AMAR SHAHEED BABA AJIT SINGH JUJHAR SINGH MEMORIAL COLLEGE BELA ROPAR PUNJAB

DESCRIPTION OF PROGRAMME OUTCOMES

NAME OF THE DEPARTMENT : DEPARTMENT OF COMPUTER SCIENCE

NAME OF THE PROGRAMME : M. SC. (IT) - MASTER OF SCIENCE IN INFORMATION TECHNOLOGY

P.O. No.	Description of Programme Outcome	Domain as per Bloom's Taxonomy	Level of Bloom Taxonomy*
PO-1	Apply knowledge of computing fundamentals, computing specialization, mathematics, and domain knowledge appropriate for computing models from defined problems and requirements.	COGNITIVE	**1, 2, 3**
PO-2	Identify, formulate and solve computing problem searching substantiated conclusions using fundamental principles of mathematics, computing sciences, and relevant domain disciplines.	PSYCHOMOTOR	**1, 2, 3, 4, 5, 6**
PO-3	Design and evaluate solutions for computing problems, and design and evaluate systems, components, or processes that meet specified needs.	PSYCHOMOTOR	**1, 2, 3, 4, 5, 6**
PO-4	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	COGNITIVE	**1, 2, 3**
PO-5	Build, select, adapt and apply appropriate techniques, resources, and modern computing tools to computing activities, with an understanding of the limitations.	PSYCHOMOTOR	**1, 2, 3**

PO-6	Identify and commit to professional ethics and cyber regulations, responsibilities, and norms of professional computing practices.	AFFECTIVE	**1, 2**
PO-7	Recognize the need, and have the ability, to engage in independent learning for continual development as a computing professional.	COGNITIVE	**1, 2, 3**
PO-8	Demonstrate effectively with the computing community, and with society at large, about computingactivitiesbybeingabletocomprehendand write effectivereports, design documentation, make effective presentations, and give and understand clear instructions.	PSYCHOMOTOR	**1, 2**
PO-9	Assess societal, environmental, health, safety, legal, and cultural issues within local and global contexts, and the consequential responsibilities relevant to professional computing practices.	COGNITIVE	**1, 2, 3, 4, 5, 6**
PO-10	Adapt and work effectively as an individual and as a member or leader in diverse teams and in multidisciplinary environments.	COGNITIVE	**1, 2, 3, 4, 5, 6**
PO-11/ PSO1	Apply the knowledge of computer science tools and techniques to solve real world problems.	COGNITIVE	**1, 2, 3, 4**
PO-12/ PSO2	Recognizing broad range of programming language platforms	COGNITIVE	**1, 2**
PO-13/ PSO3	Accumulating Learners with the ability to route their talent into higher education M. Tech, M. Phil, Ph. D and preparing for examinations such as UGC NET, JRF,GATE etc.	COGNITIVE	**1**
PO-14/ PSO4	Identify a timely opportunity and using innovation to pursue that opportunity to create value and wealth for the betterment of the individual and society at large.	AFFECTIVE	**1, 2**
PO-15/ PSO5	Demonstrate the ability to define the structure and development methodologies of software systems.	COGNITIVE	**1, 2, 3**

*These **six levels** are: (1) knowledge, (2) comprehension, (3) application, (4) analysis, (5) synthesis, and (**6**) evaluation

PO 1-10 GENERIC

PO11-15 SPECIFIC or PSOs

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DESCRIPTION OF COURSE OUTCOMES

NAME OF THE DEPARTMENT : DEPARTMENT OF COMPUTER SCIENCE

NAME OF THE PROGRAM : M.Sc. (IT) – 1 (1st SEM)

NAME OF THE COURSE : COMPUTER PROGRAMMING USING C(MS-112)

NAME OF FACULTY : MANPREET KAUR(ASST. PROF.)

