Symbiosis Institute of Geoinformatics, Pune
Master of Science (Data Science and Spatial Analytics)
Programme Structure 2023-25

1.	**OBJECTIVE**	To create the professional human resource in the field of Data Science and analytics Technology; equipped with IT and information management skills to cater to the global industry requirements.			
2.	**DURATION (IN MONTHS)**	24 (Full Time)			
3.	**INTAKE**	60			
4.	**RESERVATION**	**I.Within the sanctioned intake**	**a) SC (In Percentage)**	**b) ST (In Percentage)**	**c) Differently abled (In Percentage)**
			15	7.5	3
		II.Over and above the sanctioned intake	**a) Kashmiri Migrants (In Seats)**	**b) International Students (In Percentage)**	
			2	15	
5.	**ELIGIBILITY**	Graduate in Engineering, IT, Science, Computer Science, Computer Application of any recognised university/ Institution of National Importance with 50% minimum of marks or equivalent grade (45% Marks or equivalent grade for Scheduled Caste/ Scheduled Tribes)			
6.	**SELECTION PROCEDURE**	Personal Interaction and Writing Ability Test			
7.	**MEDIUM OF INSTRUCTION**	English			
8.	**PROGRAMME PATTERN**	Semester			
9.	**COURSE & SPECIALIZATION**	As per Annexure A			
10.	**FEE**		**Academic Fee p.a**	**Institute Deposit**	**Total**
		Indian Students	270000	20000	290000
		International Students (USD equivalent to INR)	405000	20000	425000
11.	**ASSESSMENT**	All internal courses will have 100% component as internal evaluation at the institute level. All external courses will have 60% internal component and 40% component as external [University] examination.			
12.	**STANDARD OF PASSING**	The assessment of the student for each examination is done, based on relative performance. Maximum Grade Point (GP) is 10 corresponding to O (outstanding). For all courses, a student is required to pass both internal and external examination separately with a minimum Grade Point of 4 corresponding to Grade P. Students securing less than 40% absolute marks in each head of passing will be declared FAIL. The University awards a degree to the student who has achieved a minimum			

		CGPA of 4 out of maximum of 10 CGPA for the programme.
13.	**AWARD OF DEGREE/ DIPLOMA/ CERTIFICATE**	Master of Science (Data Science and Spatial Analytics) with specialization in Artificial Intelligence Algorithm / Geointelligence will be awarded at the end of semester IV examination by taking into consideration the performance of all semester examinations after obtaining minimum 4.00 CGPA out of 10 CGPA.

14. CLASSIFICATION OF CREDITS

Semester	Generic Core	Generic Elective	Specialization Core	Specialization Elective	Open Elective	Audit	Total
1	23	0	0	0	0	1*	23
2	9	0	12	0	0	0	21
3	14	3	7	0	0	1*	24
4	12	0	0	0	0	0	12
Total	**58**	**3**	**19**	**0**	**0**	**0**	**80**

* Satisfactory completion of the non letter grade courses 'Integrated Disaster Management', 'Research Publication' is mandatory for award of degree.

This Programme Structure is aligned with the norms laid down by the University and is approved by the Academic Council.
Hereafter changes (if any) which conform to the policy on "Curriculum Development and Review" would be permissible, subject to revision of the Programme Structure, following the specified processes.

Head - Academics

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Symbiosis Institute of Geoinformatics, Pune
Master of Science (Data Science and Spatial Analytics)
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Annexure A

