SECOND-YEAR OF BACHELOR OF ARTS VOCATIONAL SKILL COURSE CONNECTED TO MAJOR/ MINOR GEOGRAPHY REVISED SYLLABUS ACCORDING TO CBCS NEP2020

COURSE TITLE: VECTOR ANALYSIS IN Q-GIS
SEMESTER-III, W.E.F. 2024-2025

RECOMMENDED BY THE BOARD OF STUDIES IN GEOGRAPHY
AND
APPROVED BY THE ACADEMIC COUNCIL

Devrukh Shikshan Prasarak Mandal's
Nya. Tatyasaheb Athalye Arts, Ved. S. R. Sapre Commerce, and Vid. Dadasaheb Pitre Science College (Autonomous), Devrukh.
Tal.Sangmeshwar, Dist. Ratnagiri-415804, Maharashtra, India

Academic Council Item No: 03

Name of the Implementing Institute	:	Nya. Tatyasaheb Athalye Arts, Ved. S. R. Sapre Commerce, and Vid. Dadasaheb Pitre Science College (Autonomous), Devrukh. Tal. Sangmeshwar, Dist. Ratnagiri-415804,
Name of the Parent University	:	University of Mumbai
Name of the Programme	:	Bachelor of Arts
Name of the Department	:	Geography
Name of the Class	:	Second Year
Semester	:	Third
No. of Credits	:	02
Title of the Course	:	Vector Analysis in Q-GIS
Course Code	:	GEVS201
Name of the Vertical in adherence to NEP 2020	:	Vocational Skill Courses (VSC) connected to Major/ Minor
Eligibility for Admission	:	Any student seeking Admission to the Degree Programme in adherence to the Rules and Regulations of the University of Mumbai and the Government of Maharashtra and opting for Geography as an optional subject (Either major or Minor) is eligible to choose the course
Passing Marks	:	40%
Mode of Assessment	:	Summative
Level	:	UG
Pattern of Marks Distribution for TE and CIA	:	NA
Status	:	NEP-CBCS
To be implemented from the Academic Year	:	2024-2025
Ordinances /Regulations (if any)		

Syllabus for Vocational Skill Course Connected to Major/ Minor Geography

(With effect from the academic year 2024-2025)

SEMESTER-III **COURSE CODE: GEVS201**

Course Title: Vector Analysis in Q-GIS **No. of Credits - 02**

Type of Vertical: Vocational Skill Courses (VSC) connected to Major/ Minor

Learning Outcomes Based on BLOOM's Taxonomy:

After completing the course, the learner will be able to…

Course Learning Outcome No.	Blooms Taxonomy	Course Learning Outcome
CLO-01	Remember	Fundamentals of vector database.
CLO-02	Understand	Understand the fundamentals of vector analysis in Q-GIS.
CLO-03	Apply	Apply the vector analysis technique for spatial analysis.
CLO-04	Analyze	Analyze the different tools available in Q-GIS for vector analysis.
CLO-05	Evaluate	Evaluate the outputs of vector analysis in Q-GIS.
CLO-06	Create	Create an analytical map using the vector analysis techniques in Q-GIS software.

Syllabus for Vocational Skill Course Connected to Major/ Minor Geography

(With effect from the academic year 2024-2025)

SEMESTER-III **COURSE CODE: GEVS201**

Course Title: Vector Analysis in Q-GIS **No. of Credits - 02**

Type of Vertical: Vocational Skill Courses (VSC) connected to Major/ Minor

COURSE CONTENT			
Module No.	**Content**	**Credits**	**No. of Hours**
1	**Geoprocessing and Geometry Tools in Q-GIS** **Geoprocessing Tools:** o Buffer Analysis o Clip o Convex Hull o Difference o Dissolve o Intersection o Symmetrical difference o Union o Estimate Selected Polygons **Geometry Tools** o Centroid o Collect Geometrics o Extract Vertices o Multipart to Single part o Polygon to line o Line to polygon o Check validity o Add geometry attributes	01	30
2	**Analysis and Research Tools** **Analysis Tools** o Count point in polygon o Line Intersections	01	30

	○ Mean Coordinates ○ Nearest Neighbor Analysis ○ Sum Line Lengths ○ Basic Statistics for Field Calculator ○ Distance Matrix ○ List Unique Values **Research Tools** ○ Create Grid ○ Extract Layer Extension ○ Random points in extension ○ Random points in polygons ○ Random points on lines ○ Select by Location ○ Select within distance ○ Random points in Layer Bounds ○ Random points inside the polygons ○ Random Selection ○ Random selection within subset ○ Regular Points		
	Total	02	60

Required Previous Knowledge

The learner should know the Basics of Q-GIS.

Access to the Course

The course is available for all the students admitted for Bachelor of Arts and selected Geography as an optional Subject.

Methods of Assessment:

Vocational skill Courses, Skill Enhancement Courses and courses having laboratory sessions shall be assessed at the end of each semester.

Grading Scale

The grading scale used is O to F. Grade O is the highest passing grade on the grading scale, and grade F is a fail. The Board of Examinations of the college reserves the right to change the grading scale.

References:

1. Q-GIS Manual
2. Peter A. Burrough and Rachael A. McDonnell, 2011, Principles of Geographic Information Systems, Oxford University Press.
3. Ian Heywood, Sarah Cornelius, and Steve Carver, An Introduction to Geographic Information System, 2010, third edition, Pearson Education Ltd.
4. David O' Sullivan and David J. Unwin, 2010, Geographic Information analysis, second edition, John Wiley & Sons.
5. Paul a. Longley, Michael F. Goodchild, David J. Maguire, David W. Rhind, 2011, Geographic Information Systems and Science, third edition, John Wiley & Sons.
6. John R. Jenson and Ryan R. Jensen, 2013, Introductory Geographic Information system, Pearson Education.