CO No.	Description of Course Outcomes	Method/s of Assessment
CO 1	Recognize the flowchart and design an algorithm for a given problem and to develop IC programs using operators.	Discussion Method
CO 2	Describe conditional and iterative statements to write C programs	Class Test, PPT, Lab

CO 3	Demonstrate user defined functions to solve real time problems	Assignment, Lab, MST
CO 4	Differentiate programs involving decision control statements, loop control statements and case control structures	Assignment, Discussion Method,
CO 5	Write program to enter data to the file, declaring and usage of pointer operations are being covered.	Lab Work, Class test
CO 6	Compare the difference between the Designing, Writing, Compilation and Debugging programs in C Language.	MST, Lab Work

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DESCRIPTION OF COURSE OUTCOMES

NAME OF THE DEPARTMENT : DEPARTMENT OF COMPUTER SCIENCE

NAME OF THE PROGRAM : M.Sc. (IT) - 1 (1st SEM)

NAME OF THE COURSE : COMPUTER ORGANIZATION AND ARCHITECTURE (MS-113)

NAME OF FACULTY : NEETU SHARMA(ASST. PROF.)

CO No.	Description of Course Outcomes	Method/s of Assessment
CO 1	Recognize the organization of computer, its design.	Class Test
CO 2	Explain the working of CPU, ALU and Register transfer Language.	Discussion Method, Viva
CO 3	Demonstrate the Memory organization, Virtual memory and DMA .	Class Test, MST
CO 4	Calculate Number System, binary codes, Boolean laws to minimize the Boolean expression and also design K-Maps for expressions.	Class Assignment, Home Assignment

CO 5	Design various combinational and sequential circuits	Assignment, MST
CO 6	Compare the working of different types of registers.	MST

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DESCRIPTION OF COURSE OUTCOMES

NAME OF THE DEPARTMENT : DEPARTMENT OF MATHEMATICS

NAME OF THE PROGRAM : M.Sc. (IT) – 1 (1st SEM)

NAME OF THE COURSE : MATHEMATICAL FOUNDATION OF COMPUTER SCIENCE (MS-114)

NAME OF FACULTY : SANJIVANI(ASST. PROF.)

CO No.	Description of Course Outcomes	Method/s of Assessment
CO 1	Determine when a function is one-one and onto.	Group discussion
CO 2	Demonstrate different traversal methods for trees.	Class Assignment/Authentic problem solving
CO 3	Model Problems in Computer Science using graphs.	Group discussion/ Class Assignment
CO 4	Apply Counting Principle to determine Probability.	Authentic problem Solving/ Seminar
CO 5	Work in a group to understand finite state machine language.	Class Assignment/Group Discussion
CO 6	Discriminate between a Eulerian Graph from a Hamiltonian graph for use in	Class Assignment/ Group Discussion/ Authentic problem solving

	solving mathematical problems.	

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DESCRIPTION OF COURSE OUTCOMES

NAME OF THE DEPARTMENT : DEPARTMENT OF COMPUTER SCIENCE

NAME OF THE PROGRAM : M. SC (IT) – 1 (1st SEM)

NAME OF THE COURSE : OPERATING SYSTEMS (MS-115)

NAME OF FACULTY : IQBAL SINGH (ASST. PROF.)

CO No.	Description of Course Outcomes	Method/s of Assessment
CO 1	Discuss the operating system, types and functions of operating system.	Objective Test/Assignments/ Exams/Class Tests

CO 2	Practise various CPU scheduling algorithm.	Problem Solving/ Class Test/Group Discussion
CO 3	Identify Deadlock condition in operating system, Explain various deadlock preventions techniques.	Problem Solving/ Class Test/Group Discussion
CO 4	Explain memory hierarchy, methods of memory access and memory allocation techniques.	Assignments/Exams/Class Tests
CO 5	Practice various page replacement algorithm and disk allocation algorithm.	Problem Solving/ Class Test/Group Discussion
CO 6	Explain various security techniques. threats, Cryptography.	Assignments/Exams/Class Tests

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DESCRIPTION OF COURSE OUTCOMES

NAME OF THE DEPARTMENT : DEPARTMENT OF COMPUTER SCIENCE

NAME OF THE PROGRAM : M.SC (IT) – 1 (2nd SEM)

NAME OF THE COURSE : OOPs USING C++(MS-121)

NAME OF FACULTY : MAMTA DEVI (ASST. PROF.)

