Swami Rama Himalayan University
Office of the Registrar

SRHU/Reg/OO/2022-170 Date: 19th September, 2022

OFFICE ORDER

I am directed to inform that the Academic Council in its 26th Meeting under Agenda Item Nos. 26/11, 26/12, 26/13, 26/14, 26/15 and 26/16 has approved the **recommendations of Board of Studies** for the following programmes under **Himalayan School of Science & Technology**, as enclosed herewith, for implementation:

1. UG Programme - BCA
2. PG Programme - MCA
3. UG Programme - B.Tech. (Computer Science & Engineering)
4. UG Programme - B.Sc. (Hons.) in Data Science for Academic Year 2021-22
5. UG Programme - B.Sc. (Hons.) in Data Science from Academic Year 2022-23
6. UG Programme - B.Tech. (CSE) with specialization in Artificial Intelligence & Machine Learning from Academic Year 2022-23
7. UG Programme - B.Tech. (CSE) with specialization in Data Science from Academic Year 2022-23
8. UG Programme - B.Tech. (CSE) with specialization in DevOps from Academic Year 2022-23
9. PG Programme - M.Tech. (Computer Science & Engineering) from Academic Year 2022-23

By Order,

19/9/22

Registrar

Encls.: As above.

Copy to: Hon'ble Chancellor
Hon'ble Vice Chancellor
Pro Vice Chancellor
} for kind information please
Controller of Examinations
Principal, Himalayan School of Science & Technology

BOARD OF STUDIES

MASTER OF COMPUTER APPLICATIONS (MCA) PROGRAMME

Department of Computer and Information Sciences
Himalayan School of Science & Technology
SWAMI RAMA HIMALAYAN UNIVERSITY
Swami Ram Nagar, Jolly Grant, Doiwala
Dehradun-248016

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Swami Rama Himalayan University
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SRHU/Reg/OO/2022-54

Date: 12th March, 2022

OFFICE ORDER

In accordance with duly approved Statute 5.07 of the University, the Hon'ble Vice Chancellor has constituted the Board of Studies for UG programmes - B.Tech. (CSE), BCA & B.Sc. (Hons.) in Data Science and PG programmes - MCA & M.Tech. (CSE) under Faculty of Science & Technology, as under:

	Dr. Ramesh Chand Ramola, Principal, HSST	Chairperson
As per the provisions of Statute 5.07(b) of the University, Professor nominated by the Vice Chancellor	Dr. Manish Prateek, Professor	Member
As per the provisions of Statute 5.07(d) of the University, 02 (Two) external subject experts nominated by the Vice Chancellor	Dr. Durga Toshniwal, Professor, Deptt. of Computer Science & Engineering, IIT Roorkee	Member
	Dr. Manoj Misra, Professor, Deptt. of Computer Science & Engineering, IIT Roorkee	Member

By Order,

12/3/22

Registrar

Copy to: Hon'ble Chancellor
Hon'ble Vice Chancellor
Pro Vice Chancellor
Principal, HSST
Chairperson, Board of Studies
All above concerned
} for kind information please

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Swami Rama Himalayan University
Office of the Registrar

SRHU/Reg/Int/2022-156 Date: 23rd May, 2022

Meeting Notice

The Meeting of the Board of Studies (BOS) for UG programmes - B.Tech. (CSE), BCA and B Tech. (CSE) with specialization in 'Artificial Intelligence & Machine Learning, Data Science and DevOps' and PG programmes - MCA & M Tech. (CSE) under Himalayan School of Science & Technology (HSST), will be held on **27th May 2022 (Friday) at 11:00 a.m. through Video Conferencing**.

The Agenda of the meeting shall be as follows:

1. To recommend, upon reference to it by the faculty, the courses of study, curriculum and methods of assessment in the subject or group of subjects within its purview.
2. To recommend programme objective and course outcome.
3. To recommend books, including text-books, supplementary reading, reference books and other study material for such courses of study.
4. To advise the faculty or faculties concerned regarding improvements in the courses of study.
5. To recommend organization of orientation and refresher courses in the subject.

