SBRR Mahajana First Grade College (Autonomous), PG Wing Pooja Bhagavat Memorial Mahajana Education Centre KRS Road, Metagalli, Mysuru-570016

M.Sc. (Computer Science) Programme Structure w.e.f. 2019-20

I Semester

		T			Subject			
SI. NO	Course little	Iype	L	Т	Р	Code		
1	Discrete Mathematical Structures	HC	3	1	0	19J1H1		
2	Advanced Data Structures	HC	3	1	0	19J1H2		
3	Data Communication	HC	4	0	0	19J1H3		
Soft Core Courses (Choose at most 2 Courses)								
1	Java Programming	SC	3	0	1	19J1S1		
2	Operating Systems	SC	3	1	0	19J1S2		
3	Principles of Programming and Problem Solving	SC	3	0	1	19J1S3		
4	Communication Skills	SC	4	0	0	19J1S4		
5	Computer Architecture	SC	4	0	0	19J1S5		
6	Numerical Algorithms	SC	4	0	0	19J1S6		

II Semester

CL N		Туре		Credits		Subject			
51. No	Course little	Type	L	Т	Р	Code			
1	Design and Analysis of Algorithms	HC	2	1	1	19J2H1			
2	Computer Networks	HC	3	1	0	19J2H2			
3	Data Base Management Systems	HC	3	0	1	19J2H3			
Soft Core Courses (Choose at most 2 Courses)									
1	System Software	SC	3	0	1	19J2S1			
2	Computer Graphics	SC	2	1	1	19J2S2			
3	Professional Ethics and Values	SC	3	1	0	19J2S3			
4	Pattern Recognition	SC	3	1	0	19J2S4			
5	Web Technologies	SC	3	0	1	19J2S5			
	World Wide Web	OE	2	2	0	19J2O1			

III Semester

GL N		Type			Subject				
SI. No	Course Title	Туре	L	Т	Р	Code			
1	Theory of Languages	HC	3	1	0	19J3H1			
2	Python Programming	HC	3	0	1	19J3H2			
3	Software Engineering	HC	3	1	0	19J3H3			
Soft Core Courses (Choose at most 2 Courses)									
1	Artificial Intelligence	SC	3	1	0	19J3S1			
2	Digital Image Processing	SC	3	0	1	19J3S2			
3	C# Programming	SC	3	0	1	19J3S3			
4	Android Programming	SC	3	1	0	19J3S4			
5	Big Data Analytics	SC	3	1	0	19J3S5			
	E-Commerce	OE	3	1	0	19J3O2			

IV Semester

CL N		Type		Subject					
51. NO	Course little	1 ype	L	Т	Р	Code			
1	Dissertation	HC	0	2	10	19J4H1			
Soft Core Courses (Choose at most 2 Courses)									
1	Compiler Construction	SC	3	1	0	19J4S1			
2	Advanced Data Base Management System	SC	2	1	1	19J4S2			
3	Data Mining	SC	3	1	0	19J4S3			
	Office Automation	OE	2	2	0	19J4O3			

I Semester M.Sc.(CS)

HC DISCRETE MATHEMATICAL STRUCTURES [3:1:0]

Course Outcomes:

- Apply the concepts of set theory, logic, quantifiers and relations in specifying and solving problems.
- Identify the quantifiers and their uses and Make use of fundamentals of logic theory.
- Apply the mathematical induction principle and different methods to solve the given problem.
- Make use of basic concepts of graph theory and solve the given problem.

PO CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6		
CO 1	3	1	2	1	1	1		
CO 2	3	1	2	1	1	1		
CO 3	3	2	2	1	1	2		
CO 4	3	2	2	1	1	1		
Weighted Average	3	1.5	2	1	1	1.25		

1: Low, 2: Moderate, 3: High

ADVANCED DATA STRUCTURES [3:1:0]

Course Outcomes:

HC

- Understand the ADT specification of dictionary data structure, priority queue and binary search trees.
- Perform insertion, deletion and searching operation on dictionary, priority queue and binary search trees.
- Perform the sorting using external sorting.
- Identify the applications of string matching algorithms and tries.

