Gokaraju Rangaraju Institute of Engineering and Technology

Department of Civil Engineering

GEOGRAPHIC INFORMATION SYSTEM AND SCIENCE

IV-B.Tech – I Semester

SECTION – A/B

RATHOD RAVINDER

Associate Professor

Academic year: 2021-22

Gokaraju Rangaraju Institute of Engineering and Technology

Department of Civil Engineering

GEOGRAPHIC INFORMATION SYSTEM AND SCIENCE

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Check list

Gokaraju Rangaraju Institute of Engineering and Technology (Autonomous)

Bachupally, Kukatpally, Hyderabad – 500 090. (040) 6686 4440

Course Code: GR18A4010 **IV Year I Semester**

Pre-Requisites: Surveying and Geomatics

UNIT I

Fundamentals of GIS – Information Systems, Modelling Real World Features Data, Data Formats, Applications of GIS, – Spatial and Non-spatial, Components, Data Collection and Input, Data Conversion, Database Management – Database Structures, Files; Standard Data Formats, Compression Techniques, Hardware – Computing, printing and scanning systems; Software – Standard Packages like Arc view, ArcGIS (commercial) & Auto-CAD Map, Map Info etc. QGIS open software.

UNIT II

Topology – Types of Errors, Editing and Error Rectification, Types of Topology, Modeling topological Relationships, Tolerances.

UNIT III

Map – mapping concepts, analysis with paper based maps, limitations, Computer Automated Cartography – History and Developments, GIS- Definition, advantages of digital maps.

UNIT IV

Spatial Analysis and Modelling – Proximity Analysis, Overlay Analysis, Buffer Analysis, Network Analysis, Spatial Auto Correlation, Gravity Modelling, DTM/DEM, Integration with Remote Sensing data

UNIT V

GIS Project Planning and Implementation – Under Standing the Requirements, Phases of Planning, Specifications, Data Procurement, Tendering, Human Resources, Back Up, Monitoring Progress

TEXTBOOKS:

1. Remote Sensing and its applications by LRA Narayana, University Press 1999.
2. Principals of Geo physical Information Systems – Peter ABurragh and Rachael A. McDonnell, Oxford Publishers 2004.

3. Remote sensing and image interpretation by Thomas Lillesand, 7th Edition, John Wiley &sons.

REFERENCE BOOKS:

1. Concepts & Techniques of GIS by C. P. Lo Albert, K. W. Yonng, Prentice Hall (India) Publications.
2. Remote Sensing and Geographical Information systems by M. Anji Reddy JNTU Hyderabad 2001, B. S. Publications.
3. Remote sensing of the environment –An earth resource perspective by John R Jensen, Prentice Hall 4. GIS by Kang – tsungchang, TMH Publications & Co.
4. Basics of Remote sensing & GIS by S.Kumar, Laxmi Publications.
5. Fundamental of GIS by Mechanical designs John Wiley &Sons.by Mechanical designs John Wiley & Sons.
6. GIS and Basics-**Jonathan E. Campbel**

Gokaraju Rangaraju Institute of Engineering and Technology

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Time Table 2021-22

DAY/ HOUR	10:20-11:15	11:15-12:10	12:10-1:05	01:05-01:40	1:40-2:30	2:30-3:20	3:20-4:10
Monday				**Lunch Break**			
Tuesday			GIS&S (B)		GIS&S (A)		
Wednesday	GIS&S (A)						
Thursday	GIS&S (B)	GIS&S (A)					
Friday		GIS&S (B)					
Saturday							

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Programme Educational Objectives (PEO's)

1. Graduates of the programme will be successful career in technical and professional career.
2. Graduates of the programme will have proficiency in solving real time Civil Engineering projects.
3. Graduates of the programme will continue to engage in lifelong learning with ethical and social responsibility.

Program Outcomes (PO's)

Graduates of the Civil Engineering programme will be able to

a. apply knowledge of mathematics, science and fundamentals of Civil Engineering.
b. analyse problem and interpret the data.
c. design a system component, or process to meet desired needs in Civil Engineering within realistic constraints.
d. identify, formulate, analyse and interpret data to solve Civil Engineering problems.
e. use modern engineering tools such as CAD and GIS for the Civil Engineering practice.
f. understand the impact of engineering solutions in a global, economic and societal context.
g. understand the effect of Civil Engineering solutions on environment and to demonstrate the need for sustainable development.
h. understanding of professional and ethical responsibility.
i. work effectively as an individual or in a team and to function on multi-disciplinary context.
j. communicate effectively with engineering community and society.
k. demonstrate the management principles in Civil Engineering projects.
l. recognize the need for and an ability to engage in life-long learning.

Program Specific Outcomes (PSO's)

PSO1: Recognize the need for a sustainable environment and design smart infrastructure considering the global challenges.

PSO2: Create and develop innovative designs with new era materials through research and development.

Signature of HOD

Date:

Signature of faculty

Date:

Gokaraju Rangaraju Institute of Engineering and Technology (Autonomous)

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Course Objectives and Outcomes

Course Objectives: The objectives of this course is to make the student to

1. Identify the basic components of GIS and various data structures
2. Predict various errors occurred during digitization through manual or digital digitization.
3. Classify the different types of digital maps with respect to different themes.
4. Process spatial analysis with integration of remote sensing data to prepare thematic maps.
5. Formulate and solve geospatial real life problems.

Course Outcomes: After completion of this course, students will be able to

1. Interpret the fundamental concepts of Geographic Information Science and Technology along with different data structures.
2. Demonstrate Map creation and design principles, including thematic map display, employment of map projections and cartographic design.
3. List out the types of digital maps for different themes.
4. Apply the spatial analysis to remote sensing data to generate thematic maps.
5. Solve the real life problems associated with geospatial and remote sensing.

