MSc in Computer Science Programme Structure

MSc in Computer Science Programme has drawn a large interest from scholars and professionals in the field. Hence, KDU intends to offer the MSc in Computer Science Programme from 2024 onwards.

The structure and overview of the MSc in Computer Science Degree Program is shown herewith in figure 1.

1st Semester (15 GPA)

Core Modules, Orientation Workshops / Projects
(Cognitive Knowledge, Practical and Reflections)

2nd Semester (15 GPA)

Core Modules and Research Methodology / Group Projects
(Cognitive Knowledge, Critical Thinking and Collaborative Skills)

3rd Semester (10 GPA)

Core Modules, Field Specific Elective Module & Individual Project

4th Semester (20 GPA)

Core Modules, Field Specific Elective Module & Individual Project with dissertation
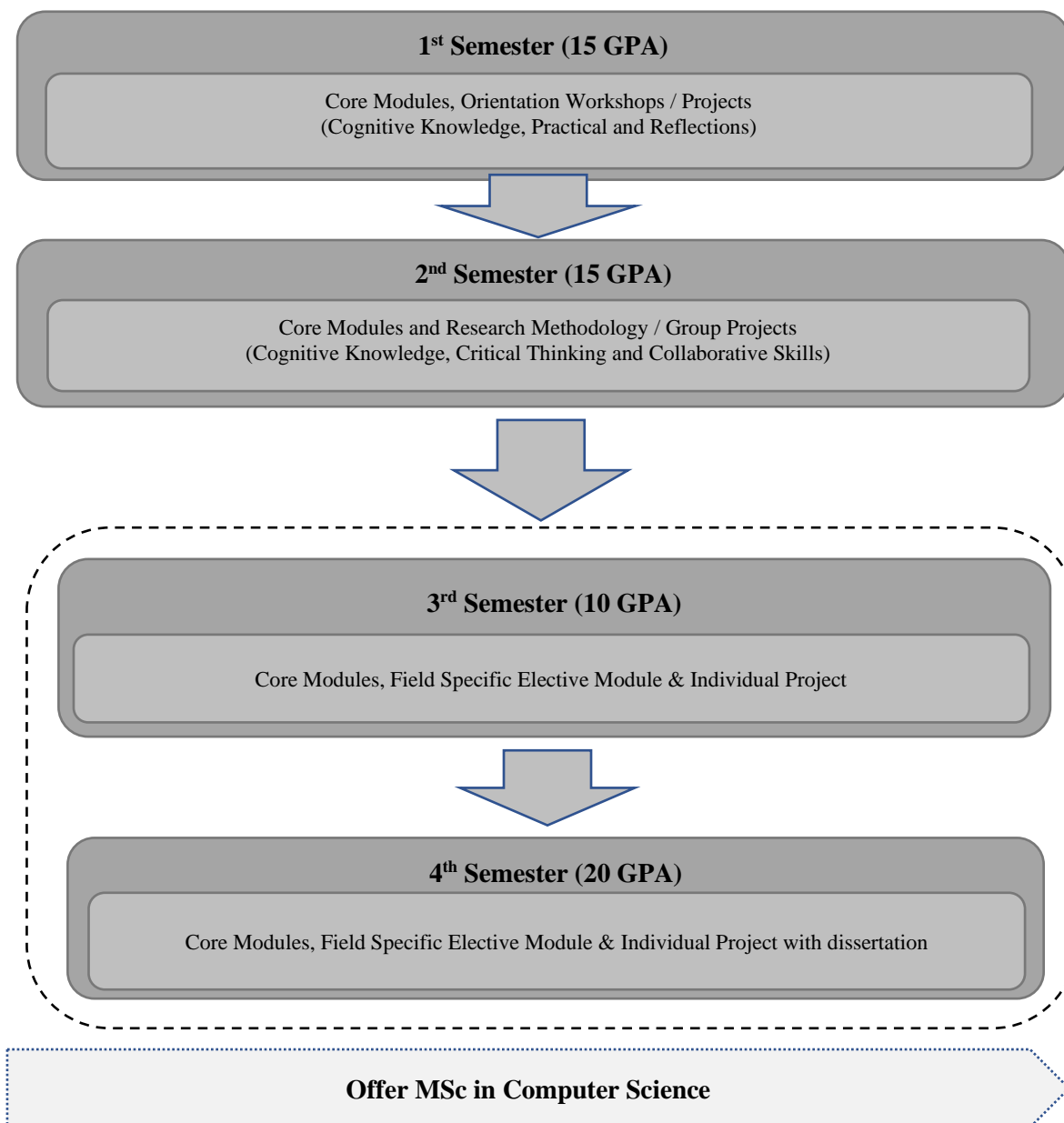
Offer MSc in Computer Science

Figure 1: Overview of the Proposed MSC in Computer Science Degree Program

The MSc in Computer Science is a two-year programme with a total of 60 GPA credits as per SLQF guidelines and UGC Quality Assurance recommendations. The structure of the Programme is designed according to outcome-based education norms. Students will be involved in Scientific research activities with the industry and research institutes to develop scientific skills and competencies. The structure of the study programme is categorized into two distinct phases as follows,

1. 1st and 2nd semester courses and teaching activities provide the required cognitive knowledge and skills development platforms. Students are required to complete all course modules (minimum "C" or better grade), teaching-learning activities, and group projects. The duration of two semesters is a one-year period with 30 GPA credits which can be achieved.