РО		PO 2	DO 3	DO 4	DO 5	PO 6
СО	FUI	ru z	r03	FU 4	r05	
CO 1	3	1	2	1	1	1
CO 2	1	2	2	1	2	1
CO 3	3	2	2	1	1	2
CO 4	2	2	1	1	1	1
Weighted	2.25	1 75	1 75	1	1 25	1 25
Average	2.23	1./5	1./5	L	1.23	1.23

Course articulation matrix:

HC

DATA COMMUNICATION

[4:0:0]

Course Outcomes:

- Understand the terminologies used in data transmission and physical and transmission characteristics of transmission media.
- Understand the signal encoding techniques and digital data communication techniques.
- Familiarize oneself with data link control protocols and different types of multiplexing.
- Comprehend the different switching techniques.

РО	DO 1		DO 2		DO 5	
СО	PUI	102	PO 3	PU 4	PO 5	100
CO 1	1	1	1	1	3	2
CO 2	3	3	2	1	2	2
CO 3	2	2	1	1	3	2
CO 4	3	2	1	1	2	2
Weighted Average	2.25	2	1.25	1	2.5	2

1: Low, 2: Moderate, 3: High

JAVA PROGRAMMING

[3:0:1]

Course outcomes:

- Understand different aspects of object oriented paradigm and programming fundamentals.
- Build programs using programming basics, class fundamentals and reusable code using inheritance and polymorphism.
- Model solutions using files and interfaces.
- Develop efficient and error free applications using packages and exceptions.

PO CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6		
CO 1	1	3	2	1	2	3		
CO 2	1	3	2	1	2	3		
CO 3	1	3	3	1	2	3		
CO 4	1	3	3	1	2	3		
Weighted Average	1	3	2.5	1	2	3		

Course articulation matrix

Operating Systems

[3:1:0]

Course Outcomes:

- Able to comprehend the operating system components and its services
- Able to understand how process is created and various process related components of the operating system.
- Able to comprehend how memory management and virtual memory management is done.
- Able to understand different file and directory structures and how files are stored in secondary storage.

РО	DO 1	DO 2	DO 3	PO 4	PO 5	PO 6
СО	101	102	105	104		
CO 1	1	3	1	1	1	1
CO 2	1	3	1	1	1	1
CO 3	1	3	1	1	1	1
CO 4	1	3	1	1	1	1
Weighted	1	3	1	1	1	1
Average	1	3	l	L		

1: Low, 2: Moderate, 3: High

SC PRINCIPLES OF PROGRAMMING AND PROBLEM SOLVING [3:0:1]

Outcomes:

- Learn and implement the steps involved in problem solving and the stages involved in translation of Programming Language.
- Learn and implement the elementary data types and structured data types.
- Comprehend the need of sequence control and subprogram control.
- Implement the concepts in distributed Computing and Network Programming.

PO	DO 1		DO 3	PO 4	PO 5	DO 6
CO	101	102	105	104	103	100
CO 1	1	3	2	1	1	3
CO 2	1	1	2	1	1	3
CO 3	1	1	2	1	1	3
CO 4	1	1	2	1	1	3
Weighted	1	15	2	1	1	2
average	1	1.3	4	1	1	3

1: Low, 2: Moderate, 3: High

COMMUNICATION SKILLS

[4:0:0]

Course Outcomes:

• Understand and apply knowledge of human communication and language processes as they occur across various contexts from multiple perspectives.

• Understand and evaluate key theoretical approaches used in the interdisciplinary field of communication.

• Find, use, and evaluate primary academic writing associated with the communication discipline.

• Communicate effectively orally and in writing.

PO CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6
CO 1	1	1	2	3	1	1
CO 2	1	1	3	1	2	2
CO 3	1	3	3	3	1	1
CO 4	1	2	3	3	2	3
Weighted average	1	1.75	2.75	2.5	1.5	1.75

1: Low, 2: Moderate, 3: High

COMPUTER ARCHITECTURE

4:0:0

Outcomes :

- Develop an ability to understand the concept of cache mapping techniques.
- Develop an ability to understand basics of organizational and architectural issues of a digital computer.
- Acquire knowledge and understanding the theory of Digital Design and Computer Organization to provide an insight of how basic computer components are specified.
- Develop an ability to conceptualize instruction level parallelism.

