring and Hamiltonian Cycles	Analyse
C302.6	Explain and Apply branch and bound to various problems, such as Travelling sales person problem, 0/1 knapsack problems etc.	Analyse



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CO: PO and PSO Mapping

Mapping of course outcomes with program outcomes:

Strong -3 Moderate -2 Slight -1

PO / CO	CNS	2019-2020	4	0	0	3	P O1	P O2	PO3	P O 4	P O 5	P O 6	P O 7	P O 8	P O 9	P O1 0	P O1 1	P O1 2	PS O1	PS O 2	
C312.1	Analyze algorithms, improve the efficiency of algorithms and ability to understand and estimate the performance of algorithm.						2	2	2										1	1	
C312.2	Apply divide and conquer designing method for development of algorithms to realistic problems, such as binary search, quick sort, merge sort, and analyze them.						2	3	2										1	2	
C312.3	Describe and apply greedy method to solve various problems, such as knapsack problem, job sequencing with deadlines, Prim's, Kruskal's algorithms.						2	3	2										1	2	
C312.4	Explain and Apply dynamic programming to various problems, such as All - Pairs Shortest Paths, Single - Source Shortest paths General Weights, String Edition, 0/1 Knapsack and Reliability Design problem						2	3	2										1	2	
C312.5	Discuss and Apply Backtracking technique to various problems, such as N-queen problem, sum of subsets problem, graph colouring and Hamiltonian Cycles						2	3	2										1	2	
C312.6	Explain and Apply branch and bound to various problems, such as Travelling sales person problem, 0/1 knapsack problems etc.						2	3	2										1	2	
TOTAL							12	17	12	0	0	0	0	0	0	0	0	0	6	11	0



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No of Co's Mapping With Po/Pso																			
Average	6	6	6	0	0	0	0	0	0	0	0	0	0	0	6	6	0		
	2	2.83	2	0	0	0	0	0	0	0	0	0	0	0	1	1.83	0		

JUSTIFICATION FOR CO-PO-PSO CORRELATION:

MAPPING	Slight1 / Moderate-2 /	JUSTIFICATION
C311.1-PO1	2	Graduates will be able /achieve to apply engineering fundamentals to Analyze algorithms, improve the efficiency of algorithms and ability to understand and estimate the performance of algorithm.
C311.1-PO2	2	Graduates will be able /achieve to Analyze algorithms, improve the efficiency of algorithms and ability to understand
C311.1-PO3	2	Graduates will be able /achieve to design to Analyze algorithms, improve the efficiency of algorithms and ability to
C311.1-PO12	1	Graduates will attain to Life-long learning to Analyze algorithms, improve the efficiency of algorithms and ability to
C311.1-PSO1	1	Graduates will attain to Able to solicit and implement Statistical Algorithms for computational competence to Analyze algorithms, improve the efficiency of algorithms and ability to understand
C311.2-PO1	2	Graduates will be able /achieve to apply engineering fundamentals to Apply divide and conquer designing method for development of algorithms to realistic problems, such as



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C311.2-PO2	3	Graduates will be made to Analyze to Apply divide and conquer designing method for development of algorithms to realistic problems, such as binary search, quick sort, merge
C311.2-PO3	2	Graduates will be able /achieve to design to Apply divide and conquer designing method for development of algorithms to realistic problems, such as binary search, quick sort, merge
C311.2-PO12	1	Graduates will attain to Life-long learning to Apply divide and conquer designing method for development of algorithms to realistic problems, such as binary search, quick sort, merge
C311.2-PSO1	2	Graduate is able /achieve to solicit and implement Statistical Algorithms for computational competence to Apply divide and conquer designing method for development of algorithms to realistic problems, such as binary search, quick sort, merge sort, and analyze them.
C311.3-PO1	2	Graduate is able/achieve to apply engineering fundamentals to Describe and apply greedy method to solve various problems, such as knapsack problem, job sequencing with
C311.3-PO2	3	Graduates will be made to Analyze to Describe and apply greedy method to solve various problems, such as knapsack problem, job sequencing with deadlines, Prim's, Kruskal's
C311.3-PO3	2	Graduate is able /achieve to design to Describe and apply greedy method to solve various problems, such as knapsack problem, job sequencing with deadlines, Prim's, Kruskal's
C311.3-PO12	1	Graduate attains to Life-long learning to Describe and apply greedy method to solve various problems, such as knapsack problem, job sequencing with deadlines, Prim's, Kruskal's algorithms.
C311.3-PSO1	2	Graduates will be able /achieve to solicit and implement Statistical Algorithms for computational competence to Describe and apply greedy method to solve various problems, such as
C311.4-PO1	2	Graduates will be able /achieve to apply engineering fundamentals to Explain and Apply dynamic programming to various problems, such as All - Pairs Shortest Paths, Single -
C311.4-PO2	3	Graduates will be made to Analyze to Explain and Apply dynamic programming to various problems, such as All - Pairs Shortest Paths, Single - Source Shortest paths General Weights, String Edition, 0/1 Knapsack and Reliability Design



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C311.4-PO3	2	Graduates will be able /achieve to design to Explain and Apply dynamic programming to various problems, such as All - Pairs Shortest Paths, Single – Source Shortest paths General Weights, String Edition, 0/1 Knapsack and Reliability Design
C311.4-PO12	1	Graduates will attain to Life-long learning to Explain and Apply dynamic programming to various problems, such as All - Pairs Shortest Paths, Single – Source Shortest paths General
C311.4-PSO1	2	Graduates will be able /achieve to solicit and implement Statistical Algorithms for computational competence to Explain and Apply dynamic programming to various problems, such as All - Pairs Shortest Paths, Single – Source Shortest paths
C311.5-PO1	2	Graduates will be able /achieve to apply engineering fundamentals to Discuss and Apply Backtracking technique to various problems, such as N-queen problem, sum of subsets
C311.5-PO2	3	Graduates will be made to Analyze to Discuss and Apply Backtracking technique to various problems, such as N-queen problem, sum of subsets problem, graph colouring and Hamiltonian Cycles
C311.5-PO3	2	Graduates will be able /achieve to design to Discuss and Apply Backtracking technique to various problems, such as N-queen problem, sum of subsets problem, graph colouring and
C311.5-PO12	1	Graduates will attain to Life-long learning to Discuss and Apply Backtracking technique to various problems, such as N-queen problem, sum of subsets problem, graph colouring and
C311.5-PSO1	2	Graduates will be able /achieve to solicit and implement Statistical Algorithms for computational competence to Discuss and Apply Backtracking technique to various problems, such
C311.6-PO1	2	Graduates will be able /achieve to apply engineering fundamentals to Explain and Apply branch and bound to various problems, such as Travelling sales person problem, 0/1
C311.6-PO2	3	Graduates will be made to Analyze to Explain and Apply branch and bound to various problems, such as Travelling sales person problem, 0/1 knapsack problems etc.
C311.6-PO3	2	Graduates will be able /achieve to design to Explain and Apply branch and bound to various problems, such as Travelling sales person problem, 0/1 knapsack problems etc.