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Students Roll List

SECTION-A & B

17241A0153	Sujith Kumar Shinde
17241A0157	Vuppula Mithunkumar Reddy
18241A0101	Ajmeera Ganesh
18241A0102	Anabotula Sravani
18241A0103	Anumatla Manoj
18241A0104	Byna Rishitha
18241A0105	Bura Tharasri
18241A0106	Pudari Badrinath Goud
18241A0107	Balasani Rohith
18241A0108	Bandari Veeraswamy
18241A0109	Bandi Varun Kumar
18241A0110	Bashipaka Pradeep
18241A0111	Bathula Nikhil
18241A0112	Batikiri Veerendra Swamy
18241A0113	Bhukya Soujanya
18241A0114	Bhukya Varun Naik
18241A0115	Boddu Pavan
18241A0116	Byagari Rangaraju
18241A0117	Chada Ruchita
18241A0118	Chinthakuntla Thriveen
18241A0119	Cv Jaswanth Surya
18241A0120	Dosapati Nishu
18241A0121	G Prashanth
18241A0122	Gaddipati Lohitha
18241A0123	Gangam Rohit Reddy
18241A0124	Gottemukkala Govardhan
18241A0125	Hrishikesh Bansal
18241A0126	Janapati Raju
18241A0127	Jyothika Mannava
18241A0128	K Harshitha Reddy
18241A0129	Kolan Reshikesh Reddy
18241A0130	Karri Bharath Chandra Reddy
18241A0131	Kuppala Nihar
18241A0132	Kurva Lavanya

18241A0133	Maddimsetty Sri Charan
18241A0134	MagaPor Manaswini
18241A0135	Maloth Bhavsingh
18241A0136	Malothu Naveena
18241A0137	Manda Ithihas
18241A0138	Mohammad Ashfaq Ahmed
18241A0139	Mohammed Omer Shareef
18241A0140	Mukundu Naveen
18241A0141	Nalumasu Sahithi
18241A0142	Nampelly Ravi Kumar
18241A0143	Narra Shashidhar Reddy
18241A0144	Patlola Vinay Reddy
18241A0145	Pattambetty Pavankumar
18241A0146	Pola Tharun
18241A0147	Posani S V A Kalyan
18241A0148	Pulle Manichadra
18241A0149	Rajulapati Rohit Naga Sai
18241A0150	Sura Subbaram Reddy
18241A0153	Sunkari Vikas
18241A0154	Thirupathi Rao Salla
18241A0155	Trivikram Reddy
18241A0156	Thrupti Shreya
18241A0157	Vakamalla Bhavya Sree
18241A0158	Vemula Manisha
18241A0159	Vuppula Keerthana
18241A0160	Yalla Anitha
19245A0101	KANCHERLA BHARATH
19245A0102	ELUPULA KUMARASWAMY
19245A0103	BRAHMADEVARA BHAVITHA
19245A0104	DASARI NAMRATHA
19245A0105	T CHANDANA
19245A0106	KOLA HARITHA
B Section	
Roll No	Student Name
16241A0161	Abdul Samad
18241A0161	A Nachiketh
18241A0162	Aleti Jagadish
18241A0163	Amirneni Anusha
18241A0164	Anireddy Avinash
18241A0165	Ashitha Golla
18241A0166	Animesh Baathuk
18241A0167	Boppu Lokesh
18241A0168	Budagam Harshith
18241A0169	Chilumula Sridhar

18241A0170	Dandre Vennela
18241A0171	Doti Upender
18241A0172	Eda Manasa
18241A0173	Gonda Harshini
18241A0174	Gore Kamalakar Sailesh
18241A0175	Gore Kamalakar Sandeep
18241A0176	Guddati Arun
18241A0177	Vijay Narasimha Reddy Kolagtla
18241A0178	Kancharakuntla Deepika
18241A0179	Kota Rashmitha
18241A0180	Kothuri Pranay
18241A0181	Kudala Rama
18241A0182	Kummari Srilekha
18241A0183	Kunchala Adarsh
18241A0184	Kurra Neeraj Prasad
18241A0185	Kyama Pavan
18241A0186	M Shekhar
18241A0187	Malraj Manvitha
18241A0188	Matharasi Sai Kumar
18241A0189	Md Ameer Sohail
18241A0190	Md Amir
18241A0191	Medari Vikram Aditya
18241A0192	Mediga Karthik
18241A0193	Moniesh Reddy Sunkara
18241A0194	Kaushik Nadella
18241A0195	Nikhitha Kasuvojula
18241A0196	Nunavath Suman
18241A0197	P Kishore
18241A0198	Peesu Spandana Reddy
18241A0199	Prathyusha Maddala
18241A01A0	Bavanari Pratyush
18241A01A1	Putta Rohith
18241A01A2	Rahul Pradhan
18241A01A3	Rampelli Pravalika
18241A01A4	Rangu Soniya
18241A01A5	Rentala Adarsh Reddy
18241A01A6	Ritish J
18241A01A7	Seelam Rahul Goud
18241A01A8	Shaik Afeez
18241A01A9	Shaik Shoaib
18241A01B0	Shivarathri Sai Kumar
18241A01B1	Shivarathri Tharun
18241A01B2	Sowmika Boyapati
18241A01B3	Vishruth Reddy T N

18241A01B4	Tekula Prashanth Reddy
18241A01B5	Teegala Someshwar Reddy
18241A01B6	Thatipamula Vigna Sai
18241A01B7	Thota Sri Sai
18241A01B8	Vedati Manikanta Karthik
18241A01B9	Vallapu Reddy Sushrutha
18241A01C0	Yanala Rithish Reddy
19245A0107	CHOUGONI SHIVASHANKAR
19245A0108	KOTA ANVESH
19245A0109	POLAGANI CHANDU GOUD
19245A0110	SADGARI KARTHIK
19245A0111	GUGULOTHU PAVAN
19245A0112	A RAGHAVENDRA