Members of the said Board of Studies are requested to please make it convenient to attend the meeting.

23/5/22

Dr. Susheela Sharma
Registrar

Copy to: Hon'ble Chancellor, Hon'ble Vice Chancellor, Pro Vice Chancellor } for kind information please
Principal, HSST
Chairperson, Board of Studies - to kindly inform Special Invitees of BOS for B.Tech. (CSE) with specializations
All concerned members of the Board of Studies

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Board of Studies

BOS of Master of Computer Applications (MCA) programme was conducted on 27th May, 2022 (Friday) in the online mode

Attendance

S. No.	Name	Signature
1	Dr. Ramesh Chand Ramola Principal, HSST (Chairperson)	
2	Dr. Manish Prateek, Professor, HSST (Member)	
3	Dr. Durga Toshniwal, Professor, Deptt. of Computer Science & Engineering IIT-Roorkee (Member)	
4	Dr. Manoj Misra, Professor, Deptt. of Computer Science & Engineering IIT-Roorkee (Member)	

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Minutes of the Meeting

In pursuance to the notification SRHU/Reg./Int./2022-156 dated 23rd May, 2022 the meeting of Board of Studies of MCA programme was held in the HSST on 27 May 2022 at 11 AM in the presence of following members in the online mode.

1. Dr. Ramesh Chand Ramola: Chairperson
2. Dr. Manish Prateek: Member
3. Dr. Durga Toshniwal: Member
4. Dr. Manoj Misra: Member

The members discussed following points.

1. The programme objectives and outcomes were discussed. Members gave their consent for the approval.
2. The LOCF-based curriculum were also discussed. They pointed out some minor typographical errors. After the incorporation of changes as recommended the LOCF based curriculum was approved by the members.

Dr. Ramesh Chand Ramola
Chairperson

Dr. Manish Prateek
Member

Dr. Manoj Misra
Member

Dr. Durga Toshniwal
Member

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Program Educational Objectives (PEOs)

The Programme Educational Objectives of MCA programmes are

PEO1	To prepare the students as successful professionals ready for Industry, Government sectors, Academia, Research, Entrepreneurial Pursuit and Consultancy firms.
PEO2	To prepare the students with Ethical Attitude, Effective Communication Skills and admit themselves as ethical and responsible citizens with social commitments.
PEO3	To prepare the students with excellent computing ability so that to Comprehend, Analyse, Design and Create computing solutions for the real-time problems.

Programme Outcomes (POs)

On successful completion of MCA programme, the students are expected to

PO1	**Computational Knowledge:** acquire knowledge of Computing Fundamentals, Basic Mathematics, Computing Specialization, and Domain Knowledge of proper computing models from defined problems.
PO2	**Problem Analysis:** identify, invent, research activities to provide solutions for complex computing problems using fundamental concepts of Mathematics, Computing Science and Relevant Domains.
PO3	**Design and Development:** design and develop a solution for complex problems in domains like Banking, Insurance, Healthcare Systems and Multimedia and Mass Communications.
PO4	**Continuous learning:** confidence for self and continuous learning to improve knowledge and competence as a computing professional.
PO5	**Modern tool usage:** adapt and apply modern computing tools to analyze and resolve problems.
PO6	**Professional ethics**: understand professional ethics and Cyber regulations and develop the youth with social commitments.
PO7	**Personality development:** understand Management Principles and apply these to develop software as a team member and mange projects efficiently for multidisciplinary environments.
PO8	**Communication Efficacy:** Communicate effectively with computing society in both verbal and written form.
PO9	**Social Responsibility:** Find and access Social and Environmental issues for local and global needs and give relevant solutions for them.