РО	DO 1	DO 1	DO 3		PO 5	DO 6
СО	101	102	103	104	103	100
CO 1	1	2	1	1	1	1
CO 2	1	2	1	1	1	1
CO 3	1	2	1	1	1	1
CO 4	1	2	1	1	1	1
Weighted Average	1	2	1	1	1	1

Course articulation matrix

NUMERICAL ALGORITHMS

Outcomes:

- Demonstrate understanding of common numerical methods and how they are used to obtain approximate solutions.
- Apply numerical methods to obtain approximate solutions to mathematical problems.
- Derive numerical methods for various mathematical operations and tasks such as solution of non-linear equations, numerical integration and ordinary differential equations.
- Gain an understanding of interpolation and statistical methods.

РО									
СО	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6			
CO 1	3	1	1	1	1	1			
CO 2	3	1	1	1	1	1			
CO 3	3	1	1	1	1	1			
CO 4	3	1	1	1	1	1			
Weighted	3	1	1	1	1	1			
Average		-	•	•	_ _	•			

Course articulation matrix:

II Semester M.Sc.(CS)

HC DESIGN AND ANALYSIS OF ALGORITHM [2:1:1] Course outcomes:

- Compare between different data structures. Pick an appropriate data structure for a design situation. Analyze Performance of algorithms using asymptotic analysis.
- Describe the divide-and-conquer paradigm and explain when an algorithmic design situation calls for it. Recite algorithms that employ this paradigm. Synthesize divide-andconquer algorithms. Derive and solve recurrences describing the performance of divideand-conquer algorithms.
- Describe the greedy paradigm and dynamic-programming paradigm and explain when an algorithmic design situation calls for it. Recite algorithms that employ this paradigm. Synthesize greedy algorithms, and analyze them.
- Describe the backtracking paradigm and branch and bound paradigm and explain when an algorithmic design situation calls for it. Recite algorithms that employ this paradigm. Synthesize greedy algorithms, and analyze them.

PO						
CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6
CO 1	3	1	1	1	1	1
CO 2	3	1	1	1	2	1
CO 3	3	1	1	1	2	1
CO 4	3	1	1	1	2	1
Weighted Average	3	1	1	1	1.75	1

Course articulation matrix

HC

COMPUTER NETWORKS

[3:1:0]

Course Outcomes:

- To comprehend the functionalities needed for network communication into layers
- Choose the required functionality at each layer for given application.
- Comprehend different algorithms used in different layers.
- Understand the working principles of various application protocols.

PO	PO 1	PO 2	PO 3		PO 5	
CO	IUI	102	103	104	103	100
CO1	1	1	1	1	2	1
CO2	1	1	1	1	1	1
CO3	2	2	3	1	1	3
CO4	1	1	1	1	1	1
Weighted Average	1.25	1.25	1.5	1	1.25	1.5

1: Low, 2: Moderate, 3: High

HC DATABASE MANAGEMENT SYSTEMS [3:0:1]

Course Outcomes:

- Comprehend data models and schemas in DBMS.
- Use SQL- the standard language of relational databases.
- Understand the functional dependencies and design of the database.
- Understand the concept of Transaction and Query processing.

PO	DO 1	DO 2	DO 3		PO 5	DO 6
CO	101	102	103	104	103	100
CO 1	1	2	2	1	1	1
CO 2	2	3	3	1	2	2
CO 3	1	2	1	1	1	1
CO 4	1	2	1	1	1	1
Weighted	1 25	2.25	1 75	1	1 25	1.25
Average	1.23	2.23	1./5	L	1.25	1.25

1: Low, 2: Moderate, 3: High

SYSTEM SOFTWARE

[3:0:1]

Course Outcomes:

- Develop an Ability to master the design of assembler.
- Able to understand various issues related to processing macros.
- Able to understand different loaders schemes, and related issues.
- Develop ability to write simple lexical analyser and parser with Lex and Yacc.