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GUIDELINES TO STUDY THE COURSE / SUBJECT/REFERENCE BOOKS

Academic Year : 2021-22

Semester : I

Name of the Program: B.Tech **Year:** IV **Section:** A/**B**

Course/Subject: GIS AND SCIENCE **Course Code: GR18A4010**

Name of the Faculty: Rathod Ravinder

Designation: Assoc. Prof **Dept.:** Civil Engineering

Guidelines to study the Course/ Subject: **Remote Sensing and GIS Lab**

This course helps the students to learn and understand, with the concept of GIS based analysis used in road networks, for creating thematic maps, watershed analysis and digitization of toposheet etc.

So the students should have the following prerequisites:

- Basic knowledge on Remote Sensing and GIS
- Able to use GIS on systems
- Ability to perform exercise as well as analyze and interpret data.

Where will this subject help?

- Heps the students to Georefer a Map/Toposheet using .
- Helps the students to find out the shortest path between two places based on time and length.
- Helps the students to find out area of the given field using digitization in .
- Helps the students to analyse the given watershed area.
- To become familiar with the usage of *RSGIS*.

Text Books	
1.	Remote Sensing and GIS by M.Anji Reddy
2.	Concepts and Techniques of GIS by C.P.L.O. Albert, K.W. Yong, Printice Hall Publishers.

Websites.	
8.	a) DEM analysis: www.qgistutorials.com/ b) GIS Software: https://www.qgis.org/en/site/forusers/download.html

Course Design and Delivery System (CDD):

- The Course syllabus is written into number of learning objectives and outcomes.
- These learning objectives and outcomes will be achieved through lectures, assessments, assignments, experiments in the laboratory, projects, seminars, presentations, etc.
- Every student will be given an assessment plan, criteria for assessment, scheme of evaluation and grading method.
- The Learning Process will be carried out through assessments of Knowledge, Skills and Attitude by various methods and the students will be given guidance to refer to the text books, reference books, journals, etc.

The faculty be able to –

- Understand the principles of Learning
- Understand the psychology of students
- Develop instructional objectives for a given topic
- Prepare course, unit and lesson plans
- Understand different methods of teaching and learning
- Use appropriate teaching and learning aids
- Plan and deliver lectures effectively
- Provide feedback to students using various methods of Assessments and tools of Evaluation
- Act as a guide, advisor, counsellor, facilitator, motivator and not just as a teacher alone

Signature of HOD Signature of faculty

Date:

Gokaraju Rangaraju Institute of Engineering and Technology

COURSE SCHEDULE

Academic Year : 2021-22

Semester : I

Name of the Program: B.Tech **Year:** IV **Section:** A/**B**

Course/Subject: GIS AND SCIENCE **Course Code: GR18A4010**

Name of the Faculty: Rathod Ravinder

Designation: Assoc. Prof **Dept.:** Civil Engineering

The Schedule for the whole Course / Subject is:

S. No.	Description	Duration (Date)		Total No. Of Periods
		From	To	
1.	Unit1	17-08-2021	09-09-2021	11
2.	Unit2	10-09-2021	21-09-2021	05
3.	Unit3	23-09-2021	05-10-2021	06
4.	Unit4	07-10-2021	19-1-2021	06
5.	Unit5	21-10-2021	02-11-2021	06

Total No. of Instructional periods available for the course: **34** Periods.

Gokaraju Rangaraju Institute of Engineering and Technology Department of Civil Engineering

Session Plan A

Sl.No	Unit No.	Date	No.of periods	Topics/Sub-Topics	Objectives & Outcomes Nos.	References	Page No
1	I	17-08-2021	1	Fundamentals of GIS	CobNos:1 CoNos:1	GIS and Basics- **Jonathan E. Campbel**	8-20
2		19-08-2021	1	Information Systems	CobNos:1 CoNos:1	GIS and Basics- **Jonathan E. Campbel**	21-25
3		20-08-2021	1	Modelling Real World Features Data	CobNos:1 CoNos:1	GIS and Basics- **Jonathan E. Campbel**	26-34
4		24-08-2021	1	Data Formats, Applications of GIS	CobNos:1 CoNos:1	GIS and Basics- **Jonathan E. Campbel**	35-45
5		26-08-2021	1	Components of GIS	CobNos:1 CoNos:1	GIS and Basics- **Jonathan E. Campbel**	46-52
6		27-08-2021	1	Data Collection and Input & Data Conversion	CobNos:1 CoNos:1	GIS and Basics- **Jonathan E. Campbel**	53-64
7		31-08-2021	1	Database Management – Database Structures	CobNos:1 CoNos:1	GIS and Basics- **Jonathan E. Campbel**	65-69
8		02-09-2021	1	Standard Data Formats	CobNos:1 CoNos:1	GIS and Basics- **Jonathan E. Campbel**	70-78
9		03-09-2021	1	Compression Techniques	CobNos:1 CoNos:1	GIS and Basics- **Jonathan E. Campbel**	79-82
10		07-09-2021	1	Hardware – Computing, printing and scanning systems	CobNos:1 CoNos:1	GIS and Basics- **Jonathan E. Campbel**	82-86
11		09-09-2021	1	Software – Standard Packages like Arc view, ArcGIS	CobNos:1 CoNos:1	GIS and Basics- **Jonathan E. Campbel**	87-94

