Kurukshetra University, Kurukshetra

(Established by the State Legislature Act XII of 1956)

('A+' Grade, NAAC Accredited)

॥ योगस्थ: कुरु कर्माणि ॥

समबुद्धि व योग युक्त होकर कर्म करो

(Perform Actions while Stead fasting in the State of Yoga)

Modified Scheme of Examination for Under-Graduate Programmes

Subject: Computer Applications

according to

Curriculum Framework for Under-Graduate Programmes

As per NEP-2020 (Multiple Entry-Exit, Internships and Choice Based Credit System)

DEPARTMENT OF COMPUTER SCIENCE & APPLICATIONS

(For the Batches Admitted from 2025-2026)

Kurukshetra University Kurukshetra
Scheme of Examination forUndergraduate programmes
Subject: Computer Applications
According to
Curriculum Framework for Undergraduate Programmes
as per NEP 2020 (Multiple Entry-Exit, Internships and Choice Based Credit System)

Sem	**Course Type**	**Course Code**	**Nomenclature of paper**	Credits	Contact hours	**Internal marks**	**End term Marks**	**Total Marks**	Duration of exam (Hrs) T + P
1	CC-1 MCC-1	B23-CAC-101	Programming with Python	3	3	20	50	70	3
			Practical	1	2	10	20	30	3
	MCC-2	B23-CAC-102	Operating Systems	3	3	20	50	70	3
			Practical	1	2	10	20	30	3
	CC-M1	B23-CAC-103	Basics of Computer Science	1	1	10	20	30	3
			Practical	1	2	5	15	20	3
	MDC 1	B23-CAC-104	Fundamentals of Computer Science	2	2	15	35	75	3
			Practical	1	2	5	20	25	3
2	CC-2 MCC-3	B23-CAC-201	Logical Organization of Computer	3	3	20	50	70	3
			Practical	1	2	10	20	30	3
	DSEC-1	B23-CAC-202	Data Base Management Systems	3	3	20	50	70	3
			Practical	1	2	10	20	30	3
	CC-M2	B23-CAC-203	Programming Methodologies	1	1	10	20	30	3
			Practical	1	2	5	15	20	3

	MDC 2	B23-CAC-204	Web Technologies Fundamentals	2	2	15	35	50	3
			Practical	1	2	5	20	25	3
3	CC-3 MCC-4	B23-CAC-301	Object-Oriented Programming using C++	3	3	20	50	70	3
			Practical	1	2	10	20	30	3
	MCC-5	B23-CAC-302	Foundations of Web Development	3	3	20	50	70	3
			Practical	1	2	10	20	30	3
	MDC 3	B23-CAC-303	Programming with C	2	2	15	35	50	3
			Practical	1	2	5	20	25	3
	CC-M3	B23-CAC-304	Programming using Python	1	1	10	20	30	3
			Practical	1	2	5	15	20	3
4	CC-4 MCC-6	B23-CAC-401	Computer Graphics	3	3	20	50	70	3
			Practical	1	2	10	20	30	3
	MCC-7	B23-CAC-402	Concepts of Data Structures	3	3	20	50	70	3
			Practical	1	2	10	20	30	3
	MCC-8	B23-CAC-403	Java Programming	3	3	20	50	70	3
			Practical	1	2	10	20	30	3
	DSE-1	B23-CAC-404	Front-end Development	3	3	20	50	70	3
			Practical	1	2	10	20	30	3
		Or							
		B23-CAC-405	Linux and Shell Programming	3	3	20	50	70	3
			Practical	1	2	10	20	30	3
5	CC-5		Data Analytics using SpreadSheets	3	3	20	50	70	3

