

**DR. BABASAHEB AMBEDKAR MARATHWADA UNIVERSITY,
CHHATRAPATI SAMBHAJINAGAR**



Department of Geography

Course structure of (Four Years)

B.Sc. Geoinformatics (Honors)

As per NEP-2020

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**Apprenticeship Embedded Degree Program
(AEDP)**

Effective from Academic Session 2026-27

Credit Distribution Structure for B.Sc. Geoinformatics 4 Year Honours Apprenticeship Embedded Degree Program

B.SC. Geoinformatics First Year Ist Semester) (AEDP)

Course Type	Paper No.	Paper Title	Credit		Hrs Per week		Scheme of Examination		
			Theory	Practical	Theory	Practical	IAM	SEE	Total
Department Specific Course (DSC) Major Mandatory	GEOG-DSC-01T	Introduction to Physical Geography	02		02		20	30	50
	GEOG-DSC-01P	Physical Geography Practical		02		04	20	30	50
	GEOG-DSC-02T	Introduction to Human Geography	02		02		20	30	50
	GEOG-DSC-02P	Population Mapping Practical		02		04	20	30	50
	GEOG-DSC-03T	Basics of Geoinformatics	02		02		20	30	50
	GEOG-DSC-03P	Introductory GIS Practical		02		04	20	30	50
Generic/Open Choose any one from pool of courses It should be chosen compulsory from the faculty other than that of major	GEOG-OE-01T	Geography in Digital World	02		02		20	30	50
SEC (Skill Enhanced course)	GEOG.-SEC-01T	Computer Fundamentals for Geospatial Studies	01		01		10	15	25
	GEOG.-SEC-01P	Introduction to Digital Mapping		01		02	10	15	25
AEC/IKS	AEC-01T	English (common for all the faculty) Academic Communication Skills	02		02		20	30	50
	IKS -01T	Forts of Marathwada	02		02		20	30	50
OJT/FP/CC Common for all Faculty	CC-01P	Health & Fitness		02		04	20	30	50
Total			13	09	13	18	220	330	550

GEOG-GE/OE-01: Geography in Digital World (This course will be available for the students of other faculty)

B.SC. Geoinformatics First Year IInd Semester) (AEDP)

Course Type	Paper No.	Paper Title	Credit		Hrs Per week		Scheme of Examination		
			Theory	Practical	Theory	Practical	IAM	SEE	Total
Department Specific Course (DSC) Major Mandatory	GEOG-DSC-04T	Geomorphology	02		02		20	30	50
	GEOG-DSC-04P	Geomorphology Practical		02		04	20	30	50
	GEOG-DSC-05T	Climatology	02		02		20	30	50
	GEOG-DSC-05P	Climatic Data Analysis Practical		02		04	20	30	50
	GEOG-DSC-06T	Surveying and Field Measurement Techniques	02		02		20	30	50
	GEOG-DSC-06P	Chain, Compass & Plane Table Survey Practical		02		04	20	30	50
Generic/Open Choose any one from pool of courses It should be chosen compulsory from the faculty other than that of major	GEOG-OE-02T	Water and Soil Resources	02		02		20	30	50
VSC (Vocational Skill courses)	GEOG-VSC-01T	Field Data Collection Techniques	01		01		10	15	25
	GEOG-VSC-01P	Basic Field Observation and Survey Practical		01		02	10	15	25
AEC/VEC	AEC-02T	Language (Presentation and Analytical Skills)	02		02		20	30	50
	VEC-01T	Traditional Water Conservation Systems (Common for all Faculty)	02		02		20	30	50
OJT/FP/CC (Common for all Faculty)	CC-02P	Digital Literacy and Sustainable Lifestyle Practices		02		04	20	30	50
Total			13	9	13	18	220	330	550
Exit Option: Award of UG Certificate in 3 Major with 44 credits OR continue with major and minor									

GEOG-GE/OE-02: Water and Soil Resources (This course will be available for the students of other faculty)

B.SC. Geoinformatics Second Year IIIrd Semester) (AEDP)