12	II	10-09-2021	1	Types of Topology	CobNos:2 CoNos:2	GIS and Basics- **Jonathan E. Campbel**	84-86
13		14-09-2021	1	Types of Errors	CobNos:2 CoNos:2	GIS and Basics- **Jonathan E. Campbel**	87-89
14		16-09-2021	1	Editing and Error Rectification	CobNos:2 CoNos:2	GIS and Basics- **Jonathan E. Campbel**	90-91
15		17-09-2021	1	Modeling topological Relationships	CobNos:2 CoNos:2	GIS and Basics- **Jonathan E. Campbel**	92-93
16		21-09-2021	1	Tolerances.	CobNos:2 CoNos:2	GIS and Basics- **Jonathan E. Campbel**	93-94
17	III	23-09-2021	1	Map – mapping concepts	CobNos:3 CoNos:3	GIS and Basics- **Jonathan E. Campbel**	33-40
18		24-09-2021	1	analysis with paper based maps	CobNos:3 CoNos:3	GIS and Basics- **Jonathan E. Campbel**	41-45
19		28-09-2021	1	Computer Automated Cartography	CobNos:3 CoNos:3	GIS and Basics- **Jonathan E. Campbel**	46-47
20		30-09-2021	1	History and Developments	CobNos:3 CoNos:3	GIS and Basics- **Jonathan E. Campbel**	48-50
21		01-10-2021	1	GIS- Definition	CobNos:3 CoNos:3	GIS and Basics- **Jonathan E. Campbel**	51-52
22		05-10-2021	1	Advantages of digital maps	CobNos:3 CoNos:3	GIS and Basics- **Jonathan E. Campbel**	52-53
23	IV	07-10-2021	1	Spatial Analysis and Modelling	CobNos:4 CoNos:4	GIS and Basics- **Jonathan E. Campbel**	164-172
24		08-10-2021	1	Proximity Analysis,	CobNos:4 CoNos:4	GIS and Basics- **Jonathan E. Campbel**	173-176
25		12-10-2021	1	Overlay Analysis, Buffer Analysis, Network Analysis	CobNos:4 CoNos:4	GIS and Basics- **Jonathan E.**	177-182

						Campbel	
26		14-10-2021	1	Spatial Auto Correlation	CobNos:4 CoNos:4	GIS and Basics- **Jonathan E. Campbel**	183-192
27		15-10-2021	1	Gravity Modelling	CobNos:4 CoNos:4	GIS and Basics- **Jonathan E. Campbel**	193-196
28		19-10-2021	1	Integration with Remote Sensing data	CobNos:4 CoNos:4	GIS and Basics- **Jonathan E. Campbel**	197-198
29	V	21-10-2021	1	GIS Project Planning	CobNos:5 CoNos:5	GIS and Basics- **Jonathan E. Campbel**	229-230
30		22-10-2021	1	GIS Implementation – Under Standing the Requirements	CobNos:5 CoNos:5	GIS and Basics- **Jonathan E. Campbel**	231-232
31		26-10-2021	1	Phases of Planning and Specifications	CobNos:5 CoNos:5	GIS and Basics- **Jonathan E. Campbel**	232-233
32		28-10-2021	1	Data Procurement and Tendering	CobNos:5 CoNos:5	GIS and Basics- **Jonathan E. Campbel**	234-234
33		29-10-2021	1	Human Resources	CobNos:5 CoNos:5	GIS and Basics- **Jonathan E. Campbel**	235-236
34		02-11-2021	1	Back Up and Monitoring Progress	CobNos:5 CoNos:5	GIS and Basics- **Jonathan E. Campbel**	236-237

Session Plan B

Sl. No	Unit No.	Date	No.of periods	Topics/Sub-Topics	Objectives &Outcomes Nos.	References	Page No
1	I	18-08-2021	1	Fundamentals of GIS	CobNos:1 CoNos:1	GIS and Basics- **Jonathan E. Campbel**	8-20
2		19-08-2021	1	Information Systems	CobNos:1 CoNos:1	GIS and Basics- **Jonathan E. Campbel**	21-25
3		20-08-2021		Modelling Real World Features Data	CobNos:1 CoNos:1	GIS and Basics- **Jonathan E. Campbel**	26-34
4		25-08-2021	1	Data Formats, Applications of GIS	CobNos:1 CoNos:1	GIS and Basics- **Jonathan E. Campbel**	35-45
5		26-08-2021	1	Components of GIS	CobNos:1 CoNos:1	GIS and Basics- **Jonathan E. Campbel**	46-52
6		27-08-2021	1	Data Collection and Input & Data Conversion	CobNos:1 CoNos:1	GIS and Basics- **Jonathan E. Campbel**	53-64
7		01-09-2021		Database Management – Database Structures	CobNos:1 CoNos:1	GIS and Basics- **Jonathan E. Campbel**	65-69
8		02-09-2021	1	Standard Data Formats	CobNos:1 CoNos:1	GIS and Basics- **Jonathan E. Campbel**	70-78
9		03-09-2021	1	Compression Techniques	CobNos:1 CoNos:1	GIS and Basics- **Jonathan E. Campbel**	79-82
10		08-09-2021	1	Hardware – Computing, printing and scanning systems	CobNos:1 CoNos:1	GIS and Basics- **Jonathan E. Campbel**	82-86
11		09-09-2021		Software – Standard Packages like Arc view, ArcGIS	CobNos:1 CoNos:1	GIS and Basics- **Jonathan E. Campbel**	87-94
12	II	10-09-2021	1	Types of Topology	CobNos:2 CoNos:2	GIS and Basics- **Jonathan E. Campbel**	84-86
13		15-09-2021	1	Types of Errors	CobNos:2 CoNos:2	GIS and Basics- **Jonathan E.**	87-89