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C311.6-PO12	1	Graduates will attain to Life-long learning to Explain and Apply branch and bound to various problems, such as Travelling sales person problem, 0/1 knapsack problems etc.
C311.6-PSO1	2	Graduates will be able /achieve to solicit and implement Statistical Algorithms for computational competence to Explain and Apply branch and bound to various problems, such as

JUSTIFICATION FOR CO-PO MAPPING

- Note: 1- Graduates will attain
2- Graduates will be able /achieve
3- Graduates will be made


Course Coordinator(s):

Program Coordinator

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Department of Computer Science and Engineering

COURSE : DATA WAREHOUSING AND DATA MINING	DEGREE: B.Tech
COURSE CODE: R2031053	YEAR: III SEMESTER: I
REGULATION: R20	COURSE TYPE: REGULAR
ACADEMIC YEAR : 2022-2023	CREDITS: 3

After the completion of course, the student will be able to:

CO No.	Course Outcome Statement	Taxonomy Level
C303.1	Understand stages in building a Data Warehouse	Understand
C303.2	Understand the need and importance of pre-processing techniques	Understand
C303.3	Analyze Classification Techniques.	Analyze
C303.4	Analyze and evaluate performance of algorithms for Association Rules.	Analyze
C303.5	Analyze Clustering algorithms.	Analyze



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Department of Computer Science and Engineering

JUSTIFICATION FOR CO-PO-PSO CORRELATION:

JUSTIFICATION FOR CO-PO MAPPING

MAPPING	Slight1 / Moderate-2 / Strong-3	JUSTIFICATION
C310.1-PO1	2	Graduates are able to understand the mining functionalities, measures of similarity and dissimilarity techniques by using science, engineering fundamentals.
C310.1-PO3	3	Graduates are able to understand the mining measures by using designing of system components.
C310.2-PO2	3	Graduates are able to identify and analyze mining preprocessing techniques by using mathematical principles and engineering science.
C310.2-PO4	2	Graduates are able to design conduct experiments to provide valid conclusions by using various mining preprocessing techniques.
C310.3-PO2	2	Graduates are able to identify and analyze different classification techniques by using mathematical principles and engineering science.
C310.3-PO3	3	Graduates are able to design solutions for complex engineering problems by using decision tree algorithm.
C310.3-PO4	2	Graduates are able to design conduct experiments to provide valid conclusions by using different classifier techniques.
C310.4-PO1	3	Graduates are able to understand the frequent item set generation, Rule generation by using science, engineering fundamentals.
C310.4-PO3	2	Graduates are able to design solutions for complex engineering problems by using Association techniques
C310.4-PO4	1	Graduates are able to design conduct experiments to provide valid conclusions by using Apriori and FP-growth algorithm.
C310.5-PO2	2	Graduates are able to identify and analyze different clustering techniques by using mathematical principles and engineering science.



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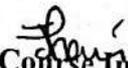
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Department of Computer Science and Engineering

C310.5-PO4	3	Graduates are able to design conduct experiments to provide valid conclusions by using partition, hierarchical and DBSCAN clustering techniques
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JUSTIFICATION FOR CO-PSO MAPPING

MAPPING	Slight1 / Moderate-2 / Strong-3	JUSTIFICATION
C310.1-PSO1	2	Graduates are able to develop mining applications
C310.3-PSO1	3	Graduates are able to develop and implement classification techniques in mining applications
C310.4-PSO1	3	Graduates are able to develop and implement Association techniques in mining applications
C310.5-PSO1	3	Graduates are able to develop and implement Clustering techniques in mining applications


Course Instructor

Program Coordinator


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Pulladigunta (Village), Vatticherukuru (Mandal),
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COURSE: MATHEMATICAL FOUNDATION OF COMPUTER SCIENCE	DEGREE: B.Tech
COURSE CODE: R2021054	YEAR: II SEMESTER: I
REGULATION: R20	COURSE TYPE: REGULAR
ACADEMIC YEAR : 2022-2023	CREDITS: 3

By the end of the course student will be able to:

CO. NO	COURSE OUT COME	TAXONOMY LEVEL
C202.1	Apply mathematical logic and rules of inferences to check consistency of premises and reduce the given statement into normal forms	APPLY
C202.2	Apply theory of inference for statement calculus and predicate calculus to derive the conclusions.know the basic concepts of sets,relations ,functions , lattices and their properties.	Understand
C202.3	Know the basic concepts of properties of integers and groups	Apply
C202.4	Use fundamental counting principle to determine the number of outcomes.	APPLY
C202.5	Devolve and solve the recurrence relations . Know the basic concepts of graphs and determine the minimal spanning tree for a given weighted graph	Apply



JUSTIFICATION FOR CO-PO-PSO CORRELATION

JUSTIFICATION FOR CO-PO MAPPING:

Note: 1-Graduatesattains

2-Graduatesare able/achieve

3-Graduatesare made

MAPPING	Slight1 / Moderate- 2/ Strong-3	JUSTIFICATION
C202.1-PO1	3	Graduates are able to apply rules of inferences for a given set of hypothesis
C202.1-PO2	2	Graduates aremadetoanalyze check whether the given set of hypothesis are consistent or inconsistent
C202.2-PO1	2	Graduatesattainsto apply predicate calculus to the given set of hypothesis and check whether the given set of hypothesis are valid or invalid.
C202.2-PO2	1	Graduatesare able to analyzebasic properties of sets, relation and functions.
C202.3-PO1	2	Graduatesare able to apply algorithms whether the given number is prime or not
C202..3-PO2	3	Graduatesare able to analyzehow to find g.c.d and l.c.m of given set of integers.
C202.4-PO1	2	Graduatesare able to apply permutations and combinations and find the number of out comes
C202.4-PO2	2	Graduatesare madeto analyze the expansions of bi and multinomial variables
C202.5-PO1	2	Graduatesare able toapply algorithms and find minimal spanning trees of weighted graph.
C202.5- PO2	2	Graduatesare ableto analyze properties of generating functions.
C202.6-PO1	1	Graduatesareable how to colour a given graph
C202.6-PO2	1	Graduatesare able to analyze properties of colouring of graphs

