IMS Engineering College, Ghaziabad

Department of Computer Science

2020-21

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Course Outcomes (CO) mapping with Programme Outcomes (PO) and Programme Specific Outcomes (PSO)

Institute Vision and Mission

Vision

Our vision is to impart Vibrant, Innovative and Global Education to make IMS the world leader in terms of Excellence of Education, Research and to serve the nation in the 21st century.

Mission

- To develop IMSEC as a Centre of Excellence in Technical and Management Education.
- To inculcate in its students the qualities of Leadership, Professionalism, Executive Competence and Corporate understanding.
- To imbibe and enhance Human Values, Ethics and Morals in our students.
- To transform students into Globally Competitive Professionals

Department Vision and Mission

Vision

To be recognized as a Centre of Excellence imparting quality education and creating new opportunities for students to meet the challenges of technological development in Computer Science & Engineering.

Mission

- To promote technical proficiency by adopting effective teaching learning processes.
- To provide environment & opportunity for students to bring out their inherent talents for all round development.
- To promote latest technologies in Computer Science & Engineering and across disciplines in order to serve the needs of Industry, Government, Society, and the scientific community.
- To educate students to be Successful, Ethical and Effective problem-solvers and Life-Long learners who will contribute positively to the society.

IMS Engineering College, Ghaziabad

Program Outcomes

Engineering Graduates will be able to:

1. Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
2. Problem analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
3. Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
4. Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
5. Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.
6. The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
7. Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
8. Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
9. Individual and teamwork: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
10. Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
11. Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
12. Life-long learning: Recognize the need for and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

Program Educational Objectives

1. Graduates of the program will be able to apply fundamental principles of engineering in problem solving and understand the role of computing in multiple disciplines.
2. Graduates will learn to apply various computational techniques & tools for developing solutions & projects in real world.
3. Be employed as computer science professionals beyond entry-level positions or be making satisfactory progress in graduate programs.
4. Demonstrate that they can function, communicate, collaborate and continue to learn effectively as ethically and socially responsible computer science professionals.

Program Specific Outcomes (PSO)

1. Foundation of Computer System: Ability to understand the principles and working of computer systems.
2. Foundations of Software development: Possess professional skills and knowledge of software design process. Familiarity and practical competence with a broad range of programming language and open-source platforms.
3. Foundation of mathematical concepts: Ability to apply mathematical methodologies to solve computation task, model real world problem using appropriate data structure and suitable algorithm.
4. Applications of Computing and Research Ability: Ability to use knowledge in various domains to identify research gaps and hence to provide solution to new ideas and innovations.

B.TECH (COMPUTER SCIENCE AND ENGINEERING)

SEMESTER- III

Sl. No.	Subject Codes	Subject	Periods			Evaluation Scheme				End Semester		Total	Credit
			L	T	P	CT	TA	Total	PS	TE	PE		
1	KOE031-38/ KAS302	Engineering Science Course/Maths IV	3	1	0	30	20	50		100		150	4
2	KAS301/ KVE 301	Technical Communication/Universal Human values	2 3	1 0	0 0	30	20	50		100		150	3
3	KCS301	Data Structure	3	1	0	30	20	50		100		150	4
4	KCS302	Computer Organization and Architecture	3	1	0	30	20	50		100		150	4
5	KCS303	Discrete Structures & Theory of Logic	3	0	0	30	20	50		100		150	3
6	KCS351	Data Structures Using C Lab	0	0	2				25		25	50	1
7	KCS352	Computer Organization Lab	0	0	2				25		25	50	1
8	KCS353	Discrete Structure & Logic Lab	0	0	2				25		25	50	1
9	KCS354	Mini Project or Internship Assessment*	0	0	2			50				50	1
10	KNC301/ KNC302	Computer System Security/Python Programming	2	0	0	15	10	25		50			0
11		MOOCs (Essential for Hons. Degree)											
		Total										**950**	**22**

*The Mini Project or internship (3-4 weeks) conducted during summer break after II semester and will be assessed during III semester.