Course Type	Paper No.	Paper Title	Credit		Hrs Per week		Scheme of Examination		
			Theory	Practical	Theory	Practical	IAM	SEE	Total
Department Specific Course (DSC) Major Mandatory	GEOG-DSC-07T	Remote Sensing Fundamentals	02		02		20	30	50
	GEOG-DSC-07P	Satellite Image Interpretation Practical		02		04	20	30	50
	GEOG-DSC-08T	GIS Fundamentals and Spatial Data	02		02		20	30	50
	GEOG-DSC-08P	GIS Mapping & Layer Analysis Practical		02		04	20	30	50
Minor	GEOG-M-01T	Geospatial Data Acquisition	02		02		20	30	50
	GEOG-M-02T	Climatological Data Applications	02		02		20	30	50
Generic/Open Choose any one from pool of courses It should be chosen compulsory from the faculty other than that of major	GE/OE-03T	Disaster Management and Awareness	02		02		20	30	50
VSC (Vocational Skill courses)	GEOG.-VSC-02T	GPS Navigation Systems	01		01		10	15	25
	GEOG-VSC-02P	GPS Waypoint Collection Practical		01		02	10	15	25
AEC/VEC	AEC-03T	English (Data Interpretation and Presentation Skills) (Common for all Faculty)	02		02		20	30	50
	VEC-02T	Indigenous Agricultural Knowledge Systems	02		02		20	30	50
OJT/FP/CC	CC-03P	Leadership and Team Building Skills		02		04	20	30	50
Total			15	07	14	15	220	330	550

GEOG-GE/OE-03: Disaster Management and Awareness (This course will be available for the students of other faculty)

B.SC. Geoinformatics Second Year IVth Semester) (AEDP)

Course Type	Paper No.	Paper Title	Credit		Hrs Per week		Scheme of Examination		
			Theory	Practical	Theory	Practical	IAM	SEE	Total
Department Specific Course (DSC) Major Mandatory	GEOG-DSC-09T	Digital Cartography	02		02		20	30	50
	GEOG-DSC-09P	Digital Mapping Practical		02		04	20	30	50
	GEOG-DSC-10T	Spatial Analysis Techniques	02		02		20	30	50
	GEOG-DSC-10P	Buffer & Overlay Analysis Practical		02		04	20	30	50
Minor	GEOG-M-03T	Tourism and Heritage Geography	02		02		20	30	50
	GEOG-M-04T	Environmental Information Systems	02		02		20	30	50
Generic/Open Choose any one from pool of courses It should be chosen compulsory from the faculty other than that of major	GE/OE-04T	Urban Environmental Issues	02		02				
SEC (Skill Enhanced course)	GEOG-SEC-02T	GPS Field Applications	01		01		10	15	25
	GEOG-SEC-02P	GPS Field Survey Practical		01		02	10	15	25
AEC	AEC-04T	Geospatial Communication Skills	02		02		20	30	50
CEP/FP	FP-01P	Geospatial Mapping Project-		02		04	20	30	50
CC (Common for all Faculty)	CC-04P	Professional Ethics and Teamwork		02		04	20	30	50
	Total		13	09	13	18	220	330	550
Exit Option: Award of UG Diploma in Major and Minor with 88 credits OR continue with major and minor									

GEOG-GE/OE-04: Urban Environmental Issues (This course will be available for the students of other faculty)

B.SC. Geoinformatics Third Year Vth Semester) (AEDP)

Course Type	Paper No.	Paper Title	Credit		Hrs Per week		Scheme of Examination		
			Theory	Practical	Theory	Practical	IAM	SEE	Total
Department Specific Course (DSC) Major Mandatory	GEOG-DSC-11T	Urban Geoinformatics	02		02		20	30	50
	GEOG-DSC-11P	Urban GIS Mapping Practical		02		04	20	30	50
	GEOG-DSC-12T	Agricultural Geoinformatics	02		02		20	30	50
	GEOG-DSC-12P	Crop and Agricultural Land Use Mapping Practical		02		04	20	30	50
Major Elective (DSE) Discipline Specific Elective Choose any one from the pool of course	GEOG-DSE-01T	GPS Field Applications	02		02		20	30	50
	GEOG-DSE-01P	GPS Field Survey Practical		02		04	20	30	50
	GEOG-DSE-02T	Web GIS Applications	02		02		20	30	50
	GEOG-DSE-02P	Web Mapping Practical		02		04	20	30	50
Minor	GEOG-M-05T	Tourism and Heritage Geography	02		02		20	30	50
	GEOG-M-06T	Environmental Data Studies	02		02		20	30	50
VSC (Vocational Skill courses) Choose any one from the pool of course	GEOG-VSC-03T	Land Use and Land Cover Analysis	02		02		20	30	50
	GEOG-VSC-03P	LULC Classification and Change Detection Practical		02		04	20	30	50
	GEOG-VSC-04T	Basics of Digital Surveying	02		02		20	30	50
	GEOG-VSC-04P	Digital Survey Practical		02		04	20	30	50
Filed Project/ Community Engagement project Choose any one from the pool of course	GEOG_FP-02P	Spatial Data Analysis Project		02		04	20	30	50
	GEOG_CEP-02P	Drone Mapping and Photogrammetry		02		04	20	30	50
	Total		10	12	10	24	220	330	550