CO No.	Description of Course Outcomes	Method/s of Assessment
CO 1	Define the procedural and object-oriented paradigm with concepts of streams, classes, functions, data, and objects.	Discussion Method, Class Test, Lab
CO 2	Recognize dynamic memory management techniques using pointers, constructors, destructors, etc.	Discussion Method, Class Test
CO 3	Demonstrate the use of various OOPs concepts with the help of programs.	Class Test, MST

CO 4	Categorize inheritance with the understanding of early and late binding, usage of exception handling, generic programming.	Class Assignment, Home Assignment
CO 5	Develop the programs to applythe concept of function overloading, operator overloading, virtual functions and polymorphism.	Assignment, MST
CO 6	Compare the concepts of C and C++.	MST, Lab Work, MST

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DESCRIPTION OF COURSE OUTCOMES

NAME OF THE DEPARTMENT : DEPARTMENT OF COMPUTER SCIENCE

NAME OF THE PROGRAM : M.SC (IT) - 1 (2nd SEM)

NAME OF THE COURSE : DATA AND FILE STRUCTURES(MS-122)

NAME OF FACULTY : TARANJEET KAUR (ASST. PROF.)

CO No.	Description of Course Outcomes	Method/s of Assessment

CO 1	Develop the knowledge of basic data structure for storage and retrieval of ordered and unordered data.	MST, Class Test, Viva
CO 2	Discuss the applications of data structure.	MST, Assignment, Class Test
CO 3	Compare and analyze algorithm for efficiency using Big O notation.	MST, PPT, Class Test
CO 4	Evaluate algorithm and data structure in terms of time and space complexity of basic operations.	MST, Lab Work, Class Test
CO 5	Formulate the solution for programming problems or improve existing code using learned algorithm and data structures	MST, Lab Work, PPT, Viva
CO 6	Select appropriate searching and/or sorting techniques for application development.	MST, Assignment, Class Test

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DESCRIPTION OF COURSE OUTCOMES

NAME OF THE DEPARTMENT : **DEPARTMENT OF COMPUTER SCIENCE**

NAME OF THE PROGRAM : **M.SC (IT) - 1 (2nd SEM)**

NAME OF THE COURSE : **VISUAL BASIC (MS-123)**

NAME OF FACULTY : **NEETU SHARMA (ASST. PROF.)**

CO No.	Description of Course Outcomes	Method/s of Assessment
CO 1	Arrange, create, build and debug Visual Basic application	MST, Class Test, Viva
CO 2	Express the working of Forms, basic Active X controls, Advanced Active X controls.	MST, Assignment, Lab Work

CO 3	Apply External Functions to Create ActiveX Control with VB.	MST, PPT, Lab Work
CO 4	Design Internet Application with VB, Web Browsing objects, using Active Server Pages.	MST, Lab Work, Class Test
CO 5	Compose Database Application using visual Data manager, selected data with SQL.	MST, Assignment, PPT, Viva
CO 6	Select ActiveX Server to communicate with other Programs & create ActiveX Client Application.	MST, Assignment, Class Test

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DESCRIPTION OF COURSE OUTCOMES

NAME OF THE DEPARTMENT : DEPARTMENT OF COMPUTER SCIENCE

NAME OF THE PROGRAM : M.SC (IT) - 1 (2nd SEM)

NAME OF THE COURSE : RDBMS AND ORACLE (MS-124)

NAME OF FACULTY : NEETU SHARMA (ASST. PROF.)

CO No.	Description of Course Outcomes	Method/s of Assessment
CO 1	Recognize the basic concepts and various data model used in database design ER modeling concepts and architecture use and design queries using SQL	MST, Class Test, Viva
CO 2	Apply relational database theory and be able to describe relational algebra expression, tuple and domain relation expression for queries	MST, Assignment, Lab Work

CO 3	Demonstrate an understanding of normalization theory and apply such knowledge to the normalization of a database	MST, PPT, Class Test
CO 4	Recognize/ identify the purpose of query processing and optimization and also demonstrate the basic of query evaluation.	MST, Lab Work, Class Test
CO 5	Apply and relate the concept of transaction, concurrency control and recovery in database.	MST, Assignment, PPT, Viva
CO 6	Select the different Data Objects and be familiar with introduction to mobile database, Multimedia databases, data warehousing and mining.	MST, Assignment, Class Test

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DESCRIPTION OF COURSE OUTCOMES

NAME OF THE DEAPRTMENT : DEPARTMENT OF COMPUTER SCIENCE

NAME OF THE PROGRAMME : M. Sc. (IT) – 2 (3rdSEM)

NAME OF COURSE : WEB TECHNOLOGY (MS-211)