PO CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6
CO 1	1	2	2	1	1	3
CO 2	1	2	2	1	1	3
CO 3	1	3	2	1	1	3
CO 4	3	3	2	1	1	3
Weighted Average	1.5	2.5	2	1	1	3

1: Low, 2: Moderate, 3: High

Computer Graphics

[2:1:1]

Course Outcomes:

- Able to identify and use various graphics hardware, basic coordinate representations, functions and scan conversion algorithms.
- Able to implement various filled area primitives, 2D transformations and viewing.
- Able to implement 2D clipping algorithms 3D geometric transformations.
- Able to implement 3D viewing, spline curves and visible surface detection.

PO CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6
CO 1	3	3	1	1	1	1
CO 2	3	3	1	1	1	1
CO 3	3	3	1	1	1	1
CO 4	3	3	1	1	1	1
Weighted Average	3	3	1	1	1	1

Course articulation matrix

SC PROFESSIONAL ETHICS AND VALUES [3:1:0]

Course Outcomes:

- \cdot Know the importance of ethics and methods of developing technologies.
- · Identify the values and ethics of professional development.
- · Understand the causes, effects and control measures for various types of societal failures.
- \cdot Gain knowledge about various ethical management methods.

РО	D O 1	PO 2	DO 3		PO 5	DO 6	
CO	rui	ro 2	103	104	105	100	
CO 1	1	1	1	2	3	1	
CO 2	1	1	1	2	3	1	
CO 3	1	1	2	2	3	1	
CO 4	1	1	1	2	3	1	
Weighted	1	1	1 25	2	2	1	
Average	1	1	1.45	<u>_</u>	5	I	

Course articulation matrix

PATTERN RECOGNITION

[3:1:0]

Outcomes:

- Understand Machine perception and Bayesian Decision Theory.
- Apply maximum likelihood and Bayesian parametric estimation
- Apply nonparametric techniques for pattern recognition
- Apply unsupervised learning techniques for pattern recognition.

РО	DO 1		DO 3		DO 5		
CO	rui	ru 2	rus	r04	r05	ruo	
CO 1	3	2	1	1	1	1	
CO 2	3	2	1	1	1	1	
CO 3	3	2	1	1	1	1	
CO 4	3	2	1	1	1	1	
Weighted	2	2	1	1	1	1	
Average	3	L	L	L	L	L	

Course articulation matrix

WEB TECHNOLOGIES

[3:0:1]

Course Outcomes:

- Implement HTML5 pages using fundamental tags.
- Develop style sheet using CSS for a given problem.
- Extend JavaScript to validate a form with event handler for a given problem.
- Develop a dynamic website with database backend.

Course articulation matrix

РО	DO 1				DO 5	
CO	rui	102	FU 3	ru4	r05	100
CO 1	2	3	3	1	1	1
CO 2	2	3	1	1	1	1
CO 3	1	3	2	2	1	1
CO 4	1	3	2	3	1	1
Weighted	15	5 3	2	1 75	1	1
Average	1.5	3	<u>_</u>	1.75	L	1

WORLD WIDE WEB

[3:1:0]

Outcomes:

OE

- Understand the working scheme of the Internet and World Wide Web.
- Understand fundamental tools and technologies used for web design.
- Comprehend the technologies for Hypertext Mark-up Language (HTML).
- Figure out the various security hazards on the internet and need of security measures.

Course articulation matrix

PO CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6
CO 1	1	3	1	1	1	1
CO 2	1	3	1	1	1	1
CO 3	1	3	2	1	1	1
CO 4	1	3	2	1	1	1
Weighted Average	1	3	1.5	1	1	1

III Semester M.Sc.(CS)

HC

THEORY OF LANGUAGES [

[3:1:0]

Course Outcomes:

- Acquire a fundamental understanding of the core concepts in automata theory and formal languages
- Develop ability to model grammars and automata (recognizers) for different language classes.
- Develop an ability to identify formal language classes and prove language membership properties.
- Develop an ability to prove and disprove theorems establishing key properties of formal languages and automata.