						Campbel	
14		16-09-2021	1	Editing and Error Rectification	CobNos:2 CoNos:2	GIS and Basics- **Jonathan E. Campbel**	90-91
15		17-09-2021		Modeling topological Relationships	CobNos:2 CoNos:2	GIS and Basics- **Jonathan E. Campbel**	92-93
16		22-09-2021	1	Tolerances.	CobNos:2 CoNos:2	GIS and Basics- **Jonathan E. Campbel**	93-94
17	III	23-09-2021	1	Map – mapping concepts	CobNos:3 CoNos:3	GIS and Basics- **Jonathan E. Campbel**	33-40
18		24-09-2021	1	analysis with paper based maps	CobNos:3 CoNos:3	GIS and Basics- **Jonathan E. Campbel**	41-45
19		29-09-2021		Computer Automated Cartography	CobNos:3 CoNos:3	GIS and Basics- **Jonathan E. Campbel**	46-47
20		30-09-2021	1	History and Developments	CobNos:3 CoNos:3	GIS and Basics- **Jonathan E. Campbel**	48-50
21		01-10-2021	1	GIS- Definition	CobNos:3 CoNos:3	GIS and Basics- **Jonathan E. Campbel**	51-52
22		06-10-2021	1	Advantages of digital maps	CobNos:3 CoNos:3	GIS and Basics- **Jonathan E. Campbel**	52-53
23	IV	07-10-2021		Spatial Analysis and Modelling	CobNos:4 CoNos:4	GIS and Basics- **Jonathan E. Campbel**	164-172
24		08-10-2021	1	Proximity Analysis,	CobNos:4 CoNos:4	GIS and Basics- **Jonathan E. Campbel**	173-176
25		13-10-2021	1	Overlay Analysis, Buffer Analysis, Network Analysis	CobNos:4 CoNos:4	GIS and Basics- **Jonathan E. Campbel**	177-182
26		14-10-2021	1	Spatial Auto Correlation	CobNos:4 CoNos:4	GIS and Basics- **Jonathan E. Campbel**	183-192
27		15-10-2021		Gravity Modelling	CobNos:4	GIS and Basics-	193-196

					CoNos:4	**Jonathan E. Campbel**	
28		20-10-2021	1	Integration with Remote Sensing data	CobNos:4 CoNos:4	GIS and Basics- **Jonathan E. Campbel**	197-198
29	V	21-10-2021	1	GIS Project Planning	CobNos:5 CoNos:5	GIS and Basics- **Jonathan E. Campbel**	229-230
30		22-10-2021	1	GIS Implementation – Under Standing the Requirements	CobNos:5 CoNos:5	GIS and Basics- **Jonathan E. Campbel**	231-232
31		27-10-2021		Phases of Planning and Specifications	CobNos:5 CoNos:5	GIS and Basics- **Jonathan E. Campbel**	232-233
32		28-10-2021	1	Data Procurement and Tendering	CobNos:5 CoNos:5	GIS and Basics- **Jonathan E. Campbel**	234-234
33		29-10-2021	1	Human Resources	CobNos:5 CoNos:5	GIS and Basics- **Jonathan E. Campbel**	235-236
34		03-11-2021	1	Back Up and Monitoring Progress	CobNos:5 CoNos:5	GIS and Basics- **Jonathan E. Campbel**	236-237

Gokaraju Rangaraju Institute of Engineering and Technology
Department of Civil Engineering

SCHEDULE OF INSTRUCTIONS
UNIT PLAN

Academic Year : 2021-22

Semester : I

Name of the Program: B.Tech **Year:** IV **Section:** A/**B**

Course/Subject: GIS AND SCIENCE **Course Code: GR18A4010**

Name of the Faculty: Rathod Ravinder

Designation: Assoc. Prof **Dept.:** Civil Engineering

Lesson No.	Date	No. of Periods	Topics / Sub - Topics	Objectives & Outcomes Nos.	Blooms Taxonomy	References (Text Book, Journal…) Page Nos.:	Page No
1	17-08-2021	1	Fundamentals of GIS	CobNos:1 CoNos:1	K1	GIS and Basics-**Jonathan E. Campbel**	8-20
2	19-08-2021	1	Information Systems	CobNos:1 CoNos:1	K1	GIS and Basics-**Jonathan E. Campbel**	21-25
3	20-08-2021	1	Modelling Real World Features Data	CobNos:1 CoNos:1	K5	GIS and Basics-**Jonathan E. Campbel**	26-34
4	24-08-2021	1	Data Formats, Applications of GIS	CobNos:1 CoNos:1	K3	GIS and Basics-**Jonathan E. Campbel**	35-45
5	26-08-2021	1	Components of GIS	CobNos:1 CoNos:1	K2	GIS and Basics-**Jonathan E. Campbel**	46-52
6	27-08-2021	1	Data Collection and Input & Data Conversion	CobNos:1 CoNos:1	K4	GIS and Basics-**Jonathan E. Campbel**	53-64
7	31-08-2021	1	Database Management – Database Structures	CobNos:1 CoNos:1	K3	GIS and Basics-**Jonathan E. Campbel**	65-69
8	02-09-2021	1	Standard Data Formats	CobNos:1 CoNos:1	K2	GIS and Basics-**Jonathan E. Campbel**	--

Gokaraju Rangaraju Institute of Engineering and Technology
Department of Civil Engineering