Course Coordinator(s):

Program Coordinator

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COURSE :OBJECT ORIENTED PROGRAMMING THROUGH C++	DEGREE: B.Tech
COURSE CODE: R2021051	YEAR: II SEMESTER: I
REGULATION: R20	COURSE TYPE: REGULAR
ACADEMIC YEAR : 2022-2023	CREDITS: 3

After the completion of course, the student will be able to:

CO No.	Course Outcome Statement	Taxonomy Level
C205.1	Illustrate the ADTs of Polynomial, Sparse matrix, transposing of matrix and matrix multiplications by using arrays.	Understand
C205.2	Perform various operations of stack and queue by using arrays.	Apply
C205.3	Implement various matrices, polynomials, stack and queue by using linked lists	Apply
C205.4	Implement different hierarchical forms of data and perform various operations in BST,tree traversals.	Apply
C205.5	Analyze graph traversal techniques of DFS,BFS and minimum cost spanning Trees.	Analyze
C205.6	Compare various searching and sorting techniques with their complexities.	Analyze



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COURSE :OBJECT ORIENTED PROGRAMMING THROUGH C++	DEGREE: B.Tech
COURSE CODE: R2021051	YEAR: II SEMESTER: I
REGULATION: R20	COURSE TYPE: REGULAR
ACADEMIC YEAR : 2022-2023	CREDITS: 3

After the completion of course, the student will be able to:

CO No.	Course Outcome Statement	Taxonomy Level
C205.1	Illustrate the ADTs of Polynomial, Sparse matrix, transposing of matrix and matrix multiplications by using arrays.	Understand
C205.2	Perform various operations of stack and queue by using arrays.	Apply
C205.3	Implement various matrices, polynomials, stack and queue by using linked lists	Apply
C205.4	Implement different hierarchical forms of data and perform various operations in BST, tree traversals.	Apply
C205.5	Analyze graph traversal techniques of DFS, BFS and minimum cost spanning Trees.	Analyze
C205.6	Compare various searching and sorting techniques with their complexities.	Analyze



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JUSTIFICATION FOR CO-PO-PSO CORRELATION:

JUSTIFICATION FOR CO-PO MAPPING

MAPPING	Slight1 / Moderate-2 / Strong-3	JUSTIFICATION
C205.1-PO1	3	Graduates are able to represent the ADTs of Polynomial, Sparse matrix, transposing of matrix and matrix multiplications by using engineering knowledge.
C205.1-PO2	2	Graduates can make the ADTs of Simple Data structures.
C205.2-PO1	3	Graduates are able to apply the knowledge of mathematics for performing Stack and Queue operations
C205.2-PO2	2	Graduates can analyze operations of stack and queue by using arrays.
C205.3-PO1	3	Graduates are able to apply the engineering specialization for implement linked lists.
C205.3-PO2	2	Graduates are able to formulate matrices, polynomials, stack and queue by using linked lists.
C205.4-PO1	3	Graduates are able to apply the engineering specialization for Implement different hierarchical forms of data and perform various operations in BST, tree traversals.
C205.4-PO2	2	Graduates can analyze tree traversal techniques.
C205.4-PO3	2	Graduates are able to design system process of BST.
C205.5-PO1	2	Graduates will apply engineering fundamentals for Analyze graph traversal techniques of DFS, BFS.
C205.5-PO2	3	Graduates can Analyze graph traversal techniques of DFS, BFS and minimum cost spanning Trees.



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Guntur-522017, Andhra Pradesh, India

Department of Computer Science and Engineering

C205.5-PO3	2	Graduatescan design the process of graph traversal techniques of DFS,BFS and minimum cost spanning Trees.
C205.6-PO1	2	Graduateswill apply engineering mathematics Compare various searching and sorting techniques with their complexities.
C205.6-PO2	3	Graduatescan Analyzevarious searching and sorting techniques with their complexities.
C205.6-PO3	2	Graduatescan design the process of searching and sorting techniques.

JUSTIFICATION FOR CO-PSO MAPPING

MAPPING	Slight1 / Moderate-2 / Strong-3	JUSTIFICATION
C205.4-PSO2	2	Graduates will be able to design the algorithms for Implement different hierarchical forms of data and perform various operations in BST,tree traversals.
C205.5-PSO2	2	Graduatescan design the process of graph traversal techniques of DFS, BFS and minimum cost spanning Trees.
C205.6-PSO2	2	Graduatescan Design various searching and sorting techniques .


Course Instructor

Program Coordinator


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Department of Computer Science & Engineering
Malineni Lakshmaiah Women's Engineering College
Pulladigunta, Guntur-522017



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Department of Information Technology

COURSE :DEEP LEARNING	DEGREE: B.Tech
COURSE CODE:	YEAR: IV SEMESTER: II
REGULATION: R19	COURSE TYPE: REGULAR
ACADEMIC YEAR : 2022-2023	FACULTY: V.SUDHAKAR

After the completion of course, the student will be able to:

CO No.	Course Outcome Statement	Taxonomy Level
C411.1	Analyze the key parameters and hyper-parameters in neural network architecture.	Understand
C411.2	Design and build types of Neural Networks in deep learning.	Apply
C411.3	Analyze different optimizers in neural networks.	Understand
C411.4	Design and Build recent trends and applications in deep learning architecture like Image Denoising, Semantic Segmentation, Object Detection etc.	Apply
C411.5	Design Advanced research and development in deep learning: LSTM, Autoencoders and GAN.	Apply



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Department of Information Technology

JUSTIFICATION FOR CO-PO-PSO CORRELATION:

