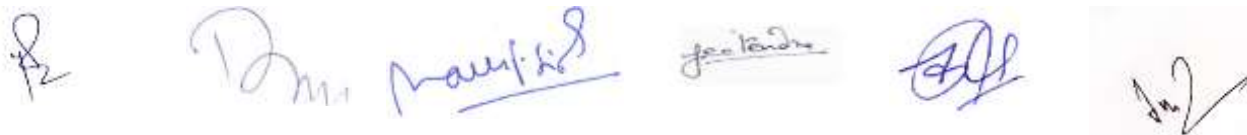


APPENDIX I

Program Structure of Master of Computer Applications (MCA-21)

1. **Title of Programme:** Master of Computer Applications
2. **Programme Code:** MCA-21
3. **Programme Mode:** Semester
4. **Admission Cycle:** Twice every Year in Jan. And July
5. **Eligibility:** Passed BCA/ Bachelor Degree in Computer Science Engineering or equivalent Degree like PGDCA diploma from UGC recognised University, A- Level from DOEACC with graduation, etc. Or
B.Sc./ B.Com./ B.A. with Mathematics at 10+2 Level or at Graduation Level (obtained at least 50% marks (45% marks in case of candidates belonging to reserved category) in the qualifying Examination), they have to complete 2 semester PDGCA program offered by Uttarakhand Open University as a bridge course. After the completion of the bridge course, the PGDCA diploma shall be awarded to these candidates and they will be admitted to first semester of two-year (four semester) MCA program. For candidates who do not have Mathematics at 10+2 Level or at Graduation level, they have to enrol and complete an additional Mathematic course available at SWAYAM portal (Sr. Secondary Mathematics paper in SWAYAM portal by Dr. Rajendra Kumar Nayak, NIOS). The equivalent courses shall be identified from time to time and the details shall be provided in the University website.
6. **SLM Availability Medium :**English



7. **Duration:**

Min: 2 Years

Max: 4 Years


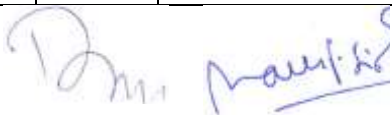



8. Total Credit : 80

9. Objective of the Programme: The objective of this programme is to equip the learner with the latest tools and techniques of computing and informatics. The professionals who could develop solutions making use of computer applications is the crux of this programme. It helps the learners to acquire the knowledge required for the positions of system analysts, systems designers, Programmers and managers in any field related to Computing & Informatics. The programme, therefore, aims at imparting comprehensive knowledge with equal emphasis on theory and practice

10. Programme Structure: The program structure of the MCA program is as follows:

A row of five handwritten signatures in blue ink. From left to right: a stylized signature, 'Dm. Manjish', 'jacobson', a circular signature, and a signature that appears to be 'Su2'.

Programme Name & Abbreviation	Programme Code	Eligibility	Duration In Years		SLM	Mode of Exam (Annual/ Sem)	Year / Sem	Details of Fees (Rs.)							
			Min	Max				Programme	Project/ Lab Workshop	Exam	Practical	Viva-Voce	Miscellaneous	Degree Fee	Grand Total
			MASTER OF COMPUTER APPLICATIONS – MCA-21	MCA-21				Passed BCA/ Bachelor Degree in Computer Science Engineering or equivalent Degree like PGDCA diploma from UGC recognised University, A- Level from DOEACC with graduation, etc. OR B.Sc./ B.Com./ B.A. with Mathematics at 10+2 Level or at Graduation Level (obtained at least 50% marks (45% marks in case of candidates belonging to reserved category) in the qualifying Examination), they have to complete 2 semester PDGCA program offered by Uttarakhand Open University as a bridge course. After the completion of the bridge course, the PGDCA diploma shall be awarded to these candidates and they will be admitted to first semester of two-year (four semester) MCA program. For candidates who do not have Mathematics at 10+2 Level or at Graduation level, they have to enrol and complete an additional Mathematic course available at SWAYAM portal (Sr. Secondary Mathematics paper in SWAYAM portal by Dr. Rajendra Kumar Nayak, NIOS). The equivalent courses shall be identified from time to time and the details shall be provided in the University website.	2	4	English	Sem	I	9500	-
II	9500	-	1000	500	-	-		11000							
III	9500	-	1000	500	-	-		11000							
IV	9500	1000	750		-	-	300	11550							

Course Structure of 2-year MCA program

Program Code: MCA-21

Total Credits: 80

SEMESTER I			
MCS-501	Discrete Mathematics	04	100 (70/30)
MCS-502	Object-Oriented Programming through C++	04	100 (70/30)
MCS-503	Software Engineering	04	100 (70/30)
MCS-504	Operating System	04	100 (70/30)
MCS-P1	Practical	04	100
SEMESTER II			
MCS-505	Database Management System	04	100 (70/30)
MCS-506	Introduction to Computer Networks	04	100 (70/30)
MCS-507	Design and Analysis of Algorithm	04	100 (70/30)
MCS-508	Programming in Java	04	100 (70/30)
MCS-P2	Practical	04	100
SEMESTER III			
MCS-601	Information Security Assurance: Framework, Standards & Industry Best Practices	04	100 (70/30)
MCS-602	Computer System Architecture	04	100 (70/30)
	Elective I	04	100 (70/30)
	Elective II	04	100 (70/30)
MCS-P3	Practical	04	100 (70/30)
SEMESTER IV			
MCS-604	Introduction to Mobile Architecture	04	100 (70/30)
	Elective III	04	100 (70/30)
	Elective IV	04	100 (70/30)
MCS-603	Project (200 marks) + Viva-Voce(100 marks)	08	300

Elective I

1. Web Technology(MCS-E1)
2. Introduction to Soft Computing(MCS-E2) (Offered through SWAYAM only)
3. Fuzzy Logic and Neural Networks(MCS-E3) (Offered through SWAYAM only)
4. Basics of Remote Sensing and GIS(MCS-E4)

Elective II

1. Fundamentals of Information Security (MIT(CS)-101)
2. Cyber Security Techniques (MIT(CS)-102)
3. Information System (MIT(CS)-104)
4. Digital Forensics (MIT(CS)-202)

Elective III

1. Formal Languages and Automata(MCS-E5)
2. Python Programming(MCS-E6) (Offered through SWAYAM only)
3. Artificial Intelligence(MCS-E7) (Offered through SWAYAM only)
4. Data Science for Engineers(MCS-E8) (Offered through SWAYAM only)

Elective IV

1. Information System for Business (MCA-E8)
2. Project Management (MCA-E9)
3. Wireless Networks (MCA-E10)
4. Introduction to Internet of Things (MCA-E11) (Offered through SWAYAM only)
5. Cloud Computing (MCA-E12) (Offered through SWAYAM only)

Note: Processing fee of Rs.250/course shall be applicable to facilitate credit transfer along with the application form and transcripts.