SCHEDULE OF INSTRUCTIONS
UNIT PLAN

Academic Year : 2021-22

Semester : I

Name of the Program: B.Tech **Year:** IV **Section:** A/**B**

Course/Subject: GIS AND SCIENCE **Course Code: GR18A4010**

Name of the Faculty: Rathod Ravinder

Designation: Assoc. Prof **Dept.:** Civil Engineering

Lesson No.	Date	No. of Periods	Topics / Sub - Topics	Objectives & Outcomes Nos.	Blooms Taxonomy	References (Text Book, Journal…) Page Nos.:	Page No
1	10-09-2021	1	Types of Topology	CobNos:2 CoNos:2	K1	GIS and Basics- **Jonathan E. Campbel**	84-86
2	15-09-2021	1	Types of Errors	CobNos:2 CoNos:2	K2	GIS and Basics- **Jonathan E. Campbel**	87-89
3	16-09-2021	1	Editing and Error Rectification	CobNos:2 CoNos:2	K3	GIS and Basics- **Jonathan E. Campbel**	90-91
4	17-09-2021	1	Modeling topological Relationships	CobNos:2 CoNos:2	K4	GIS and Basics- **Jonathan E. Campbel**	92-93
5	22-09-2021	1	Tolerances.	CobNos:2 CoNos:2	K2	GIS and Basics- **Jonathan E. Campbel**	93-94
6	10-09-2021	1	Types of Topology	CobNos:2 CoNos:2	K3	GIS and Basics- **Jonathan E. Campbel**	84-86
7	15-09-2021	1	Types of Errors	CobNos:2 CoNos:2	K3	GIS and Basics- **Jonathan E. Campbel**	87-89
8	16-09-2021	1	Editing and Error Rectification	CobNos:2 CoNos:2	K4	GIS and Basics- **Jonathan E. Campbel**	90-91

Gokaraju Rangaraju Institute of Engineering and Technology
Department of Civil Engineering

SCHEDULE OF INSTRUCTIONS
UNIT PLAN

Academic Year : 2021-22

Semester : I

Name of the Program: B.Tech **Year:** IV **Section:** A/**B**

Course/Subject: GIS AND SCIENCE **Course Code: GR18A4010**

Name of the Faculty: Rathod Ravinder

Designation: Assoc. Prof **Dept.:** Civil Engineering

Lesson No.	Date	No. of Periods	Topics / Sub - Topics	Objectives & Outcomes Nos.	Blooms Taxonomy	References (Text Book, Journal…) Page Nos.:	Page No
1	23-09-2021	1	Map – mapping concepts	CobNos:3 CoNos:3	K1	GIS and Basics- **Jonathan E. Campbel**	90-91
2	24-09-2021	1	analysis with paper based maps	CobNos:3 CoNos:3	K2	GIS and Basics- **Jonathan E. Campbel**	92-93
3	28-09-2021	1	Computer Automated Cartography	CobNos:3 CoNos:3	K3	GIS and Basics- **Jonathan E. Campbel**	93-94
4	30-09-2021	1	History and Developments	CobNos:3 CoNos:3	K4	GIS and Basics- **Jonathan E. Campbel**	33-40
5	01-10-2021	1	GIS- Definition	CobNos:3 CoNos:3	K1	GIS and Basics- **Jonathan E. Campbel**	41-45
6	05-10-2021	1	Advantages of digital maps	CobNos:3 CoNos:3	K3	GIS and Basics- **Jonathan E. Campbel**	46-47

Gokaraju Rangaraju Institute of Engineering and Technology
Department of Civil Engineering

SCHEDULE OF INSTRUCTIONS
UNIT PLAN

Academic Year : 2021-22

Semester : I

Name of the Program: B.Tech **Year:** IV **Section:** A/**B**

Course/Subject: GIS AND SCIENCE **Course Code: GR18A4010**

Name of the Faculty: Rathod Ravinder

Designation: Assoc. Prof **Dept.:** Civil Engineering

Lesson No.	Date	No. of Periods	Topics / Sub - Topics	Objectives & Outcomes Nos.	Blooms Taxonomy	References (Text Book, Journal…) Page Nos.:	Page No
1	07-10-2021	1	Spatial Analysis and Modelling	CobNos:4 CoNos:4	K4	GIS and Basics- **Jonathan E. Campbel**	164-172
2	08-10-2021	1	Proximity Analysis,	CobNos:4 CoNos:4	K4	GIS and Basics- **Jonathan E. Campbel**	173-176
3	13-10-2021	1	Overlay Analysis, Buffer Analysis, Network Analysis	CobNos:4 CoNos:4	K3	GIS and Basics- **Jonathan E. Campbel**	177-182
4	14-10-2021	1	Spatial Auto Correlation	CobNos:4 CoNos:4	K3	GIS and Basics- **Jonathan E. Campbel**	183-192
5	15-10-2021	1	Gravity Modelling	CobNos:4 CoNos:4	K4	GIS and Basics- **Jonathan E. Campbel**	193-196
6	20-10-2021	1	Integration with Remote Sensing data	CobNos:4 CoNos:4	K3	GIS and Basics- **Jonathan E. Campbel**	193-196

Gokaraju Rangaraju Institute of Engineering and Technology
Department of Civil Engineering

SCHEDULE OF INSTRUCTIONS
UNIT PLAN

Academic Year : 2021-22

Semester : I

Name of the Program: B.Tech **Year:** IV **Section:** A/**B**

Course/Subject: GIS AND SCIENCE **Course Code: GR18A4010**

Name of the Faculty: Rathod Ravinder

Designation: Assoc. Prof **Dept.:** Civil Engineering

Lesson No.	Date	No. of Periods	Topics / Sub - Topics	Objectives & Outcomes Nos.	Blooms Taxonomy	References (Text Book, Journal…) Page Nos.:	Page No
1	21-10-2021	1	GIS Project Planning	CobNos:5 CoNos:5	K4	GIS and Basics- **Jonathan E. Campbel**	229-230
2	22-10-2021	1	GIS Implementation – Under Standing the Requirements	CobNos:5 CoNos:5	K4	GIS and Basics- **Jonathan E. Campbel**	231-232
3	27-10-2021		Phases of Planning and Specifications	CobNos:5 CoNos:5	K3	GIS and Basics- **Jonathan E. Campbel**	232-233
4	28-10-2021	1	Data Procurement and Tendering	CobNos:5 CoNos:5	K3	GIS and Basics- **Jonathan E. Campbel**	234-234
5	29-10-2021	1	Human Resources	CobNos:5 CoNos:5	K2	GIS and Basics- **Jonathan E. Campbel**	235-236
6	03-11-2021	1	Back Up and Monitoring Progress	CobNos:5 CoNos:5	K3	GIS and Basics- **Jonathan E. Campbel**	236-237