Program Specific Outcomes (PSOs)

At the end of the programme, the student should be able to

PSO1	Understand the concepts and applications in the field of Computing Sciences like web designing and development, algorithm design, database system and network technologies.
PSO2	Apply the learning from the courses and develop applications for real world problems.

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Study and Evaluation Scheme

SWAMI RAMA HIMALAYAN UNIVERSITY

Himalayan School of Science & Technology

Study and Evaluation Scheme: MCA Programme

1 YEAR SEM-I

S. No	COURSE CODE		CATEGORY	COURSE TITLE	PERIODS			EVALUATION SCHEME									GRAND TOTAL	CONTACT HOURS (L+T+P)	CREDITS		
								THEORY					PRACTICAL/ PRACTICES								
	Theory	Practical /Practices			L	T	P	CIA-I	CIA -II	TA	ESE	Total	Internal	ESE	Total			Theory	Practical/ Practices	Total
1	MCA111	MCP111	CS	Computer Fundamentals & Programming for problem solving	3	1	4	20	20	10	100	**150**	20	30	**50**	200	8	4	2	6
2	MCA112		AS	Discrete Mathematics	3	1	0	20	20	10	100	**150**	0	0	**0**	150	4	4	0	4
3	MCA113		CS	Computer Organization and Architecture	3	1	0	20	20	10	100	**150**	0	0	**0**	150	4	4	0	4
4	MCA114	MCP114	CS	Computer Networks	3	1	4	20	20	10	100	**150**	20	30	**50**	200	8	4	2	6
5	MCA115	MCP115	CS	Scripting Languages	3	0	4	20	20	10	100	**150**	20	30	**50**	200	7	3	2	5
6	MCA116		CS	Software Engineering & Project Management	3	0	0	20	20	10	100	**150**	0	0	**0**	150	3	3	0	3
7	PPD101		PS	Personality Development Programme-I	0	0	2										2	0	0	0
TOTAL					18	4	14	120	120	60	600	**900**	**60**	**90**	**150**	**1050**	**36**	**22**	**6**	**28**

1 YEAR SEM-II

S. No	COURSE CODE		CATEGORY	COURSE TITLE	PERIODS			EVALUATION SCHEME									GRAND TOTAL	CONTACT HOURS (L+T+P)	CREDITS		
								THEORY					PRACTICAL/ PRACTICES								
	Theory	Practical /Practices			L	T	P	CIA -I	CIA -II	TA	ESE	Total	Internal	ESE	Total			Theory	Practical/ Practices	Total
1	MCA121	MCP121	CS	Data Base Management Systems	3	0	4	20	20	10	100	**150**	20	30	50	200	7	3	2	5
2	MCA122	MCP122	CS	Data Structures Using 'C'	3	0	4	20	20	10	100	**150**	20	30	50	200	7	3	2	5
3	MCA123	MCP123	CS	OOP using Java	3	0	4	20	20	10	100	**150**	20	30	50	200	7	3	2	5
4	MCA124	MCP124	CS	Operating Systems	3	0	4	20	20	10	100	**150**	20	30	50	200	7	3	2	5
5	MCA125		CS	Theory of Automata	3	1	0	20	20	10	100	**150**	0	0	0	150	4	4	0	4
6	MCE12#		MCE	ELECTIVE-I	3	0	0	20	20	10	100	**150**	0	0	0	150	4	3	0	3
7	PPD102		PS	Personality Development Programme-II	0	0	2										2	0	0	0
TOTAL					18	1	18	120	120	60	600	**900**	80	120	**200**	**1100**	**38**	**19**	**8**	**27**

L: Lecture, T: Tutorial, P: Practical/Practices, CIA: Continuous Internal Assessment, TA: Teacher's Assessment (A/G/S/P/Q/V: Assignment/Group Discussion/Seminar/Presentation/Quiz/Viva Voce) ESE: End Semester Examination;