NAME OF FACULTY : IQBAL SINGH

C.O. No.	Description of Course Outcome	Method/sof Assessment

CO-1	Illustrate basic concepts of Internet, WWW, and Web pages.	Objective Test/Assignments/ Exams/Class Tests
CO-2	Design web pages using HTML and CSS.	Lab work
CO-3	Develop dynamic web sites using java script techniques.	Lab work
CO-4	Create Forms in PHP with various functions.	Lab work/Class Tests/Exams
CO-5	Explain servlets, Setting Cookies.	Class Test/Group Discussion
CO-6	Construct PHP Database for dynamic Web pages.	Lab work

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DESCRIPTION OF COURSE OUTCOMES

NAME OF THE DEAPRTMENT : DEPARTMENT OF COMPUTER SCIENCE

NAME OF THE PROGRAMME : M. Sc. (IT) – 2 (3rdSEM)

NAME OF COURSE : JAVA PROGRAMMING (MS-212)

NAME OF FACULTY : DINESH KUMAR

CO No.	Description of Course Outcome	Method/s of Assessment
CO-1	Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.	MST, Class Test, Quiz

CO-2	Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline.	MST, Assignment, Viva
CO-3	Define effectively variety of professional contexts	MST, PPT, Class Test
CO-4	Recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles.	MST, Assignment, Viva
CO-5	Demonstrate effectively as a member or leader of a team engaged in activities appropriate to the program's discipline.	MST, Assignment, PPT, Viva
CO-6	Identify and analyse user needs and to take them into account in the selection, creation, integration, evaluation, and administration of computing based systems	MST, Assignment, Class Test

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DESCRIPTION OF COURSE OUTCOMES

NAME OF THE DEAPRTMENT : DEPARTMENT OF COMPUTER SCIENCE

NAME OF THE PROGRAMME : M. Sc. (IT) – 2 (3rdSEM)

NAME OF COURSE : SOFTWARE ENGINEERING (MS-213)

NAME OF FACULTY : TARANJEET KAUR

CO No.	Description of Course Outcome	Method/s of Assessment
CO-1	Describe the basic concepts and applications of software engineering	MST, Class Test, Quiz
CO-2	Devise the knowledge of process models used for developing software	MST, Assignment, Viva

CO-3	Build the understanding of unified modeling language	MST, PPT, Class Test
CO-4	Practise to model the data requirement of an application and testing of software	MST, Assignment, Viva
CO-5	Formulate the solution for the real world problem using software engineering principles	MST, Assignment, PPT, Viva
CO-6	Apply design and development principles in the construction of software systems of varying complexity	MST, Assignment, Class Test

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DESCRIPTION OF COURSE OUTCOMES

NAME OF THE DEPARTMENT : DEPARTMENT OF COMPUTER SCIENCE

NAME OF THE PROGRAM : M. Sc. (IT) – 2 (3rd SEM)

NAME OF THE COURSE : COMPUTER NETWORK (MS-214)

NAME OF FACULTY : RAKESH JOSHI (ASST. PROF.)

CO No.	Description of Course Outcomes	Method/s of Assessment
CO 1	Identify the concepts, uses, goals and applications of computer networks, computer network structure and architecture	Exam, MST, Test , Assignment

CO 2	Explain reference models: OSI model, TCP/IP model, Comparison of TCP/IP and OSI models	Exam MST, Assignment, MCQs, Quiz
CO 3	Describe protocols: Medium Access Sublayer and LAN protocols.	Exam MST, Assignment, Test
CO 4	Illustrate the use of various network devices and tools.	Exam MST, Presentation
CO 5	Describe routing and its algorithm,	Exam MST, Test
CO6	Express network security and its concepts	Exam MST, Assignment

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DESCRIPTION OF COURSE OUTCOMES

NAME OF THE DEPARTMENT : DEPARTMENT OF COMPUTER SCIENCE

NAME OF THE PROGRAM : M. Sc. (IT) – 2 (4thSEM)

NAME OF THE COURSE : COMPUTER GRAPHICS(MS-221)

NAME OF FACULTY : IQBAL SINGH (ASST. PROF.)