IMS Engineering College, Ghaziabad

Sub Code	**KAS-302**
Sub. Name	**MATHS-IV**

COURSE OUTCOMES		**Bloom's Level**
CO1	The students will be able to learn the idea of partial differentiation and types of partial differential equations	**K1 & K3**
CO2	The students will be able to learn the idea of classification of second partial differential equations, wave, heat equation and transmission lines	**K4 & K5**
CO3	The students will be able to learn the basic ideas of statistics including measures of central tendency, correlation, regression and their properties.	**K2**
CO4	The students will be able to learn the idea s of probability and random variables and various discrete and continuous probability distributions and their properties.	**K1 & K5**
CO5	The students will be able to learn the statistical methods of studying data samples, hypothesis testing and statistical quality control, control charts and their properties.	**K3 & K6**

CO-PO Matrix

Course Outcome	PO 1	PO2	PO 3	PO4	PO 5	PO 6	PO 7	PO 8	PO9	PO10	PO11	PO12
CO1	2	2	-	-	1	-	1	-	-	1	1	-
CO2	2	2	1	-	-	-	1	-	-	-	1	1
CO3	2	2	1	1	1	-	-	-	1	1	1	1
CO4	2	2	-	1	1	-	-	-	-	-	1	1
CO5	2	2	1	2	1	-	1	-	1	1	1	1
Avg	2	2	1	1.33	1		1		1	1	1	1

CO-PSO Matrix

Cos	PSO1	PSO2	PSO3	PSO4
CO1	1	-	1	-
CO2	1	-	2	1
CO3	1	-	1	-
CO4	1	1	1	-
CO5	1	1	2	1
Avg	1	1	1.4	1

IMS Engineering College, Ghaziabad

Sub Code	**KAS 301**
Sub. Name	**TECHNICAL COMMUNICATION**

COURSE OUTCOMES		**Bloom's Level**
CO1	Students will be enabled to **understand** the nature and objective of Technical Communication relevant for the work place as Engineers.	K2
CO2	Student will utilize the technical writing for Technical communication and its exposure in various dimensions.	K2
CO3	Students would **imbibe inputs** by presentation skills to enhance confidence in face of diverse audience.	K2
CO4	Technical communication skills will **create** a vast know-how of the application of the learning to promote their technical competence.	K6
CO5	It would enable them to **evaluate** their efficacy as fluent & efficient communicators by learning the voice-dynamics	K5

CO-PO Matrix

Course Outcome	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	1	1	2		1	2	1	1	3	3	2	1
CO2	1	2	3		3	2				3	2	3
CO3	1	2	3		3	2	1	2	3	3	2	3
CO4	2	2	3	1	3	3		1	3	3	3	3
CO5	1	1	3	1	1		3	3	3	3	1	3
Avg	**1.2**	**1.6**	**2.8**	**1**	**2.2**	**2.25**	**1.67**	**1.75**	**3**	**3**	**2**	**2.6**

CO-PSO Matrix

Cos	PSO1	PSO2	PSO3	PSO4
CO1		2		3
CO2		1		3
CO3	2			3
CO4	1	3		3
CO5				1
Avg	**1.5**	**2**		**2.6**

IMS Engineering College, Ghaziabad

Sub Code	**KCS-301**
Sub. Name	**Data Structure**

COURSE OUTCOMES		**Bloom's Level**
CO1	Describe how arrays, linked lists, stacks, queues, trees, and graphs are represented in memory, used by the algorithms and their common applications.	K1, K2
CO2	Discuss the computational efficiency of the sorting and searching algorithms.	K2
CO3	Implementation of Trees and Graphs and perform various operations on these data structure.	K3
CO4	Understanding the concept of recursion, application of recursion and its implementation and removal of recursion.	K4
CO5	Identify the alternative implementations of data structures with respect to its performance to solve a real-world problem.	K5, K6

CO-PO Matrix

Course Outcome	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	1	1	2	2	1	1						3
CO2	2	2	3	2	1							3
CO3	1	2	2	2	1	2						3
CO4	2	2	2	2	1							3
CO5	2	2	3	2	1	2						2
Avg	1.6	1.8	2.4	2	1	1.67						2.8

CO-PSO Matrix

COs	PSO1	PSO2	PSO3	PSO4
CO1	1	2	2	
CO2	1	3	2	
CO3	1	2	2	2
CO4	1	2	2	2
CO5	1	1	2	2
Avg	1	2	2	2

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Sub Code	**KCS-302**
Sub. Name	**Computer Organization &Architecture**