JUSTIFICATION FOR CO-PO MAPPING

MAPPING	Slight1 / Moderate-2 /	JUSTIFICATION
C411.1-PO1	2	Graduates are able to apply basic engineering knowledge for identifying the real world problems in machine learning
C411.1-PO2	3	Graduates can identify and analyze the learning tasks in inductive bias
C411.2-PO1	2	Graduates are able to apply basic engineering knowledge for design decision tree and evaluate learning algorithms.
C411.2-PO2	2	Graduates can analyze decision tree construct and its problems and also analyze the evaluation techniques
C411.2-PO3	3	Graduates are to design decision trees
C411.2-PO4	3	Graduates can explore design of learning experiments and separation information to provide valid conclusions for classification problems
C411.3-PO1	3	Graduates are able to apply basic engineering knowledge for design computational and rule learning algorithms.
C411.3-PO2	2	Graduates can analyze PAC and first order rules techniques
C411.3-PO3	2	Graduates are to design complexity for infinite hypothesis spaces, Vapnik-Chervonenkis dimension, FOIL, Golem and Progol
C411.3-PO4	3	Graduates can explore design of learning experiments and separation information to provide valid conclusions for classification problems
C411.4-PO2	2	Graduates are able to apply basic engineering knowledge for design ANN and SVM.
C411.4-PO3	2	Graduates can analyze Perceptron, back propagation and SVM, classification
C411.4-PO4	3	Graduates are to design complexity for Perceptron in ANN and linear & non-linear classification in SVM.
C411.5-PO1	2	Graduates are able to apply basic engineering knowledge for design bayesian and instance based learning algorithms.
C411.5-PO2	2	Graduates can analyze Bayesian rules
C411.5-PO3	3	Graduates are to design complexity for Naïve Bayes, Logistic regression and k-nearest neighbour algorithm
C411.5-PO4	3	Graduates can explore design of learning experiments and separation information to provide valid conclusions for classification problems



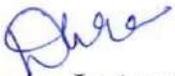
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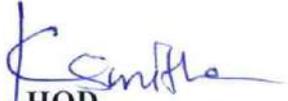
Department of Information Technology

PJUSTIFICATION FOR CO-PSO MAPPING

MAPPING	Slight1 / Moderate-2 / Strong-3	JUSTIFICATION
C411.2-PSO2	3	Graduates are able to demonstrate and interpret the decision tree learning in machine learning technologies
C411.4-PSO2	3	Graduates are able to demonstrate and interpret the computational learning like PAC in machine learning technologies
C411.5-PSO2	3	Graduates are able to demonstrate and interpret the ANN techniques for solving complex data in machine learning


Course Instructor


Program Coordinator


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Pulladigunta (V) Vatticherukuru (M), Guntur (Dist.)

DEPARTMENT OF CSE- DATA SCIENCE

COURSE : Formal Language And Automata Theory	DEGREE: B.Tech
COURSE CODE: R2022053	YEAR: II SEMESTER: II
REGULATION: R20	COURSE TYPE: REGULAR
ACADEMIC YEAR : 2022-2023	CREDITS: 3

After the completion of course, the student will be able to:

COURSE OUTCOMES:-

CO No.	Course Outcome Statement	Taxonomy Level
C214.1	Design automata for DFA, NFA and Transducers.	Apply
C214.2	Write regular expression for grammars.	Apply
C214.3	Classify Languages, Grammars and Normal forms.	Understand
C214.4	Design Push Down Automata and Turing machine for the given language.	Apply
C214.5	Explain the complexity class of problems-NP-Complete, NP-Hard, etc.	Understand



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DEPARTMENT OF CSE- DATA SCIENCE CO: PO and PSO Mapping

Mapping of course outcomes with program outcomes:
Strong -3 Moderate -2 Slight -1

PO / CO	FLAT	2022-2023	4	0	0	3	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO 1	PSO 2	
C214.1		Design automata for DFA, NFA and Transducers.					3	2	2	1									1		
C214.2		Write regular expression for grammars.					3	1	2	1									1		
C214.3		Classify Languages, Grammars and Normal forms.					2	2	2												
C214.4		Design Push Down Automata and Turing machine for the given language.					3	2	2	1											
C214.5		Explain the complexity class of problems-NP-Complete, NP-Hard, etc.					3	2	3	1											
TOTAL							15	11	12	4									2		
No of Co's Mapping With Po/Pso							6	5	5	4									2		
Average							3	2.2	2.4	1									1		

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Course Instructor

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Program Coordinator

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DEPARTMENT OF ARTIFICIAL INTELLIGENCE AND DATA SCIENCE

COURSE: Java programming	DEGREE: B.Tech
COURSE CODE: R2021422	YEAR: II SEMESTER: I
REGULATION: R20	COURSE TYPE: REGULAR
ACADEMIC YEAR: 2022-23	CREDITS: 3

After the completion of course, the student will be able to:

CO No.	Course Outcome Statement	Taxonomy Level
C214.1	Understand the basics fundamental in object-oriented programming Used in java and all understand applications java	2(Understand) L2 Understand
C214.2	Apply the concept of classes, methods and Java, Components to develop Simple Java Programs.	L3 Understand/Apply
C214.3	Develop Simple Java Programs to perform different array operation and also understand importance of inheritance in java	L3 Develop
C214.4	Understand the types packages used in java and also know the concept of exception handlings	L2 Understand
C214.5	Develop Multi-threading Programming and also develop java API for JDBC application	L3 Create



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CO: PO and PSO Mapping

Mapping of course outcomes with program outcomes:

Strong -3 Moderate -2 Slight -1

PO / CO	Java	20121- 2022	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PS 1	PS 2	PS 3
C214.1	Understand the basics fundamental in object-oriented programming Used in java and all understand applications java		3	2	1		2							2	2		
C214.2	Apply the concept of classes, methods and Java, Components-to develop Simple Java Programs		3	2	2		3							3	3		
C214.3	Develop Simple Java Programs to perform different array operation and also understand importance of inheritance in java		3	2	1		2							2	2		
C215.4	Understand the types packages used in java and also know the concept of exception handlings		3	3	3		3							3	3		
C215.5	Develop Multi-threading Programming and also develop java API forJDBC application		3	3	3		3							3	3		
TOTAL			15	12	10		13							13	13		
No of Co's Mapping With Po/Pso			5	5	5		5							5	5		
Average			3.0	2.4	2		2.6							2.6	2.6		