2. The 3rd and 4th semester courses and teaching field specialization commence from the 3rd semester onwards. Students could select one specific course module in specialization out of three areas including Natural Language Processing, Software Quality Assurance, and Data Science & Big Data Analytics in the 3rd semester, and at the beginning of 4th semester, a student can select one subject-specific course module including Evolutionary computation & Agent Technology, Embedded systems & IoT and Deep learning.

   The research work commences from the 3rd semester and will be evaluated in both 3rd and 4th semesters. The scientific research proposal needs to be approved by the relevant Board of Study from the Faculty of Graduate Studies of KDU. Progress will be reviewed at the end of the 3rd semester. The complete research work should fulfill 15 GPA credits including two progress reviews and Viva Voce for the final thesis submission.

Curriculum for the MSc in Computer Science Degree

Semester 1 (Year 1) Modules					
Semester	**Course Code**	**Course Name**	**Credit Value**	**Status (Compulsory /Optional)**	**Existing/ New**
Semester 1	MCS1013	Programming Essentials for Computer Science	3	C	New
	MCS1022	Data Communication and Computer Networks	2	C	New
	MCS1032	Computer System Organization and Architecture	3	C	New
	MCS1043	Mathematical Methods for Computing	3	C	New
	MCS1052	UX and UI Engineering	2	C	New
	MCS1063	Advanced Database Systems	2	C	New
Total Credits for Semester 1			**15 – GPA and 0 – NGPA**		

In the first semester of the program of study, the abovementioned Six (06) compulsory course modules shall be offered.

Semester 2 (Year 1) Modules					
Semester	**Course Code**	**Course Name**	**Credit Value**	**Status (Compulsory /Optional)**	**Existing/ New**
Semester 2	MCS1072	Artificial Intelligence	2	C	New
	MCS1083	Computer Graphics and Image processing	3	C	New
	MCS1093	Data Structures and Algorithmic Design	3	C	New
	MCS1102	Advanced Software Engineering	2	C	New
	MCS1113	Research Methodology and Scientific Writing	3	C	New
	MCS1122	Statistical Methods for Computing	2	C	New
Total Credits for Semester 2			**15 – GPA and 0 – NGPA**		

In the second semester of the program of study, the above mentioned Six (06) compulsory course modules shall be offered.

Semester 3 (Year 2) Modules					
Semester	**Course Code**	**Course Name**	**Credit Value**	**Status (Compulsory /Optional)**	**Existing/ New**
Semester 3	MCS2012	Information and Cyber Security	2	C	New
	MCS2022	Machine Learning	2	C	New
	MCS2033	High Performance Computing	3	3	New
	MCS2915	Individual Research (Semester 3 and Semester 4)		Core	New
	One (01) Elective Course Module (3x1= 2 credits) is offered from three (03) elective modules.				
	MCS2043	Natural Language Processing	3	E	New
	MCS2053	Software Quality Assurance	3	E	New
	MCS2063	Big Data Analytics	3	E	New
Total Credits for Semester 3			**10 – GPA and 0 – NGPA**		

In the third semester of the program of study, the following four (04) **compulsory** course modules (including individual research project) shall be offered.

In the third semester of the program of study, select one (01) **elective** course module offered from three (03) elective modules.

Semester 4 (Year 2) Modules					
Semester	**Course Code**	**Course Name**	**Credit Value**	**Status (Compulsory /Optional)**	**Existing/ New**
Semester 4	MCS2072	Emerging Technologies in Computing	2	Core	**New**
	MCS2915	Individual Research (Semester 3 and Semester 4)	15	Core	**New**
	One (01) Elective Course Module (3x1= 3 credits) is offered from three (03) elective modules.				
	MCS2083	Software Agents and Swarm Intelligence	3	Elective	**New**
	MCS2093	Embedded Systems and IoT	3	Elective	**New**
	MCS2103	Deep Learning	3	Elective	**New**
Total Credits for Semester 4			**20 – GPA and 0 – NGPA**		
Total Credits for MSc Programme			**60 – GPA and 0 – NGPA**		

In the fourth semester of the program of study, the following two (02) **compulsory** course modules shall be offered.

In the fourth semester of the program of study, select one (01) **elective** course module offered from three (03) elective modules.