COURSE OUTCOMES		**Bloom's Level**
CO1	Student will be able to study of the basic structure and operation of a digital computer system.	K1, K2
CO2	Student will be able to analysis of the design of arithmetic & logic unit and understanding of the fixed point and floating point arithmetic operations.	K2, K4
CO3	Student will be able to implement control unit techniques and the concept of Pipelining	K3
CO4	Student will be able to understand the hierarchical memory system, cache memories and virtual memory	K2
CO5	Student will be able to understand the different ways of communicating with I/O devices and standard I/O interfaces	K2, K4

CO-PO Matrix

Course Outcome	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**
CO1	2	2	1	1	-	-	-	-	-	-	-	1
CO2	3	3	3	2	2	-	1	-	-	-	-	3
CO3	3	3	3	3	2	1	1	-	-	-	-	3
CO4	3	3	3	3	2	1	1	-	-	-	-	3
CO5	3	3	3	3	2	1	1	-	-	-	-	3
Avg	**2.8**	**2.8**	**2.6**	**2.4**	**2**	**1**	**1**	**-**	**-**	**-**	**-**	**2.6**

CO-PSO Matrix

COs	**PSO1**	**PSO2**	**PSO3**	**PSO4**
CO1	2	-	3	1
CO2	2	1	3	2
CO3	2	-	3	2
CO4	3	1	3	3
CO5	3	-	2	2
Avg	**2.4**	**1**	**2.8**	**2**

IMS Engineering College, Ghaziabad

Sub Code	**KCS-303**
Sub. Name	**Discrete Structures and Theory of logic**

COURSE OUTCOMES		**Bloom's Level**
CO1	Write an argument using logical notation and determine if the argument is or is not valid.	K3,K4
CO2	Understand the basic principles of sets and operations in sets.	K1,K2
CO3	Demonstrate an understanding of relations and functions and be able to determine their properties.	K3
CO4	Demonstrate different traversal methods for trees and graphs	K1,K4
CO5	Model problems in Computer Science using graphs and trees.	K2,K6

CO-PO Matrix

Course Outcome	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**
CO1	2	1										1
CO2	1	3		2								1
CO3	3	2	2									1
CO4	3	2	2	1								2
CO5	3	2	1	1	3							1
Avg	**2.4**	**2**	**1.67**	**1.33**	**3**							**1.2**

CO-PSO Matrix

COs	**PSO1**	**PSO2**	**PSO3**	**PSO4**
CO1	2	1		
CO2		2	1	
CO3		3	3	
CO4		3	3	1
CO5		3	3	2
Avg	**2**	**2.4**	**2.5**	**1.5**

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Sub Code	**KCS-351**
Sub. Name	**Data Structure Using C Lab**

COURSE OUTCOMES		**Bloom's Level**
CO1	Interpret and compute asymptotic notations of an algorithm to analyze the consumption of resources (time/space).	K2, K5
CO2	Exemplify and implement stack, queue and list ADT, tree and graph to manage the memory using static and dynamic allocations.	K3
CO3	Implement binary search tree to design applications like expression trees.	K5
CO4	Identify, model, solve and develop code for real life problems like shortest path and MST using graph theory.	K1
CO5	Develop and compare the comparison-based search algorithms and sorting Algorithms.	K6
CO6	Identify appropriate data structure and algorithm for a given contextual problem and develop in C.	K1

CO-PO Matrix

Course Outcome	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	2	3	3	2	1	1					1	3
CO2	2	3	3	2	1	1					1	3
CO3	3	2	3	2	1	1					1	2
CO4	3	2	3	2	1	1					1	3
CO5	2	3	3	2	1	1					1	2
CO6	2	3	3	2	1	1					1	2
Avg	**2.3333**	**2.67**	**3**	**2**	**1**	**1**					**1**	**2.5**

CO-PSO Matrix

COs	PSO1	PSO2	PSO3	PSO4
CO1	3	3	1	2
CO2	3	3	1	2
CO3	3	3	1	2
CO4	3	3	3	2
CO5	3	3	1	2
CO6	3	3	1	2
Avg	**3**	**3**	**1.33**	**2**

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Sub Code	**KCS-352**
Sub. Name	**Computer Organization Lab**