C.O. No.	Description of Course Outcome	Method/sof Assessment

CO-1	List the basic concepts in used the computer graphics.	Objective Test/Assignments/Exams/Class Tests
CO-2	Show various algorithms to scan , convert the basic geometrical primitives, transformation, area filling, clipping.	Problem Solving/ Class Test/Group Discussion
CO-3	Describe the importance of viewing and projections.	Assignments/Class Test/Group Discussion
CO-4	Define the fundamentals of animations.	Computer simulations/Lab work
CO-5	Explain Hidden line and surface elimination algorithms,z-buffer, scan-line, sub-division, Painter's algorithm	Class Test/Group Discussion
CO-6	Explain Illumination Models, Surface Rendering Methods.	Assignments/Exams/Class Tests

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DESCRIPTION OF COURSE OUTCOMES

NAME OF THE DEAPRTMENT : DEPARTMENT OF COMPUTER SCIENCE

NAME OF THE PROGRAMME : M.Sc. (IT) – 2 (4th SEM)

NAME OF COURSE : LINUX ADMINISTRATION (MS-222)

NAME OF FACULTY : DINESH KUMAR

C.O. No.	Description of Course Outcome	Methods of Assessment
CO-1	Discuss the evolution of Open Source operating systems.	MST, Class Test, Quiz
CO-2	Operate open source operating system like Linux.	MST, Assignment, Viva
CO-3	Create scripts in Linux.	MST, PPT, Class Test
CO-4	Apply advanced concepts using open source operating system.	MST, Assignment, Viva

CO-5	Set up & administration of Linux operating system	MST, Assignment, PPT, Viva
CO-6	Perform various services on Linux operating system.	MST, Assignment, Class Test

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DESCRIPTION OF COURSE OUTCOMES

NAME OF THE DEPARTMENT : BIOTECHNOLOGY& FOOD PROCESSING

NAME OF THE PROGRAM : M. Sc. (IT) – 2 (4thSEM)

NAME OF THE COURSE : ARTIFICIAL INTELLIGENCE (MS-223)

NAME OF FACULTY : DR. MAMTA ARORA (ASSO. PROF.)

C.O. No.	Description of Course Outcome	Method/sof Assessment
CO-1	Describe Objectives and types of research (Descriptive Vs. analytical research, applied Vs. fundamental research, qualitative Vs. quantitative research, conceptual versus empirical research)	Exam, Class test, Group discussion

CO-2	Formulate research problem and its necessity	Assignment, Viva, Authentic problem solving
CO-3	Develop the research hypothesis &Research	Rapid fire question, seminar
CO-4	Execute research, observation and collection of data, Compare and contrast methods of data collection, primary data, secondary data; Sampling methods, data processing and analysis, statistical tools, hypothesis testing, generalization and interpretation	Authentic problem solving, Home assignment, field Assignment
CO-5	AppraiseTechniques and importance of documentation	Open book exam/Self-Test/portfolio
CO-6	Critically evaluate different steps in preparation of a written scientific document	Poster presentation, paper presentation

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DESCRIPTION OF COURSE OUTCOMES

NAME OF THE DEPARTMENT : DEPARTMENT OF COMPUTER SCIENCE

NAME OF THE PROGRAM : M. Sc. (IT) – 2 (4thSEM)

NAME OF THE COURSE : ARTIFICIAL INTELLIGENCE (MS-224)

NAME OF FACULTY : RAKESH JOSHI (ASST. PROF.)

CO No.	Description of Course Outcomes	Method/s of Assessment
CO 1	Define fundamental understanding of the history of artificial intelligence (AI) and its foundations.	MST, Test , Assignment

CO 2	Describe basic principles of AI in solutions that require problem solving, inference and perception.	MST, Assignment, MCQs, Quiz
CO 3	Demonstrate awareness and a fundamental understanding of various applications of AI techniques in intelligent agents, expert systems,	MST, Assignment, Test
CO 4	Explain fundamentals of knowledge representation (logic-based, frame-based, semantic nets), inference engine.	Univ. Exam MST, Presentation, Test
CO 5	Translate English into first order logic and vice versa. Represent and debug knowledge in an appropriate first order logic representation.	Exam MST, Test, Assignment
CO6	Demonstrate an ability to share in discussions of AI, its current scope and limitations, and societal implications.	Exam MST, Presentation, GD

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MAPPING OF PROGRAM OUTCOME VERSUS COURSE OUTCOME
INTERNAL QUALITY ASSURANCE CELL