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DEPARTMENT OF ARTIFICIAL INTELLIGENCE AND DATA SCIENCE

JUSTIFICATION FOR CO-PSO MAPPING

MAPPING	Slight1 / Moderate-2 / Strong-3	JUSTIFICATION
C214.1-PSO1	2	Moderately mapped as students understand fundamentals of java syntax and semantics and fluent in the use of concepts in writing the programs to build application
C214.2-PSO1	3	Strongly mapped as students understand fundamentals of Object-oriented concepts to write a program / develop the application.
C214.3-PSO1	2	Moderately mapped as students understand fundamentals of multithreading and event handling concepts and fluent in the use these concepts in developing / build efficient application
C214.4-PSO1	3	Strongly mapped as students apply the applets-based GUI to develop/solve real world application
C214.5-PSO1	3	Strongly mapped as students apply the swings-based GUI to develop/solve real world application


Course Instructor


Program Coordinator


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DEPARTMENT OF ARTIFICIAL INTELLIGENCE AND DATA SCIENCE

COURSE: Java Programming	DEGREE: B. Tech
COURSE CODE: R2021422	YEAR: II SEMESTER: I
REGULATION: R20	COURSE TYPE: REGULAR
ACADEMIC YEAR: 2022-23	CREDITS: 3

After the completion of course, the student will be able to:

CO No.	Course Outcome Statement	Taxonomy Level
C204.1	Understand the basics fundamental in object-oriented programming Used in java and all understand applications java	Understand
C204.2	Apply the concept of classes, methods and Java, Components to develop Simple Java Programs.	Apply
C204.3	Develop Simple Java Programs to perform different array operation and also understand importance of inheritance in java	Apply
C204.4	Understand the types packages used in java and also know the concept of exception handlings	Understand
C204.5	Develop Multi-threading Programming and also develop java API for JDBC application	Apply

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DEPARTMENT OF ARTIFICIAL INTELLIGENCE AND DATA SCIENCE

CO: PO and PSO Mapping

Mapping of course outcomes with program outcomes:

Strong -3 Moderate -2 Slight -1

PO / CO	Java	20121- 2022	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PS 1	PS 2	PS 3
C204.1	Understand the basics fundamental in object-oriented programming Used in java and all understand applications java		3	2	1		2							2	2		
C204.2	Apply the concept of classes, methods and Java, Components to develop Simple Java Programs		3	2	2		3							3	3		
C204.3	Develop Simple Java Programs to perform different array operation and also understand importance of inheritance in java		3	2	1		2							2	2		
C204.4	Understand the types packages used in java and also know the concept of exception handlings		3	3	3		3							3	3		
C204.5	Develop Multi-threading Programming and also develop java API forJDBC application		3	3	3		3							3	3		
TOTAL			15	12	10		13							13	13		
No of Co's Mapping With Po/Pso			5	5	5		5							5	5		
Average			3.0	2.4	2		2.6							2.6	2.6		



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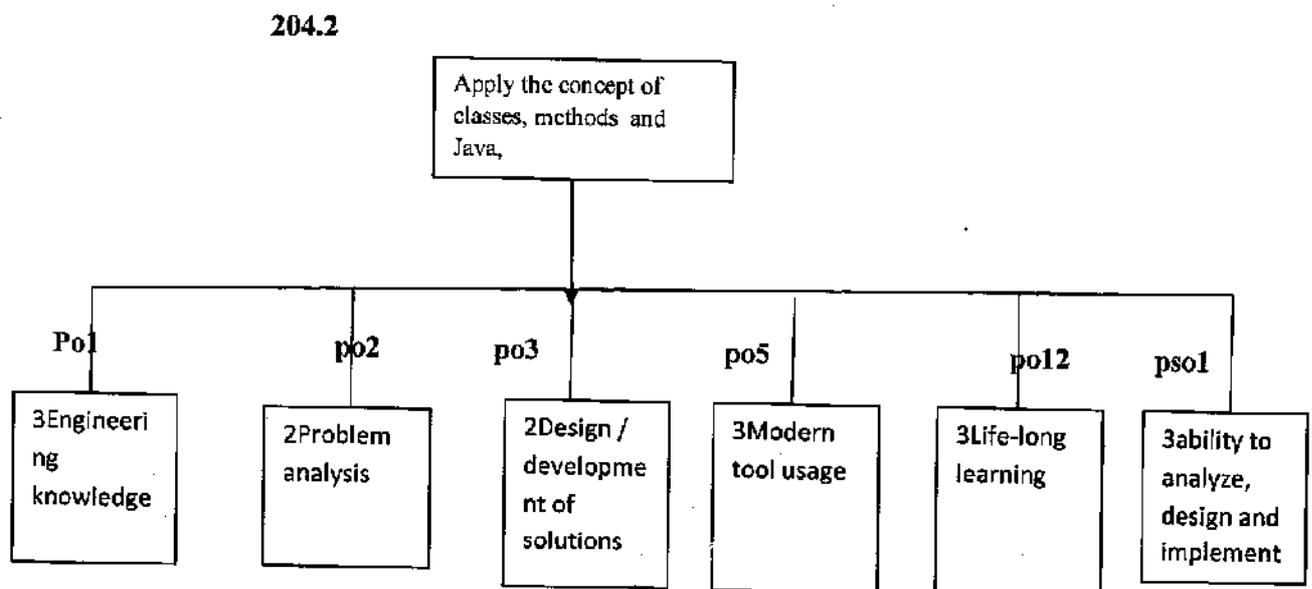
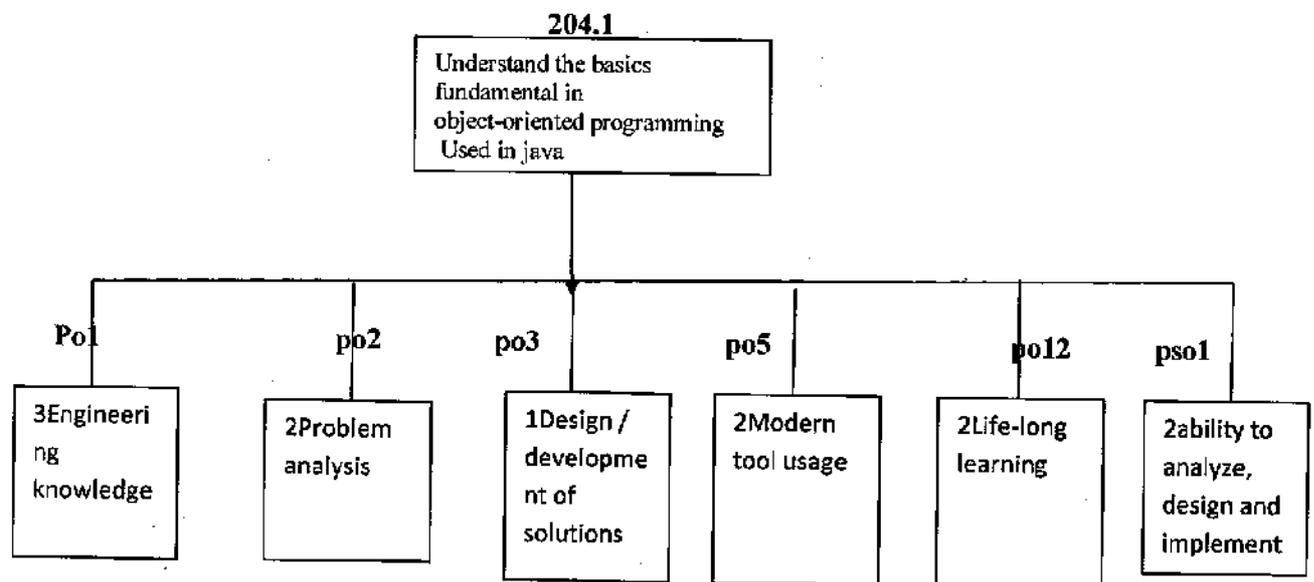
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CO: PO and PSO Mapping