COURSE OUTCOMES		**Bloom's Level**
CO1	Define, Apply and Design basic digital circuits	K1, K3, K6
CO2	Discuss, Design and Calculate 8 bits I/O, ALU and RTL	K2, K3, K6
CO3	Explain, apply and design the concept of control unit and memory unit	K2, K3, K6
CO4	Define and design algorithm using simulators	K1, K6

CO-PO Matrix

Course Outcome	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**
CO1	1	2										1
CO2	1	2	1									1
CO3	1	2	1									1
CO4	1	2	1	1								1
Avg	**1.00**	**2.00**	**1.00**	**1.00**								**1.00**

CO-PSO Matrix

COs	**PSO1**	**PSO2**	**PSO3**	**PSO4**
CO1	1	1		1
CO2	1	1		1
CO3	1	1		1
CO4	1	1	1	1
Avg	**1.00**	**1.00**	**1.00**	**1.00**

IMS Engineering College, Ghaziabad

Sub Code	**KCS-353**
Sub. Name	**Discrete Structures and Theory of logic lab**

COURSE OUTCOMES		**Bloom's Level**
CO1	Students would be having understanding of working with a mathematical tool Maple	K2
CO2	Students would be able to perform programs of recursion, combinatorics and counting	K3
CO3	Students would be able to perform programs of set theroy, set operations and probability	K3
CO4	Student would be able to implement classical mathematical problme like Birthday paradox based on pigeonhole principle.	K3

CO-PO Matrix

Course Outcome	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**
CO1	3	2	3	1						1		2
CO2	3	2	3	2	2					2		3
CO3	3	2	2	2	1	1					2	2
CO4	3	2	2	2	1	1						3
Avg	**3.00**	**2.00**	**2.50**	**1.75**	**1.33**	**1.00**				**1.50**	**2.00**	**2.50**

CO-PSO Matrix

COs	**PSO1**	**PSO2**	**PSO3**	**PSO4**
CO1	**3**	**1**	**1**	**2**
CO2	**3**	**2**	**2**	**2**
CO3	**3**	**2**	**2**	**2**
CO4	**2**	**3**	**2**	**2**
Avg	**2.75**	**2.00**	**1.75**	**2.00**

IMS Engineering College, Ghaziabad

Sub Code	**KCS354**
Sub. Name	**Summer training/Internship/Mini Project**

COURSE OUTCOMES		**Bloom's Level**
CO1	Students will be able to identify and present the objective and the work done during training	K1
CO2	Students will be able to apply the learned concept through design, analysis and development of mini project	K3
CO3	Students will be able to design and implementation of mini project during their training.	K3, K6
CO4	Students will be able to discuss the result/output and prepare a mini project report	K2

CO-PO Matrix												
Course Outcome	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**
CO1	1	1	1	1	1	1		1	1		1	1
CO2	2	2	1	1	1	1		1	1	1	1	1
CO3	2	3	3	2	2	1		1	2	2	3	2
CO4	1	2	1	2	1			1	2	1	1	1
Avg	1.50	2.00	1.50	1.50	1.25	1.00		1.00	1.50	1.33	1.50	1.25

CO-PSO Matrix				
COs	**PSO1**	**PSO2**	**PSO3**	**PSO4**
CO1	1	2	1	
CO2	1	2	1	1
CO3	1	1	1	1
CO4	1	1		1
Avg	1.00	1.50	1.00	1.00

IMS Engineering College, Ghaziabad

Sub Code	KNC-302
Sub. Name	Python Programming

COURSE OUTCOMES		Bloom's Level
CO1	Students will be able to describe the numbers, math functions, strings, list, tuples and dictionaries in python	K1
CO2	Students will be able to acquire the skills to apply different decision-making statements and functions in python	K3
CO3	Students will be able to interpret object-oriented programming in python	K5
CO4	Students will be able to develop skill to understand and summarize different file handling operations	K6
CO5	Students will be able to demonstrate the ability to design GUI applications in python and evaluate different database operations	K3