	MCC-9	B23-CAC-501	Practical	1	2	10	20	30	3
	MCC-10	B23-CAC-502	Computer Networks	3	3	20	50	70	3
			Practical	1	2	10	20	30	3
	DSE-2	B23-CAC-503	Foundations of Server-Side Development	3	3	20	50	70	3
			Practical	1	2	10	20	30	3
		Or							
		B23-CAC-504	Cloud Computing	3	3	20	50	70	3
			Practical	1	2	10	20	30	3
	DSE-3	B23-CAC-505	Java Based Web App Development	3	3	20	50	70	3
			Practical	1	2	10	20	30	3
		Or							
		B23-CAC-506	Programming in R	3	3	20	50	70	3
			Practical	1	2	10	20	30	3
6	CC-6 MCC-11	B23-CAC-601	Artificial Intelligence	3	3	20	50	70	3
			Practical	1	2	10	20	30	3
	MCC-12	B23-CAC-602	Advanced Web Development Techniques	3	3	20	50	70	3
			Practical	1	2	10	20	30	3
	DSE-4	B23-CAC-603	Developing Modern Web Applications using React	3	3	20	50	70	3
			Practical	1	2	10	20	30	3
		Or							

		B23-CAC-604	Data Storage Technologies and Networks using AWS	3	3	20	50	70	3
			Practical	1	2	10	20	30	3
	DSE-5	B23-CAC-606	Data Analytics using Python	3	3	20	50	70	3
			Practical	1	2	10	20	30	3
		Or							
		B23-CAC-607	Data Analytics using R	3	3	20	50	70	3
			Practical	1	2	10	20	30	3
7	CC-H1	B23-CAC-701	Mobile Computing	4	4	30	70	100	3
	CC-H2	B23-CAC-702	Software Testing	4	4	30	70	100	3
	CC-H3	B23-CAC-703	Data Mining and Warehousing	4	4	30	70	100	3
	DSE-6	B23-CAC-704	NoSQL Databases	4	4	30	70	100	3
		Or							
		B23-CAC-705	Block Chain Technologies	4	4	30	70	100	3
	PC-H1	B23-CAC-707	Practical	4	8	30	70	100	6
8	CC-H4	B23-CAC-801	Information Security	4	4	30	70	100	3
	CC-H5	B23-CAC-802	Internet of Things	4	4	30	70	100	3

	CC-H6	B23-CAC-803	Software Project Management	4	4	30	70	100	3
	DSE-7	B23-CAC-804	Big Data	4	4	30	70	100	3
		Or							
		B23-CAC-805	Machine Learning	4	4	30	70	100	3
	PC-H2	B23-CAC-806	Practical	4	8	30	70	100	6
	OR								
	CC-H4	B23-CAC-801	Information Security	4	4	30	70	100	3
	CC-H5	B23-CAC-802	Internet of Things	4	4	30	70	100	3
	Research	B23-CAC-807	Project/ Dissertation	12				300	

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Syllabus of Examination for Under-Graduate Programmes
Subject : Computer Applications
Minor to be offered to other Department
according to
Curriculum Framework for Under-Graduate Programmes
As per NEP-2020 (Multiple Entry-Exit, Internships and Choice Based Credit System)
DEPARTMENT OF COMPUTER SCIENCE & APPLICATIONS
(2025-2026)