Mapping of course outcomes with program outcomes(with chats)

Strong -3 Moderate -2 Slight -1



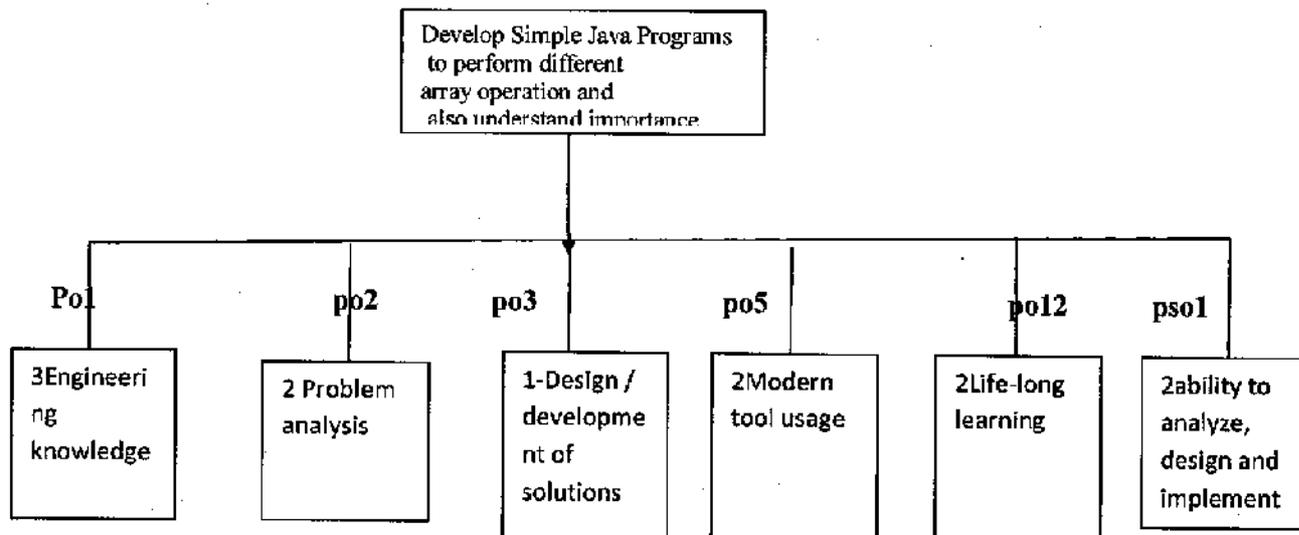


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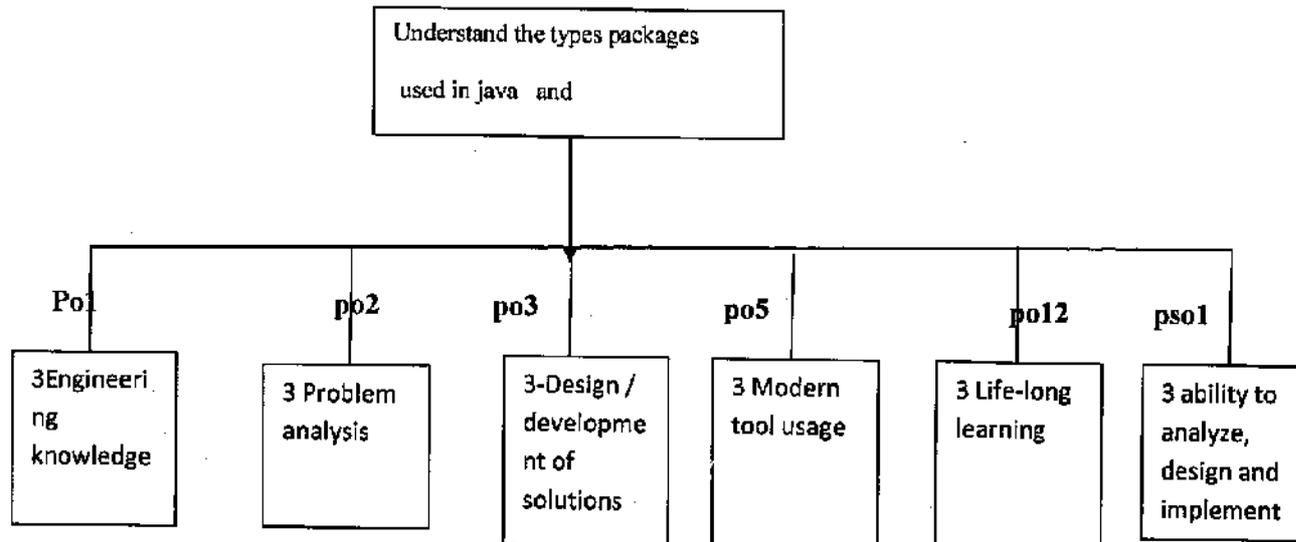
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204.3