CO-PO Matrix												
Course Outcome	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**
CO1	3	2	2	3	3	2	3				3	3
CO2	3	2	3	3	2	3	2				3	3
CO3	3	2	3	2	3	3	3				3	2
CO4	3	2	3	2	2	2	2				2	3
CO5	3	2	3		3	3	2				2	3
Avg	**3.00**	**2.00**	**2.80**	**2.50**	**2.60**	**2.60**	**2.40**				**2.60**	**2.80**

CO-PSO Matrix				
COs	**PSO1**	**PSO2**	**PSO3**	**PSO4**
CO1	2	1	2	1
CO2	2	1	1	1
CO3	2	1	1	1
CO4	2	1	1	1
CO5	2	1	1	1
Avg	**2.00**	**1.00**	**1.20**	**1.00**

SEMESTER- IV													
Sl. No.	Subject Codes	Subject	Periods			Evaluation Scheme				End Semester		Total	Credit
			L	T	P	CT	TA	Total	PS	TE	PE		
1	KAS402/ KOE041-48	Maths IV/Engg. Science Course	3	1	0	30	20	50		100		150	4
2	KVE401/ KAS301	Universal Human Values/ Technical Communication	3 2	0 1	0 0	30	20	50		100		150	3
3	KCS401	Operating Systems	3	0	0	30	20	50		100		150	3
4	KCS402	Theory of Automata and Formal Languages	3	1	0	30	20	50		100		150	4
5	KCS403	Microprocessor	3	1	0	30	20	50		100		150	4
6	KCS451	Operating Systems Lab	0	0	2				25		25	50	1
7	KCS452	Microprocessor Lab	0	0	2				25		25	50	1
8	KCS453	Python Language Programming Lab	0	0	2				25		25	50	1
9	KNC402/ KNC401	Python Programming/Computer System Security	2	0	0	15	10	25		50			0
10		MOOCs (Essential for Hons. Degree)											
		Total										**900**	**21**

IMS Engineering College, Ghaziabad

Sub Code	**KOE044**
Sub. Name	**Sensor & Instrumentation**

COURSE OUTCOMES		**Bloom's Knowledge Level**
CO1	Student will be able to apply the use of sensors for measurement of displacement, force and pressure.	K3
CO2	Student will be able to employ commonly used sensors in industry for measurement of temperature, position, accelerometer, vibration sensor, flow and level.	K2
CO3	Student will be able to demonstrate the use of virtual instrumentation in automation industries.	K3
CO4	Student will be able to identify and use data acquisition methods.	K1
CO5	Student will be able to comprehend intelligent instrumentation in industrial automation.	K2

CO-PO Matrix

Course Outcome	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**
CO1	2	1	1		2	2						2
CO2	1	2	1	1	2	2					1	2
CO3	2	2	2	2	3	1				1	1	2
CO4	1	1	1	2	3	1	1					2
CO5	2	2	1	2	3	1				1	1	2
Avg	**1.60**	**1.60**	**1.20**	**1.75**	**2.60**	**1.40**	**1.00**			**1.00**	**1.00**	**2.00**

CO-PSO Matrix

COs	**PSO1**	**PSO2**	**PSO3**	**PSO4**
CO1			3	2
CO2			2	3
CO3	1	1	2	1
CO4	2	2	2	3
CO5	2	2	1	3
Avg	**1.67**	**1.67**	**2.00**	**2.40**

IMS Engineering College, Ghaziabad

Sub Code	KVE-401
Sub. Name	Universal Human Values & Professional Ethics

COURSE OUTCOMES		**Bloom's Knowledge Level**
CO1	Students who complete this course should be able to realize the importance & need of human values and value education to human being.	K2
CO2	Students should be able to realize the importance of self exploration in harmony of family.	K2
CO3	They should be able to understand and appreciate role of harmonious family in peaceful society.	K2
CO4	Students who complete this course should be able to investigate his/her self & make it suitable to society and existence.	K4
CO5	Students should be able to apply the ethical and human values in family, society, nature and professional life.	K3

CO-PO Matrix

Course Outcome	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1						3						2
CO2						3	2	2				
CO3						3	2		2			
CO4							2	2				
CO5							3	3				2
Avg						**3**	**2.25**	**2.33**	**2**			**2**