Gokaraju Rangaraju Institute of Engineering and Technology
Department of Civil Engineering

LESSON PLAN

Academic Year : 2021-22 Date:8/17/2021

Semester : I

Name of the Program: B.Tech **Year:** IV **Section:** A/**B**

Course/Subject: GIS AND SCIENCE **Course Code: GR18A4010**

Name of the Faculty: Rathod Ravinder

Designation: Assoc. Prof **Dept.:** Civil Engineering

Lesson No: 1 Duration of Lesson: 1hr

Lesson Title: Fundamentals of GIS

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be:
Basic concept of GIS, and components

Assignments:
What is GIS? And their components

TEACHING POINTS :

Basic concept of GIS, and components

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Department of Civil Engineering

LESSON PLAN

Academic Year : 2021-22 Date:8/19/2021

Semester : I

Name of the Program: B.Tech **Year:** IV **Section:** A/**B**

Course/Subject: GIS AND SCIENCE **Course Code: GR18A4010**

Name of the Faculty: Rathod Ravinder

Designation: Assoc. Prof **Dept.:** Civil Engineering

Lesson No: 2 Duration of Lesson: 1hr

Lesson Title: Information Systems

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be:

Spatial and Non spatial data

Assignment
Differentiate between Spatial and Non spatial data.

TEACHING POINTS :

Spatial and Non spatial data

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Department of Civil Engineering

LESSON PLAN

Academic Year : 2021-22 Date:8/20/2021

Semester : I

Name of the Program: B.Tech **Year:** IV **Section:** A/**B**

Course/Subject: GIS AND SCIENCE **Course Code: GR18A4010**

Name of the Faculty: Rathod Ravinder

Designation: Assoc. Prof **Dept.:** Civil Engineering

Lesson No: 3 Duration of Lesson: 1hr

Lesson Title: Modelling Real World Features Data

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be:
Map generation using existing data

Assignments
Explain the map generation using existing data

TEACHING POINTS :

Map generation using existing data

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Department of Civil Engineering

LESSON PLAN

Academic Year : 2021-22 Date:8/24/2021

Semester : I

Name of the Program: B.Tech **Year:** IV **Section:** A/**B**

Course/Subject: GIS AND SCIENCE **Course Code: GR18A4010**

Name of the Faculty: Rathod Ravinder

Designation: Assoc. Prof **Dept.:** Civil Engineering

Lesson No: 4 Duration of Lesson: 1hr

Lesson Title: Data Formats, Applications of GIS

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be:
Vector and Raster formats, Various application of GIS.

Assignment
Differentiate vector and raster.

TEACHING POINTS :

Vector and Raster formats, Various application of GIS

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Department of Civil Engineering

LESSON PLAN

Academic Year : 2021-22 Date:8/26/2021

Semester : I

Name of the Program: B.Tech **Year:** IV **Section:** A/**B**

Course/Subject: GIS AND SCIENCE **Course Code: GR18A4010**

Name of the Faculty: Rathod Ravinder

Designation: Assoc. Prof **Dept.:** Civil Engineering

Lesson No: 5 Duration of Lesson: 1hr

Lesson Title: Components of GIS

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be:
Components of GIS such as Hardware,software,Data, Methods and expert

Assignment
Discuss Components of GIS such as Hardware,software,Data, Methods and expert.

TEACHING POINTS :

Components of GIS such as Hardware,software,Data, Methods and expert

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Department of Civil Engineering

LESSON PLAN

Academic Year : 2021-22 Date:8/27/2021

Semester : I

Name of the Program: B.Tech **Year:** IV **Section:** A/**B**

Course/Subject: GIS AND SCIENCE **Course Code: GR18A4010**

Name of the Faculty: Rathod Ravinder

Designation: Assoc. Prof **Dept.:** Civil Engineering

Lesson No: 6 Duration of Lesson: 1hr

Lesson Title: Data Collection and Input & Data Conversion

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be:
Data conversion from Physical to digital using scanning

Assignment

Discucss Data conversion from Physical to digital using scanning

TEACHING POINTS :

Data conversion from Physical to digital using scanning

Signature of faculty

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Department of Civil Engineering

LESSON PLAN

Academic Year : 2021-22 Date:8/31/2021

Semester : I

Name of the Program: B.Tech **Year:** IV **Section:** A/**B**

Course/Subject: GIS AND SCIENCE **Course Code: GR18A4010**

Name of the Faculty: Rathod Ravinder

Designation: Assoc. Prof **Dept.:** Civil Engineering

Lesson No: 7 Duration of Lesson: 1hr

Lesson Title: Database Management – Database Structures

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be:
Discussion of Database management attribute data

Assignment

Discussion of Database management attribute data

TEACHING POINTS :

Discussion of Database management attribute data

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Department of Civil Engineering

LESSON PLAN

Academic Year : 2021-22 Date:9/2/2021

Semester : I

Name of the Program: B.Tech **Year:** IV **Section:** A/**B**

Course/Subject: GIS AND SCIENCE **Course Code: GR18A4010**

Name of the Faculty: Rathod Ravinder

Designation: Assoc. Prof **Dept.:** Civil Engineering

Lesson No: 8 Duration of Lesson: 1hr

Lesson Title: Standard Data Formats

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be:
Vector and Raster formats and comparison