NAME OF DEPARTMENT ==> DEPARTMENT OF COMPUTER SCIENCE

NAME OF PROGRAMME ==> M. Sc. (IT) MASTER OF SCIENCE IN INFORMATION TECHNOLOGY

NAME OF COURSES ==> 17

CORRELATION LEVEL:1,2, and 3;1SLIGHT (LOW); 2MODERATE (MEDIUM) 3 HIGH — MENTION GAP ANALYSIS AT THE END

S.NO	Year	Semester	Name of Course/Code		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO1	PO11	PO12	PO13	PO14	PO15
1	1st	1st	Introduction to Information Technology	CO1	3	2	1	1	2	2	1	1	1		2	2	2	1	1
				CO2	3	2	2	1	2	1	1	2	2	2	2	2	1	1	1
				CO3	2	1	1	1	1	1	1	1	1	1	2		2		1

				CO4	2	2	2			1	1	1	1	1	2	3	1	1	1
				CO5	2	2	2		1	1	1	1			2	2	2	1	1
				CO6	3	3	2	1	1	1	1	1	1	1	2	2	2	1	1
2			**Computer Programming using C**	**CO1**	2	3	4	1	3	1	1	1	2	1	3	2	1	2	2
				CO2	1	4	3	2	3	2	2	1	3	2	3	2	1	1	1
				CO3	2	3	4	1	3	1	2	2	3	1	4	2	3	1	3
				CO4	3	3	4	1	3	1	1	2	2	2	3	1	1	2	3
				CO5	2	3	5	2	3	1	1	1	2	1	4	2	2	2	3
				CO6	1	4	4	2	3	1	2	2	3	1	4	1	2	1	2
3			**Computer Organization and Architecture**	**CO1**	3	2	3		2	1	1	1		2	3	1	3	2	2
				CO2	3	3	3		2	2	1	1		2	2	1	2	1	1
				CO3	3	2	3	1	3	2	1	1		2	3	2	2	1	3
				CO4	3	3	3	3	3	1	2	1		2	3	2	3	2	3
				CO5	3	3	3	3	3	1	2	1		2	3		2	2	3
				CO6	3	3	3	2	3	1	1	1		2	3		1	1	1
4			**Mathematical Foundation of Computer Science**	**CO1**	1			2			2			2	2	2		2	2
				CO2	1				1		2					1		1	2
				CO3	1	1	1	1	2		1		2	1	2	2	1	1	1
				CO4	1			1			1								1
				CO5	1		2	2		2					2		2		2
				CO6	1		1					2		2				2	2
5			**Operating System**	**CO1**	3	1	1	1	1	2	1	1	1		3		1	1	1
				CO2	1	3	3	3	2	1	1	1			2		2		
				CO3	1	2	2	2	2	1	1	1			3		2		

				CO4	1	2	2	2	2	2	1	1			3		2	1	
				CO5	2	3	3	2	2	2	1	1			2		3		
				CO6	2	2	2	2	2	2	2	2			2		2	3	3
6	**1st**	**2nd**	**Object Orinted Programming in C++**	**CO1**	3	2	2	1	2	1	1	1		2	2	2	2	1	1
				CO2	3	2	3	1	3	2	2	1		2	3	3	2	1	2
				CO3	3	2	2	2	3	2	2	2		2	2	2	3	2	2
				CO4	3	2	2	2	2	2	2	2		3	3	3	2	1	2
				CO5	2	3	3	3	2	1	2	2		3	3	3	2	1	2
				CO6	1	2	3	2	2	2	2	2		3	3	3	2	1	1
7			**Data and File Structure**	**CO1**	2	3	2	1	2	1	2	1	1	1	3			1	3
				CO2	1	1	1	1	1	1	2	1	1	1	3	1	3	1	1
				CO3	1	3	1	1	1	1	1	1	1	1	3	2	3	1	1
				CO4	1	3	1	1	1	1	1	1	1	1	3	2	3	1	1
				CO5	1	3	2	1	2	1	1	1	1	1	3	3	3	2	3
				CO6	2	3	2	1	2	1	1	1	1	1	3	1	3	1	2
8			**Visual Basic**	**CO1**	3	3	3	1	3	2	2	2	1	3	3	3	2	2	2
				CO2	3	3	3		3	2	2	3		2	3	3	2	2	1
				CO3	3	3	3	1	3	2	1	2	1	2	3	3	2	2	2
				CO4	3	3	3	2	3	3	3	2	2	3	3	3	3	3	3
				CO5	3	3	3	1	3	2	3	3	1	3	3	3	2	3	3
				CO6	2	3	3		3	2	2	2	1	2	2	3	2	2	2
9			**RDBMS and ORACLE**	**CO1**	3	3	3		3	2	2	3	3	3	3	3	3	2	3
				CO2	3	3	3		3	3	3	3	2	3	3	3	2	3	3
				CO3	3	3	3	1	3	2	2	3	3	3	3	3	3	3	3