CO-PSO Matrix

COs	PSO1	PSO2	PSO3	PSO4
CO1	3	2	1	
CO2	2	2	1	
CO3	2	1	1	
CO4	1	1	1	
CO5	1	1	1	
Avg	**1.8**	**1.4**	**1**	

IMS Engineering College, Ghaziabad

Sub Code	**KCS-401**
Sub. Name	**Operating System**

COURSE OUTCOMES		**Bloom's Level**
CO1	Understand the structure and functions of OS	K1, K2
CO2	Learn about Processes, Threads and Scheduling algorithms.	K1, K2
CO3	Understand the principles of concurrency and Deadlocks	K2
CO4	Learn various memory management scheme	K2
CO5	Study I/O management and File systems.	K2, K4

CO-PO Matrix

Course Outcome	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	1											1
CO2	2	1	1									2
CO3	2	2	2	1								2
CO4	2	1	1									1
CO5	2	2	2	1								2
Avg	1.8	1.5	1.5	1								1.6

CO-PSO Matrix

COs	PSO1	PSO2	PSO3	PSO4
CO1	2	1	1	2
CO2	1	2	2	2
CO3	2	2	2	2
CO4	2	2	1	2
CO5	2	2	2	2
Avg	1.8	1.8	1.6	2.0

IMS Engineering College, Ghaziabad

Sub Code	**KCS402**
Sub. Name	**Theory of Automata and Formal Languages**

Course Outcome (CO)		**Bloom's Knowledge Level (KL)**
CO1	Analyse and design finite automata, pushdown automata, Turing machines, formal languages, and grammars	K4, K6
CO2	Analyse and design, Turing machines, formal languages, and grammars	K4, K6
CO3	Demonstrate the understanding of key notions, such as algorithm, computability, decidability, and complexity through problem solving	K1, K5
CO4	Prove the basic results of the Theory of Computation.	K2, K3
CO5	State and explain the relevance of the Church-Turing thesis.	K1, K5

CO-PO Matrix												
Course Outcome	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**
CO1	1	2	3	2								1
CO2	1	2	2	2								1
CO3	1	2	2	2								2
CO4	1	2	2	1								1
CO5	1	2	2	1								1
Avg.	1	2	2.2	1.6								1.2

CO-PSO Matrix				
COs	**PSO1**	**PSO2**	**PSO3**	**PSO4**
CO1	1	1		2
CO2	1	1		2
CO3	1			2
CO4	1	1		2
CO5	1		1	1
Avg.	1	1	1	1.8

IMS Engineering College, Ghaziabad

Sub Code	**KCS 403**
Sub. Name	**Microprocessor**

COURSE OUTCOMES		**Bloom's Level**
CO1	Apply a basic concept of digital fundamental to microprocessor-based computer system.	K3, K4
CO2	Analyze a detailed software and hardware structure of the microprocessor	K2, K4
CO-3	Illustrate how the different peripherals (8085/8086) are interfaced with microprocessor	K3
CO4	Analyze the characteristics of Microprocessor	K4
CO5	Evaluate the data transfer information through serial and parallel ports	K5

CO-PO Matrix

Course Outcome	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	2	1		1	1	-	-	-	2	1	1	-
CO2	3	1	1	2	1	-	-	-	1	2	1	2
CO3	2	2	1	1	1	-	-	-	2	1	1	-
CO4	3	2	2	2	1	-	-	-	1	-	-	-
CO5	3	3	1	1	1	-	-	-	2	1	2	1
Avg	2.6	1.8	1.25	1.4	1	-	-	-	1.6	1.25	1.25	1.5

CO-PSO Matrix

COs	PSO1	PSO2	PSO3	PSO4
CO1	3	2	2	1
CO2	2	3	-	-
CO3	2	2	1	1
CO4	2	2	-	-
CO5	2	2	2	-
Avg	2.2	2.2	1.67	1

IMS Engineering College, Ghaziabad

Sub Code	**KCS-451**
Sub. Name	**Operating System lab**

COURSE OUTCOMES		**Bloom's Level**
CO1	Students will be able to design and interpret various CPU scheduling algorithm.	K5, K6
CO2	Students will be able to design, develop and implement programs for deadlock handling.	K3, K6
CO3	Students will be able to apply and analyse different page replacement algorithms.	K3, K4
CO4	Students will be able to develop and compare various disk scheduling algorithms	K2, K6