DEPARTMENT OF COMPUTER SCIENCE & APPLICATIONS
KURUKSHETRA UNIVERSITY, KURUKSHETRA

<table>
<tr><th colspan="4">Scheme: 2025-26, Syllabus: 2025-26</th></tr>
<tr><th colspan="4">Part A – Introduction</th></tr>
<tr><td>Subject</td><td colspan="3">Computer Applications</td></tr>
<tr><td>Semester</td><td colspan="3">III</td></tr>
<tr><td>Name of the Course</td><td colspan="3">Programming using Python</td></tr>
<tr><td>Course Code</td><td colspan="3">B23-CAC-304</td></tr>
<tr><td>Course Type: (CC/MCC/MDC/CC-M/DSEC/VOC/DSE/PC/AEC/ VAC)</td><td colspan="3">CC-M3</td></tr>
<tr><td>Level of the course (As per Annexure-I</td><td colspan="3">200-299</td></tr>
<tr><td>Pre-requisite for the course (if any)</td><td colspan="3">Knowledge of Basics of Programming using Python</td></tr>
<tr><td>Course Learning Outcomes(CLO):</td><td colspan="3">After completing this course, the learner will be able to:
1. Understand and write Python syntax.
2. Use data types, operators, and control structures.
3. Define and use functions and modules.
4. Implement real-world solutions using Python's built-in features and file handling.</td></tr>
<tr><td rowspan="2">Credits</td><td>Theory</td><td>Practical</td><td>Total</td></tr>
<tr><td>3</td><td>1</td><td>4</td></tr>
<tr><td>Contact Hours</td><td>3</td><td>2</td><td>5</td></tr>
<tr><td colspan="2">Max. Marks:100(70(T)+30(P))
Internal Assessment Marks:30(20(T)+10(P))
End Term Exam Marks: 70(50(T)+20(P))</td><td colspan="2">Time: 3 Hrs.(T), 3Hrs.(P)</td></tr>
<tr><th colspan="4">Part B- Contents of the Course</th></tr>
<tr><td colspan="4"><u>Instructions for Paper-Setter</u>
The examiner will set a total of nine questions. Out of which first question will be compulsory. Remaining eight questions will be set from four unit selecting two questions from each unit. The examination will be of three-hour duration. All questions will carry equal marks. The first question will comprise short answer-type questions covering the entire syllabus.
Candidate will have to attempt five questions in all, selecting one question from each unit. First question will be compulsory.
The practicum will be evaluated by an external and an internal examiner. The examination will be of</td></tr>
</table>

three-hour duration.

Unit	Topics	Contact Hours
I	**Introduction to Python:** setting up Python environment, writing and executing Python scripts, variables and data types, input/output, type casting, comments, operators (arithmetic, relational, logical, assignment, bitwise, identity, membership)	11
II	**Control structures:** conditional statements (if, if-else, elif), loops (for, while), loop control (break, continue, pass), range and enumerate functions, nested loops, basic problem-solving using loops	11
III	**Functions:** built-in functions, user-defined functions, function arguments and return values, scope and lifetime of variables, recursion, lambda functions, modules and importing, creating and using custom modules	11
IV	**Data structures in Python:** lists, tuples, sets, dictionaries, list/set/dictionary comprehensions, file handling: reading and writing text and CSV files, exception handling: try, except, finally, raising exceptions	12
V*	Practicum: Students are advised to do laboratory/practical practice not limited to but including the following types of problems: 1. Write and execute a "Hello, World!" program 2. Input/output programs using variables and data types 3. Implement arithmetic and logical operations 4. Write Python code for conditional branching (if-else) 5. Use loops to generate patterns and process lists 6. Create user-defined functions with parameters 7. Use recursion to calculate factorial/Fibonacci series 8. Create and use modules (including built-in like math, random) 9. Perform operations on lists, tuples, sets, and dictionaries 10. File handling – read from and write to text files 11. Handle exceptions using try-except block	30

Suggested Evaluation Methods

Internal Assessment: ➢ **Theory** • Class Participation: 5 • Seminar/presentation/assignment/quiz/class test etc.: 5 • Mid-Term Exam: 10 ➢ **Practicum** • Class Participation: NA • Seminar/Demonstration/Viva-voce/Lab records etc.: 10 • Mid-Term Exam: NA	**End-Term Examination:** A three-hour exam for both theory and practicum. **End Term Exam Marks: 70(50(T)+20(P))**

Part C-Learning Resources

Recommended Books/e-resources/LMS:

- **Mark Lutz**, *Learning Python*, O'Reilly Media
- **Allen B. Downey**, *Think Python*, O'Reilly
- **Eric Matthes**, *Python Crash Course*, No Starch Press
- **Zelle, John M.**, *Python Programming: An Introduction to Computer Science*
- Official Python Documentation – https://docs.python.org/3

*Applicable for courses having practical components.