Catalog Course Code	Course Code	Course Title	Specialization	Credit	Internal Marks	External Marks	Total Marks
Semester : 1							
Generic Core Courses							
TE7444	0702430101	Mathematics for Spatial Sciences		4	120	80	200
T7174	0702430102	Applied Statistics		3	150	0	150
TE7442	0702430103	Introduction to Geospatial Technology		3	90	60	150
TE7469	0702430104	Principles and Practices of Data Protection		3	90	60	150
TE7931	0702430105	Python for Data Science		3	90	60	150
T3580	0702430106	Relational Database Management System		3	90	60	150
T2239	0702430107	Business Communication		2	100	0	100
TE7934	0702430108	Research Methodology in Computational Sciences		2	60	40	100
T4005	0702430109	Integrated Disaster Management *		0	0	0	Non Letter Grade
			Total	**23**	**790**	**360**	**1150**
Semester : 2							
Generic Core Courses							
T3447	0702430201	Machine learning		3	150	0	150
T7674	0702430202	Cyber Security		2	100	0	100
TE7470	0702430203	Data Driven Governance		2	60	40	100
T7049	0702430204	Spatial Data Base Management		2	60	40	100
			Total	**9**	**370**	**80**	**450**
Specialization Core Courses : Artificial Intelligence Algorithms							
T3490	0702430205	Applied Data Analytics with Python	Artificial Intelligence Algorithms	3	90	60	150
T3309	0702430206	Big Data Analytics	Artificial Intelligence Algorithms	3	90	60	150
T3560	0702430207	Computer Vision	Artificial Intelligence Algorithms	3	90	60	150
TE7930	0702430208	Programming for computational sciences	Artificial Intelligence Algorithms	3	90	60	150
			Total	**12**	**360**	**240**	**600**
Specialization Core Courses : Geointelligence							
TE7440	0702430209	Advance Python Programming for Spatial Analytics	Geointelligence	3	90	60	150
F0003	0702430210	Flexi-Credit Course	Geointelligence	3	150	0	150
TE7925	0702430211	Geospatial Analytics	Geointelligence	3	90	60	150

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Catalog Course Code	Course Code	Course Title	Specialization	Credit	Internal Marks	External Marks	Total Marks
TE7446	0702430212	Programming for Spatial Sciences	Geointelligence	3	90	60	150
			Total	**12**	**420**	**180**	**600**
Semester : 3							
Generic Core Courses							
T7804	0702430301	Summer Project		4	120	80	200
T3509	0702430302	Artificial Intelligence		3	90	60	150
T3453	0702430303	Deep learning		3	90	60	150
F0002	0702430304	Flexi-Credit Course		2	100	0	100
T7167	0702430305	Spatial Modeling		2	60	40	100
T0100	0702430306	Research Publication *		0	0	0	Non Letter Grade
			Total	**14**	**460**	**240**	**700**
Generic Elective Courses Group							
TE7471	0702430307	Data Driven Banking, Insurance and Finance		3	150	0	150
TE7472	0702430308	Data Driven Forensics and Crime Investigation		3	150	0	150
TE7473	0702430309	Data Driven Journalism		3	150	0	150
TE7443	0702430310	IOT Spatial Analytics		3	150	0	150
TE7448	0702430311	Spatial User Interface design and Implementation		3	150	0	150
T3136	0702430312	System Dynamics Simulation		3	150	0	150
			Total Required Credits	**3**	**150**	**0**	**150**
Specialization Core Courses : Artificial Intelligence Algorithms							
TE7802	0702430313	Block Chain Technology	Artificial Intelligence Algorithms	3	90	60	150
T3655	0702430314	Introduction to Natural Language Processing	Artificial Intelligence Algorithms	2	60	40	100
T3683	0702430315	Operations Research and Optimization Techniques	Artificial Intelligence Algorithms	2	60	40	100
			Total	**7**	**210**	**140**	**350**
Specialization Core Courses : Geointelligence							
TE7929	0702430316	Machine Learning for Remote sensing	Geointelligence	3	90	60	150
TE7924	0702430317	Citizen Science and Geospatial Technology	Geointelligence	2	60	40	100
TE7151	0702430318	Web GIS	Geointelligence	2	60	40	100
			Total	**7**	**210**	**140**	**350**

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Annexure A

Catalog Course Code	Course Code	Course Title	Specialization	Credit	Internal Marks	External Marks	Total Marks
Semester : 4							
Generic Core Courses							
T7812	0702430401	Industry Project		12	360	240	600
			Total	**12**	**360**	**240**	**600**

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Semester	Internal Credits	External Credits	Total Credits	Total Marks
Artificial Intelligence Algorithms				
Semester 1	5	18	23	1150
Semester 2	5	16	21	1050
Semester 3	5	19	24	1200
Semester 4	0	12	12	600
Total	**15**	**65**	**80**	**4000**
Geointelligence				
Semester 1	5	18	23	1150
Semester 2	8	13	21	1050
Semester 3	5	19	24	1200
Semester 4	0	12	12	600
Total	**18**	**62**	**80**	**4000**