CO-PO Matrix

Course Outcome	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	1	2	2						1			1
CO2	1	2	2	1					1			1
CO3	1	2	2						1			1
CO4	1	2	2						1			1
Avg	1	2	2	1					1			1

CO-PSO Matrix

COs	PSO1	PSO2	PSO3	PSO4
CO1	2	2	2	1
CO2	2	2	2	1
CO3	2	2	2	1
CO4	2	2	2	1
Avg	2	2	2	1

IMS Engineering College, Ghaziabad

Sub Code	**KCS 452**
Sub. Name	**Microprocessor Lab**

COURSE OUTCOMES		**Bloom's Level**
CO1	Student able to perform experiment of his own.	K3, K5
CO2	Student must able to understand the logic behind experiment and demonstrate the outcome effectively	K2, K4
CO3	Student must able to present the experiment with results effectively.	K3

CO-PO Matrix

Course Outcome	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	2	1	3	2	-	-	-	-	3	-	-	3
CO2	2	3	2	3	-	-	-	-	1	3	-	3
CO3	1	1	1	1	-	-	-	-	-	1	-	3
Avg	1.67	1.67	2	2	-	-	-	-	2	2	-	3

CO-PSO Matrix

COs	PSO1	PSO2	PSO3	PSO4
CO1	2	-	2	-
CO2	2	-	3	-
CO3	2	-	2	-
Avg	2	-	2.33	-

IMS Engineering College, Ghaziabad

Sub Code	**KCS453**
Sub. Name	**Python Language Programming Lab**

COURSE OUTCOMES		**Bloom's Level**
CO1	Students will be able to describe the numbers, math functions, strings, list, tuples and dictionaries in python	K2
CO2	Students will be able to acquire the skills to apply different decision-making statements and functions in python	K2, K3
CO3	Students will be able to interpret object-oriented programming in python	K2, K3
CO4	Students will be able to develop skill to understand and summarize different file handling operations	K3, K4
CO5	Students will be able to demonstrate the ability to design GUI applications in python and evaluate different database operations	K3, K4

CO-PO Matrix

Course Outcome	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	2	2	3	3	2	3				3	3
CO2	3	2	3	3	2	3	2				3	3
CO3	3	2	3	2	3	3	3				3	2
CO4	3	2	3	2	2	2	2				2	3
CO5	3	2	3		3	3	2				2	3
Avg	3.00	2.00	2.80	2.50	2.60	2.60	2.40				2.60	2.80

CO-PSO Matrix

COs	PSO1	PSO2	PSO3	PSO4
CO1	2	1	2	1
CO2	2	1	1	1
CO3	2	1	1	1
CO4	2	1	1	1
CO5	2	1	1	1
Avg	2.00	1.00	1.20	1.00

IMS Engineering College, Ghaziabad

Sub Code	**KNC-401**
Sub. Name	**Computer System and Security**

	COURSE OUTCOMES	Bloom's Level
CO1	To discover software bugs that pose cyber security threats and to explain how to fix the bugs to mitigate such threats	K3
CO2	To discover cyber-attack scenarios to web browsers and web servers and to explain how to mitigate such threat	K3
CO3	To discover and explain mobile software bugs posing cyber security threats, explain and recreate exploits, and to explain mitigation techniques.	K2, K3
CO4	To articulate the urgent need for cyber security in critical computer systems, networks, and world wide web, and to explain various threat scenarios	K2
CO5	To articulate the well known cyber attack incidents, explain the attack scenarios, and explain mitigation techniques.	K2, K3

CO-PO Matrix												
Course Outcome	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**
CO1	2	2	1	1								2
CO2	2	2	3	1	1				1			2
CO3	2	2	2	2	1						1	2
CO4	2	2	2	2	1						1	2
CO5	2	2	2	2	1						1	2
Avg	**2.00**	**2.00**	**2.00**	**1.60**	**1.00**				**1.00**		**1.00**	**2.00**

CO-PSO Matrix				
COs	**PSO1**	**PSO2**	**PSO3**	**PSO4**
CO1	3	3	1	2
CO2	2	2	1	1
CO3	2	2	1	1
CO4	2	2	1	1
CO5	2	2	1	1
Avg	**2.20**	**2.20**	**1.00**	**1.20**