204.4

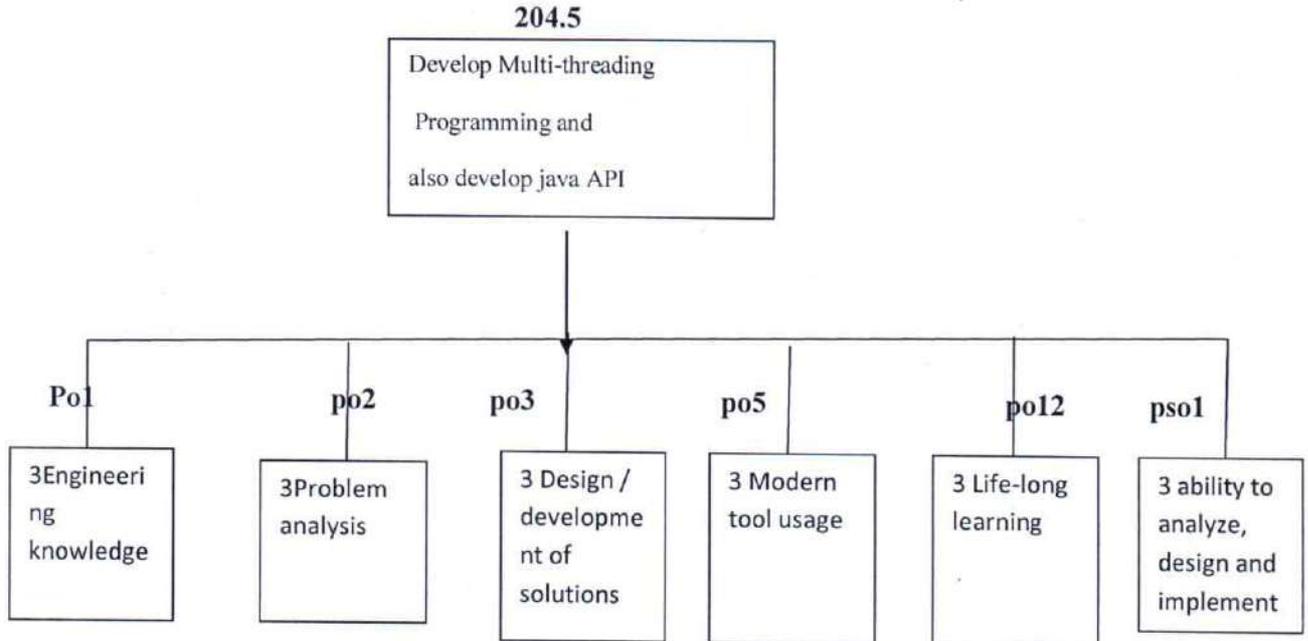




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DEPARTMENT OF ARTIFICIAL INTELLIGENCE AND DATA SCIENCE



MB
Course Instructor

[Signature]
Program Coordinator

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DEPARTMENT OF ARTIFICIAL INTELLIGENCE AND DATA SCIENCE

JUSTIFICATION FOR CO-PO-PSO CORRELATION:

CO:NO	PO	CL	JUSTIFICATION
C204.1	PO1	3	Strongly mapped as the students gain the knowledge of basic Java syntax and semantics to apply them in building applications which needs java programming constructs
	PO2	2	Moderately mapped as problem analysis is necessary for solving /developing any application using basic java programming
	PO3	1	Slightly mapped as the process of design and implementation has to be followed while applying the concepts but students will only understand the concepts
	PO5	2	Moderately mapped as students learn modern IDE tools to execute basic Java programs (Eclipse IDE).
	PO12	2	Moderately mapped as students apply the basic concepts of java learnt in continuing professional development and new developments
C204.2	PO1	3	Strongly mapped as the students need the knowledge of java syntax, Use of Object-oriented Concepts, semantics and apply them in building applications
	PO2	2	Moderately mapped as problem analysis is necessary for solving /developing any application using appropriate java programming construct such as objected oriented programming features, packages and exception handling.
	PO3	2	Moderately mapped as the process of design and implementation has to be followed while applying the object-oriented concepts.
	PO5	3	Strongly mapped as students learn modern IDE tools to execute build and execute / run applications using Eclipse IDE.
	PO12	3	Strongly mapped as students apply the concepts learnt in development of new application



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C204.3	PO1	3	Strongly mapped as the students need to understand the knowledge of handling multithreaded programming and event handling mechanism for developing an efficient application.
	PO2	2	Moderately mapped to problem analysis as the students need to apply threading concepts in programs / application while finding the solutions to the problem
	PO3	1	Slightly mapped to design and development as students have limited knowledge in using multithreading and event handling concepts
	PO5	2	Moderately mapped as students learnt Eclipse IDE tool to execute java programs / applications by incorporating multithreading concepts
	PO12	2	Moderately mapped as students apply the concepts of multithreading learnt in continuing professional development and new developments.
C204.4	PO1	3	Strongly mapped as the students should have the complete knowledge of java and develop the GUI based application using Applets.
	PO2	3	Strongly mapped as the students need to perform the complete problem analysis while developing the applications related to networks, web and database.
	PO3	3	Strongly mapped as students can be able to design and develop the GUI based applications to solve real world problems
	PO5	3	Strongly mapped as students learn modern IDE tool such as Eclipse IDE to build and execute java applications
	PO12	3	Strongly mapped as students apply the concepts learnt in developing GUI based applications in continuing professional development and new developments



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C204.5	PO1	3	Strongly mapped as the students should have the complete knowledge of java and develop the GUI based application using Swings
	PO2	3	Strongly mapped as the students need to perform the complete problem analysis while developing the applications related to networks, web and database. the applications related to networks, web and database.
	PO3	3	Strongly mapped as students can be able to design and develop the GUI based applications to solve real world problems
	PO5	3	Strongly mapped as students learn modern IDE tool such as Eclipse IDE to build and execute java applications.
	PO12	3	Strongly mapped as students apply the concepts learnt in developing GUI based applications in continuing professional development and new developments.