PO	DO 1	PO 2	DO 3	PO 4	PO 5	DO 6
CO	IUI	102	103	104	105	100
CO 1	3	1	1	1	1	1
CO 2	3	1	1	1	1	1
CO 3	2	1	1	1	1	1
CO 4	3	1	1	1	1	1
Weighted Average	2.75	1	1	1	1	1

Course articulation matrix

HC

Python Programming

[3:0:1]

Course outcomes:

- Develop ability to program in Python with hands on Regular Expression, and write Text Processing scripts.
- Write file handling scripts.
- Learn to use Python for Data and Image processing.
- Get hands on experience of Cluster Analysis using Python.

PO CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6		
CO 1	1	2	1	1	3	3		
CO 2	1	2	1	1	3	3		
CO 3	2	3	1	1	3	3		
CO 4	3	3	1	1	3	3		
Weighted Average	1.75	2.5	1	1	3	3		

1: Low, 2: Moderate, 3: High

HC SOFTWARE ENGINEERING

[3:1:0]

Course Outcomes:

- Identify the key activities in managing software project and compare different process models.
- Apply the Concepts of requirements engineering and Analysis Modelling.
- Apply systematic procedure for software design and deployment.
- Compare and contrast the various testing and maintenance.

PO CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6
CO 1	2	3	2	2	2	2
CO 2	3	2	3	2	2	3
CO 3	3	3	2	2	3	2
CO 4	2	2	2	2	2	2
Weighted Average	2.5	2.5	2.25	2	2.25	2.25

Low: 1,	Moderate: 2,	High: 3
,	,	8

ARTIFICIAL INTELLIGENCE [3:1:0]

Outcomes:

- Understand the basic concepts of AI.
- Understand the fundamentals of knowledge representation, inference and theorem proving.
- Represent knowledge of the world using logic and infer new facts from that knowledge.
- Explain how Artificial Intelligence enables capabilities that are beyond conventionaltechnology.

PO						
CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6
CO 1	3	3	2	2	2	3
CO 2	3	3	3	2	1	3
CO 3	3	3	3	2	1	3
CO 4	3	3	3	2	1	3
Weight ed Averag e	3	3	2.75	2	1.25	3

Course Articulation Matrix

DIGITAL IMAGE PROCESSING [3:0:1]

Outcomes:

- Demonstrate the concepts of digital image processing.
- Learn different techniques employed for the enhancement of images using spatial domain.
- Learn different techniques employed for the enhancement of images using frequency domain.
- Implement the techniques of image segmentation.

PO						
CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6
CO 1	3	1	1	1	2	1
CO 2	3	1	1	1	3	1
CO 3	3	1	1	1	3	1
CO 4	3	1	1	1	3	1
Weighted Average	3	1	1	1	2.75	1

Course Articulation Matrix

1: Low, 2: Moderate, 3: High

SC

SC C#PROGRAMMING [3:0:1]

Outcomes:

- Acquire the knowledge of .NET framework.
- Develop an ability to write programs in C#.
- Implement the extended OOP's concept in C# environment.
- Develop applications using standard C# libraries.

PO						
CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6
CO 1	1	3	1	1	1	2
CO 2	1	2	1	1	1	1
CO 3	1	3	2	1	1	1
CO 4	1	3	2	1	1	2
Weighted Average	1	2.75	1.5	1	1	1.5

Course Articulation Matrix

ANDROID PROGRAMMING [3:0:1]

Outcomes:

- Build sample android application.
- Develop user interfaces for android applications.
- Develop android applications to share data between different applications.
- Deploy android applications.

PO						
CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6
CO 1	2	3	2	1	1	1
CO 2	3	3	2	1	1	2
CO 3	3	3	2	1	2	2
CO 4	3	3	3	1	2	2
Weighte d Average	2.75	3	2.25	1	1.5	1.75

Course Articulation Matrix

1: Low, 2: Moderate, 3: High

SC

BIG DATA ANALYTICS

[3:1:0]

Course Outcomes:

- Understand the concept and challenges of big data and why existing technology is inadequate to analyse the big data.
- Develop an ability to collect, manage, store, query, and analyse various form of big data.
- Understand the significance of No SQL databases over RDBMS.
- Map the impact of big data for business decisions and strategy.