				CO4	2	3	3	1	2	3	2	2	3	3	3	3	3	3	3
				CO5	3	3	3		3	2	3	3	1	3	3	3	3	2	3
				CO6	3	3	3	1	3	3	3	2	2	3	3	3	3	3	3
1	**2nd**	**3rd**	**Web Technology**	**CO1**	3					2	1	1			3	3	2	2	2
				CO2	3	2	3	1	1	1	1	1			3	3	2	2	2
				CO3	2	2	3	1	1	1					2	3	2	1	1
				CO4	2	2	3	1	3	3	1	1			2	3	2	1	1
				CO5	1	1	3	1	1	1	1				2	3	2	1	1
				CO6	2	2	3	3	3	1	1	1			2	3	2	1	1
11			**Java Programming**	**CO1**	1	3	2								3				1
				CO2	1	2	3		2	1		1			2				3
				CO3		1		3		3	2	1	2			1	1	1	
				CO4	1	1		3		3	2	1	2					1	
				CO5		1	1							3	1	1			2
				CO6	1	2	3	1	3		2	1			1			2	2
12			**Software Engineering**	**CO1**	1	2	1	1	1	1	1	1	1	1	2	1	3	1	1
				CO2	2	3	3	1	3	2	2	1	2	1	3	2	3	1	3
				CO3	2	3	3	1	3	1	2	1	1	1	3	2	3	1	3
				CO4	3	3	3	1	2	1	3	1	1	1	3	2	3	1	3
				CO5	3	3	3	1	3	1	3	1	1	1	3	3	3	1	3
				CO6	3	3	3	1	3	1	3	1	1	1	3	3	3	1	3
13			**Computer Networks**	**CO1**	3			2	1	1	3	2		3	3		3	2	3
				CO2	3		2	3	1	1	3	2		3	3		3	2	3
				CO3	3		2	2	1	1				3	3	1	3	2	3

				CO4	3		1	3	2	2	1			3	3	2	3		3
				CO5	3	2	2	3	1	3	3	3		3	3	3	3	3	3
				CO6	3		3	3	3	3	3	2		3	3	2	3		3
14	**2nd**	**4th**	**Computer Graphics**	**CO1**	1	1									3		3	1	1
				CO2	2	3	3	3	3						2		3	1	1
				CO3	3	3	3	1	1	1					2	2	2	1	1
				CO4	3	1	1	1	1	1	1				2		2		
				CO5	2	2	2								2	2	2	1	1
				CO6	2	2	2		1	1	1				2	2	2	1	1
15			**Linux Adminitration**	**CO1**	1		2		1										1
				CO2		3	3	1	2	1	1	1	1		2	1	1	1	2
				CO3	2	3	3	2	2	1	1	2	1		1				2
				CO4	2	3	3	1	2	2	2	2	2				1	2	3
				CO5	2	2	2	1	2	2	2	2	2					2	3
				CO6	1	3	3	2	2	1	1	2	1		1			1	3
16			**Research Methodology**	**CO1**	2	3	3	3			2	1	2	1	2		3	3	
				CO2	2	3	3	3		1	3	1	3	2	2		2	2	
				CO3	3	2	1	1		1	1	2	3	2	3		3	3	
				CO4	3	3	2	2	1	3	3	3	3	3	1		3	3	
				CO5	3			2	2			2	3	1	2			2	
				CO6	3			3	3	3	3	3	3	3			3		
17			**Artificial Intelligence**	**CO1**	1			1	1	1	1						1		
				CO2	1			1	1	1	1						1		
				CO3	3	1			2			1	1		1				2