Ms

Course Instructor

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Program Coordinator

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DEPARTMENT OF ARTIFICIAL INTELLIGENCE AND DATA SCIENCE

JUSTIFICATION FOR CO-PSO MAPPING

MAPPING	Slight1 / Moderate-2 / Strong-3	JUSTIFICATION
C204.1-PSO1	2	Moderately mapped as students understand fundamentals of java syntax and semantics and fluent in the use of concepts in writing the programs to build application
C204.2-PSO1	3	Strongly mapped as students understand fundamentals of Object-oriented concepts to write a program / develop the application.
C204.3-PSO1	2	Moderately mapped as students understand fundamentals of multithreading and event handling concepts and fluent in the use these concepts in developing / build efficient application
C204.4-PSO1	3	Strongly mapped as students apply the applets-based GUI to develop/solve real world application
C204.5-PSO1	3	Strongly mapped as students apply the swings-based GUI to develop/solve real world application


Course Instructor


Program Coordinator


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Department of Master of Business Administration

MBA SEMESTER-I-- COPOMAPPING&ATTAINMENT

Semester-I								
C-101	MANAGEMENT & ORGANIZATION BEHAVIOUR							
	COPO Mapping & Attainment							
		PO1	PO2	PO3	PO4	PO5	PSO1	PSO2
	CO1	2	2	2	3	2	2	2
	CO2	2	-	3	2	2	2	2
	CO3	3	2	2	2	2	2	2
	CO4	2	3	-	2	3	3	2
	Average	2.25	2.33	2.33	2.25	2.25	2.25	2.00
C-102	Managerial Economics							
	COPO Mapping & Attainment							
		PO1	PO2	PO3	PO4	PO5	PSO1	PSO2
	CO1	2	2	2	3	2	2	2
	CO2	1	1	1	2	3	2	2
	CO3	3	2	2	2	2	2	2
	CO4	2	3	-	2	3	3	2
	Average	2.00	2.00	1.67	2.25	2.50	2.25	2.00
C-103	Accounting for Managers							
	COPO Mapping & Attainment							
		PO1	PO2	PO3	PO4	PO5	PSO1	PSO2
	CO1	2	2	2	3	2	2	2
	CO2	1	1	1	2	3	2	2
	CO3	3	2	2	2	2	2	2
	CO4	2	2	3	1	2	2	1
	Average	2.00	1.75	2.00	2.00	2.25	2.00	1.75
C-106	Business communication and soft skills							
	COPO Mapping & Attainment							
		PO1	PO2	PO3	PO4	PO5	PSO1	PSO2
	CO1	2	2	2	3	2	2	2
	CO2	1	2	3	2	1	2	2
	CO3	2	2	2	2	3	3	2
	CO4	2	2	3	1	2	2	1
	Average	1.75	2	2.5	2	2	2.25	1.75
C-105	LEGAL AND BUSINESS ENVIRONMENT							
	COPO Mapping & Attainment							
		PO1	PO2	PO3	PO4	PO5	PSO1	PSO2
	CO1	2	2	2	3	2	3	2
	CO2	3	3	1	3	2	3	2
	CO3	2	2	2	2	3	2	3
	CO4	2	2	3	1	2	2	2



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	CO2	3	3	1	3	2	3	2
	CO3	2	2	2	2	3	2	3
	CO4	2	2	3	1	2	2	2
	Average	2.25	2.25	2	2.25	2.25	2.5	2.25
C-104	Quantitative Techniques of Business Decisions							
	COPO MAPPING & ATTAINMENT							
		PO1	PO2	PO3	PO4	PO5	PSO1	PSO2
	CO1	2	2	2	3	2	3	2
	CO2	3	2	2	2	2	3	2
	CO3	1	2	2	2	3	2	2
	CO4	2	2	3	1	2	2	2
	Average	2	2	2.25	2	2.25	2.5	2
C-107	RURAL INNOVATION PROJECTS							
	COPO MAPPING & ATTAINMENT							
		PO1	PO2	PO3	PO4	PO5	PSO1	PSO2
	CO1	2	2	2	3	2	3	2
	CO2	3	2	2	2	2	3	2
	CO3	3	2	2	2	3	2	2
	CO4	2	2	3	1	2	2	2
	Average	2.5	2	2.25	2	2.25	2.5	2

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MBA SEMESTER-II COPO MAPPING&ATTAINMENT

Semester-II								
C-201	Financial Management							
	COPO MAPPING&ATTAINMENT							
		PO1	PO2	PO3	PO4	PO5	PSO1	PSO2
	CO1	2	2	2	3	2	3	2
	CO2	3	3	-	-	2	2	-
	CO3	3	-	2	2	2	2	2
	CO4	-	2	3	2	-	2	2
	Average	2.67	2.33	2.33	2.33	2.00	2.25	2.00
C-202	Human Resource Management							
	COPO MAPPING&ATTAINMENT							
		PO1	PO2	PO3	PO4	PO5	PSO1	PSO2
	CO1	2	2	2	3	2	3	2
	CO2	3	3	-	-	2	2	3
	CO3	2	-	2	-	3	-	-
	CO4	-	2	3	2	2	2	2
	Average	2.33	2.33	2.33	2.50	2.25	2.33	2.33
C-203	MARKETING MANAGEMENT							
	COPO MAPPING&ATTAINMENT							
		PO1	PO2	PO3	PO4	PO5	PSO1	PSO2
	CO1	2	2	2	3	2	3	2
	CO2	3	3	-	-	2	2	2
	CO3	2	2	-	2	3	1	2
	CO4	-	2	3	2	2	2	3
	Average	2.33	2.25	2.50	2.33	2.25	2.00	2.25
C-204	OPERATIONS MANAGEMENT							
	COPO MAPPING&ATTAINMENT							
		PO1	PO2	PO3	PO4	PO5	PSO1	PSO2
	CO1	3	-	2	3	3	3	2
	CO2	3	2	3	2	1	1	3
	CO3	2	3	2	1	2	2	3
	CO4	3	2	2	2	3	3	2
	Average	2.75	2.33	2.25	2.00	2.25	2.25	2.50



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Business Research Methods								
COPOMAPPING&ATTAINMENT								
		PO1	PO2	PO3	PO4	PO5	PSO1	PSO2
	CO1	2	3	3	1	2	1	2
	CO2	3	2	2	2	3	1	2
	CO3	3	1	2	3	2	3	3
	CO4	3	3	2	2	2	3	2
	Average	2.75	2.25	2.25	2	2.25	2	2.25
C-206 Data Base Management System								
COPOMAPPING&ATTAINMENT								
		PO1	PO2	PO3	PO4	PO5	PSO1	PSO2
	CO1	3	2	3	3	3	1	2
	CO2	3	3	2	1	3	2	1
	CO3	2	3	1	2	1	2	2
	CO4	-	-	-	-	-	3	1
	Average	2.67	2.67	2.00	2.00	2.33	2.00	1.50

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