РО	DO 1				DO 5	
СО	POI	PO 2	PO 3	PO 4	PO 5	PU 6
CO 1	1	1	2	2	3	2
CO 2	3	3	2	2	2	2
CO 3	2	2	2	1	3	2
CO 4	3	2	1	1	2	2
Weighted Average	2.25	2	1.75	1.5	2.5	2

Course articulation matrix:

Low: 1, Moderate: 2, High: 3.

OE

E-COMMERCE [3:1:0]

Outcomes:

- Study the impact of E-commerce on business models and strategy
- Describe the Internet trading relationships including Business to Consumer, Business-to-Business, Intra-organizational structures.
- Assess electronic payment systems and its securities.
- Recognize, discuss and derive possible solutions to global E-commerce issues.

PO						
CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6
	1	1	2	2	2	1
CO 1						
	1	2	3	2	2	1
CO 2						
	1	2	2	1	1	1
CO 3						
	1	1	2	2	1	1
CO 4						
Weighted	1	1.5	2.25	1.75	1.5	1
Average						

1: Low, 2: Moderate, 3: High

IV Semester DISSERTATION [0:2:10]

НС

Outcomes:

- Develop basic algorithm steps as a solution to a real-life problem.
- Implement algorithms using latest tools that contribute to the software solution of the projectusing different tools.
- Analyse, interpret, test and validate experimental results.
- Develop research/technical report with enhanced writing/communication skills followingethical practices.

PO						
СО	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6
CO 1	3	3	2	-	-	-
CO 2	-	-	3	-	3	-
CO 3	1	3	-	-	2	-
CO 4	-	-	3	3	3	3
Weighted Average	2	3	2.66	3	2.66	3

Course Articulation Matrix

Compiler Construction

[3:1:0]

Outcomes :

SC

- Explain the concepts and different phases of compilation and Interpret language tokens using regular expressions and design lexical analyzer.
- Build top down parsing, bottom up parsing and parse tree representation of the input.
- Perform context sensitive analysis, semantic analysis and type checking
- Experiment the optimization techniques to intermediate code and generate machine code for high level language program.

РО	DO 1	DO 1	DO 3	PO 4	DO 5	DO 6
CO	101	r U 2	105	104	103	100
CO 1	2	3	1	1	1	1
CO 2	3	3	1	1	1	1
CO 3	3	3	1	1	1	1
CO 4	2	3	1	1	1	1
Weighted Average	2.5	3	1	1	1	1

^{1:} Low, 2: Moderate, 3: High

SC ADVANCED DATABASE MANAGEMENT SYSTEM [2:1:1]

Outcomes:

- Critically assess new developments in database technology.
- Evaluate the contribution of database theory to practical implementations of databasemanagement systems.
- Implement the various types of database systems.
- Interpret the impact of emerging database standards.

PO CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6
0	1				1	1
	3	2	l	l	1	1
CO 1						
	3	3	2	1	2	2
CO 2						
	3	3	3	1	2	3
CO 3						
	3	3	2	1	2	2
CO 4						
Weighted	3	2.75	2	1	1.75	2
Average						

1: Low, 2: Moderate, 3: High

DATA MINING

[3:0:1]

Outcomes:

- Identify data mining problems and recognize types of data and preprocessing needed.
- Employ the concepts of Association Analysis
- Identify problems suitable for Classifications and Apply different classification algorithms
- Identify problems appropriate for Clustering and Apply different clustering algorithms.

PO						
СО	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6
CO 1	3	2	1	1	2	1
CO 2	3	3	1	1	2	1
CO 3	3	3	1	1	2	1
CO 4	3	3	1	1	2	1
Weighted Average	3	2.75	1	1	2	1

Course Articulation Matrix

OE

OFFICE AUTOMATION [3:1:0]

Outcomes:

- To understand the basics of computer hardware and software.
- To prepare documents of different types.
- Ability to develop and use spreadsheets for tabulating and analyzing for productivity.
- To prepare presentations.

PO						
СО	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6
	2	2	1	1	1	1
CO 1						
	2	2	1	1	1	1
CO 2						
CO 3	2	2	1	1	1	1
	2	2	1	1	1	1
CO 4						
Weighted	2	2	1	1	1	1
Average						

Course Articulation Matrix

1: Low, 2: Moderate, 3: High