				CO4	1						1				2				
				CO5	2	2	2	1	2		1	1				3	2	1	2
				CO6	1			2	1	1			1				1	1	

ATTAINMENT OF PO BY DIRECT METHOD

AMAR SHAHEED BABA AJIT SINGH JUJHAR SINGH MEMORIAL COLLEGE, ROPAR PUNJAB																										
INTERNAL QUALITY ASSURANCE CELL																										
PROGRAMME: BCA			SEMESTER: 6TH				YEAR: 2018-2019			DATE OF DECLARATION OF RESULT BY UNIVERSITY																
S.NO.	NAME OF STUDENT	CLASS R.NO.	UNIVERSITY R. NO.	REGISTRATION NO.	WEB TECHNOLOGY			JAVA PROGRAMMING			SOFTWARE ENGINERRING			COMPUTER NETWORK			PROG LAB -IV			PROG LAB - V			TOTAL SUM	%age/CGPA	ATTAINMENT LEVEL
					Theory	Internal	TOTAL (T+I)	Theory	Internal	TOTAL (T+I)	Theory	Internal	TOTAL (T+I)	Theory	Internal	TOTAL (T+I)	Ext	Int	tOTAL	Ext	Int	tOTAL			
1	TARAN DEEP KAUR	3801	36520	811-2013-271	52	29	81	43	28	71	25	28	53	46	29	75	66	29	95	65	29	94	469	78.17	3

2	PAWAN PREET KAUR	3802	36521	814-2014-178	54	28	82	34	27	61	27	27	54	42	28	70	62	28	90	63	27	90	447	74.50	3
3	AMANPREET KAUR	3803	36522	814-2014-174	48	29	77	46	29	75	32	29	61	48	29	77	64	29	93	64	29	93	476	79.33	3
4	KIRANJEET KAUR	3804	36523	814-2014-177	46	27	73	40	27	67	26	26	52	44	28	72	64	28	92	63	27	90	446	74.33	3
5	PARMINDER KAUR	3805	36524	814-2014-179	51	29	80	46	29	75	26	26	52	41	29	70	65	29	94	63	29	92	463	77.17	3
				AVERAGE			**78.60**			**69.80**			**54.40**			**72.80**			**92.80**			**91.80**	460.2		

Average PO attainment by direct method is **76.7 %**

ATTAINMENT OF PO BY INDIRECT METHOD(EXIT SURVEY)

	DEPARTMENT OF COMPUTER SCIENCE														
	EXIT SURVEY														
	PROGRAMME: M.Sc. (IT) SESSION - 2018-19														
	Pos & PSOs	SCALES					TOTAL RESPONDANTS	TOTAL MARKS FOR SCALES					**TOTAL MARKS**	**%AGE**	**LEVEL OF ATTAINMENT**
		1	2	3	4	5		1	2	3	4	5			
1	A	**0**	**0**	**3**	**2**	**2**	7	**0**	**0**	**9**	**8**	**10**	27	77.14	**3**
2	B	**0**	**0**	**1**	**4**	**2**	7	**0**	**0**	**3**	**16**	**10**	29	82.86	**3**
3	C	**0**	**0**	**1**	**1**	**5**	7	**0**	**0**	**3**	**4**	**25**	32	91.43	**3**
4	D	**0**	**0**		**6**	**1**	7	**0**	**0**	**0**	**24**	**5**	29	82.86	**3**
5	E	**0**	**0**		**2**	**5**	7	**0**	**0**	**0**	**8**	**25**	33	94.29	**3**

6	F	**0**	**0**	**2**	**3**	**2**	7	**0**	**0**	**6**	**12**	**10**	28	80.00	**3**
7	G	**0**	**0**	**1**	**3**	**3**	7	**0**	**0**	**3**	**12**	**15**	30	85.71	**3**
8	H	**0**	**0**		**4**	**3**	7	**0**	**0**	**0**	**16**	**15**	31	88.57	**3**
9	I	**0**	**0**	**3**	**1**	**3**	7	**0**	**0**	**9**	**4**	**15**	28	80.00	**3**
10	J	**0**	**0**	**1**	**3**	**3**	7	**0**	**0**	**3**	**12**	**15**	30	85.71	**3**

Average PO attainment by indirect method= **84.85 %**

Total PO attainment (%) = (weightage: 80 %) X (Average attainment in direct method) + (weightage: 20 %) X (Average attainment in indirect method)

= (80%) X 76.7 + (20%) X 84.85

= **78.33%**

Level of Attainment = **Level 3**