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2 YEAR SEM-III

S. No	COURSE CODE		CATEGORY	COURSE TITLE	PERIODS			EVALUATION SCHEME									GRAND TOTAL	CONTACT HOURS (L+T+P)	CREDITS		
								THEORY					PRACTICAL/ PRACTICES								
	Theory	Practical /Practices			L	T	P	CIA -I	CIA -II	TA	ESE	Total	Internal	ESE	Total				Theory	Practical/ Practices	Total
1	MCA231	MCP231	CS	Design and Analysis of Algorithms	3	1	4	20	20	10	100	150	20	30	50	200	8		4	2	6
2	MCA232		CS	Compiler Design	3	1	0	20	20	10	100	150	0	0	0	150	4		4	0	4
3	MCA233	MCP233	CS	(Dot) .Net Frame Work & C#	3	0	4	20	20	10	100	150	20	30	50	200	7		3	2	5
4	MCA234	MCP234	CS	Computer Graphics	3	0	4	20	20	10	100	150	20	30	50	200	7		3	2	5
5	MCE23#		MCE	ELECTIVE-II	3	0	0	20	20	10	100	150	0	0	0	150	3		3	0	3
6	MCE23#		MCE	ELECTIVE-III	3	0	0	20	20	10	100	150	0	0	0	150	3		3	0	3
7	PPD103		PS	Personality Development Programme-III	0	0	2										2		0	0	0
8		MPW201/ MIL201	PS	Project Work Phase-I / Induction Program for Industry-Based Learning Program				Synopsis, Literature Survey & Presentation				50	External Assessment						0	3	3
TOTAL					18	2	14	120	120	60	600	**950**	60	90	**200**	**1150**	**34**		**20**	**9**	**29**

2 YEAR SEM-IV

S. No	COURSE CODE		CATEGORY	COURSE TITLE	PERIODS			EVALUATION SCHEME									GRAND TOTAL	CONTACT HOURS (L+T+P)	CREDITS		
								THEORY					PRACTICAL/ PRACTICES								
	Theory	Practical /Practices			L	T	P	CIA -I	CIA -II	TA	ESE	Total	Internal	ESE	Total				Theory	Practical/ Practices	Total
1		MPW202/ MIL202	PS	Project Work Phase-II / Induction Program for Industry-Based Learning Program				Report, Analysis, Implementation/ Simulation & Presentation				**200**	External Assessment		300	500			0	16	16
TOTAL												**200**			**300**	**500**			**0**	**16**	**16**

Total credits to be earned for the award of Degree : 100					
Sem.	**I**	**II**	**III**	**IV**	**Total Credits**
Credits	28	27	29	16	100

Course Category			
AS	Applied Sciences	**PS**	Professional Studies
CS	Computer Science	**MCE**	Electives

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ELECTIVE-I (Security & Encryption)						
S. No.	**Course Code**	**Course Title**	**L**	**T**	**P**	**C**
1	MCE121	Intrusion Detection System	3	0	0	3
2	MCE122	Introduction to Cyber Security	3	0	0	3
3	MCE123	Network Security and Cryptography	3	0	0	3
4	MCE124	Database Security	3	0	0	3
ELECTIVE-II (Ubiquitous Computing)						
S. No.	**Course Code**	**Course Title**	**L**	**T**	**P**	**C**
1	MCE231	Cloud Computing	3	0	0	3
2	MCE232	Mobile computing	3	0	0	3
3	MCE233	Introduction to Internet of Things	3	0	0	3
4	MCE234	Grid Computing	3	0	0	3
5	MCE235	Android Programming	3	0	0	3
ELECTIVE-III (Information Processing & Analytics)						
S. No.	**Course Code**	**Course Title**	**L**	**T**	**P**	**C**
1	MCE236	Information Retrieval	3	0	0	3
2	MCE237	Big Data Management	3	0	0	3
3	MCE238	Natural language Processing	3	0	0	3
4	MCE239	Machine Learning	3	0	0	3

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