B.SC. Geoinformatics Third Year VIth Semester) (AEDP)

Apprenticeship

Mandatory Apprenticeship Program in 6th Semester

A mandatory Apprenticeship Program is incorporated in the 6th Semester to provide students with practical industry exposure and professional training in the field of Geography and Geoinformatics. The apprenticeship enables students to apply classroom knowledge in real-world environments through hands-on experience in GIS laboratories, remote sensing centers, surveying agencies, planning organizations, environmental institutions, and geospatial industries. During the training period, students will engage in field surveys, spatial data collection, mapping, geospatial analysis, project work, and professional documentation under expert supervision. This experiential learning component enhances technical competency, workplace readiness, problem-solving ability, communication skills, and professional ethics, thereby preparing students for employment opportunities and advanced research in the geospatial and geographical sectors.

Course name	Course Title	Teaching Hours	Credits	Scheme of Examination		
				Internal Assessment Marks	Term End exam Marks	Total
Apprenticeship - 1	Drone Mapping	44	22	220	330	550

❖ **Exit Option:** Award of B.Sc. Geoinformatics Degree in Major and Minor with 132 credits OR continue with apprenticeship in Industry/Company/Start-up/Institution/NGOs.

B.SC. Geoinformatics Fourth Year VIIth Semester) (AEDP)**Apprenticeship**

A mandatory Apprenticeship Program is incorporated in the 7th Semester to provide students with advanced practical exposure and professional training in the field of Geography and Geoinformatics. The apprenticeship enables students to integrate theoretical knowledge with real-world geospatial applications through hands-on experience in GIS laboratories, remote sensing centers, drone mapping units, surveying agencies, urban and regional planning organizations, environmental institutions, and geospatial industries. During the training period, students will actively participate in spatial data collection, GIS and remote sensing analysis, drone-based surveying, mapping projects, field investigations, data interpretation, and professional report preparation under expert supervision. This experiential learning component strengthens technical expertise, analytical ability, workplace competency, teamwork, communication skills, and professional ethics, thereby preparing students for careers in the geospatial industry, planning sectors, environmental management, and advanced research.

Course name	Course Title	Teaching Hours	Credits	Scheme of Examination		
				Internal Assessment Marks	Term End exam Marks	Total
Apprenticeship - 2	Rural and Urban Field Survey Apprenticeship	44	22	220	330	550

B.SC. Geoinformatics Fourth Year VIIIth Semester) (AEDP)

Apprenticeship

A mandatory Apprenticeship Program is incorporated in the **8th Semester** to provide students with advanced industry-oriented training and professional exposure in the field of Geography and Geoinformatics. The apprenticeship is designed to strengthen students' practical understanding of geospatial technologies and their real-world applications through intensive hands-on experience in GIS laboratories, remote sensing centers, drone mapping projects, surveying agencies, planning authorities, environmental organizations, research institutions, and geospatial industries. During the apprenticeship period, students will undertake advanced spatial analysis, GIS and remote sensing projects, drone-based data acquisition, field investigations, geospatial modelling, project documentation, and professional reporting under expert guidance. This experiential learning process enhances technical proficiency, research aptitude, analytical thinking, decision-making ability, teamwork, leadership qualities, and workplace ethics, thereby preparing students for professional careers, entrepreneurship opportunities, and higher studies in geospatial science and related disciplines.

Course name	Course Title	Teaching Hours	Credits	Scheme of Examination		
				Internal Assessment Marks	Term End exam Marks	Total
Apprenticeship - 3	Geospatial and Field Survey on Job Training	44	22	220	330	550