Assignment
Vector and Raster formats and comparison

TEACHING POINTS :

Vector and Raster formats and comparison

Signature of faculty

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Department of Civil Engineering

LESSON PLAN

Academic Year : 2021-22 Date:9/3/2021

Semester : I

Name of the Program: B.Tech **Year:** IV **Section:** A/**B**

Course/Subject: GIS AND SCIENCE **Course Code: GR18A4010**

Name of the Faculty: Rathod Ravinder

Designation: Assoc. Prof **Dept.:** Civil Engineering

Lesson No: 9 Duration of Lesson: 1hr

Lesson Title: Compression Techniques

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be:
Various compression technique to reduce the data storage

Assignment

Discuss Various compression technique to reduce the data storage

TEACHING POINTS :

Various compression technique to reduce the data storage

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Department of Civil Engineering

LESSON PLAN

Academic Year : 2021-22 Date:9/7/2021

Semester : I

Name of the Program: B.Tech **Year:** IV **Section:** A/**B**

Course/Subject: GIS AND SCIENCE **Course Code: GR18A4010**

Name of the Faculty: Rathod Ravinder

Designation: Assoc. Prof **Dept.:** Civil Engineering

Lesson No: 10 Duration of Lesson: 1hr

Lesson Title: Hardware – Computing, printing and scanning systems

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be:

Scanning and printing technique

Assignment
Exlain Scanning and printing technique

TEACHING POINTS :

Scanning and printing technique

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Department of Civil Engineering

LESSON PLAN

Academic Year : 2021-22 Date:9/9/2021

Semester : I

Name of the Program: B.Tech **Year:** IV **Section:** A/**B**

Course/Subject: GIS AND SCIENCE **Course Code: GR18A4010**

Name of the Faculty: Rathod Ravinder

Designation: Assoc. Prof **Dept.:** Civil Engineering

Lesson No: 11 Duration of Lesson: 1hr

Lesson Title: Software – Standard Packages like Arc view, ArcGIS

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be:
Open source and Commercial software in GIS

Assignment
Eloboerate Open source and Commercial software in GIS

TEACHING POINTS :

Open source and Commercial software in GIS

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Department of Civil Engineering

LESSON PLAN

Academic Year : 2021-22 Date:9/10/2021

Semester : I

Name of the Program: B.Tech **Year:** IV **Section:** A/**B**

Course/Subject: GIS AND SCIENCE **Course Code: GR18A4010**

Name of the Faculty: Rathod Ravinder

Designation: Assoc. Prof **Dept.:** Civil Engineering

Lesson No: 12 Duration of Lesson: 1hr

Lesson Title: Types of Topology

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be:

Definition of topology and types of topology

Assignment
Definition of topology and types of topology

TEACHING POINTS :

Definition of topology and types of topology

Signature of faculty

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Department of Civil Engineering

LESSON PLAN

Academic Year : 2021-22 Date:9/14/2021

Semester : I

Name of the Program: B.Tech **Year:** IV **Section:** A/**B**

Course/Subject: GIS AND SCIENCE **Course Code: GR18A4010**

Name of the Faculty: Rathod Ravinder

Designation: Assoc. Prof **Dept.:** Civil Engineering

Lesson No: 13 Duration of Lesson: 1hr

Lesson Title: Types of Errors

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be:
Dicussion on errors occur during digitization

Assignment

Dicussion on errors occur during digitization

TEACHING POINTS :

Dicussion on errors occur during digitization

Signature of faculty

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Department of Civil Engineering

LESSON PLAN

Academic Year : 2021-22 Date:9/16/2021

Semester : I

Name of the Program: B.Tech **Year:** IV **Section:** A/**B**

Course/Subject: GIS AND SCIENCE **Course Code: GR18A4010**

Name of the Faculty: Rathod Ravinder

Designation: Assoc. Prof **Dept.:** Civil Engineering

Lesson No: 14 Duration of Lesson: 1hr

Lesson Title: Editing and Error Rectification

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be:

Undershooting and overshooting , slivers, error due to unsteady haand and other errors

Assignment

Explain Undershooting and overshooting , slivers, error due to unsteady haand and other errors

TEACHING POINTS :

Undershooting and overshooting , slivers, error due to unsteady haand and other errors

Signature of faculty

Gokaraju Rangaraju Institute of Engineering and Technology
Department of Civil Engineering

LESSON PLAN

Academic Year : 2021-22 Date:9/17/2021

Semester : I

Name of the Program: B.Tech **Year:** IV **Section:** A/**B**

Course/Subject: GIS AND SCIENCE **Course Code: GR18A4010**

Name of the Faculty: Rathod Ravinder

Designation: Assoc. Prof **Dept.:** Civil Engineering

Lesson No: 15 Duration of Lesson: 1hr

Lesson Title: Modeling topological Relationships

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be:
Spation relationship on earth surface

Assignment

Discuss Spation relationship on earth surface

TEACHING POINTS :

Spation relationship on earth surface

Signature of faculty

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Department of Civil Engineering

LESSON PLAN

Academic Year : 2021-22 Date:9/21/2021

Semester : I

Name of the Program: B.Tech **Year:** IV **Section:** A/**B**

Course/Subject: GIS AND SCIENCE **Course Code: GR18A4010**

Name of the Faculty: Rathod Ravinder

Designation: Assoc. Prof **Dept.:** Civil Engineering

Lesson No: 16 Duration of Lesson: 1hr

Lesson Title: Tolerances.

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be:
Definition of tolerances and its importance

Assignment

Definition of tolerances and its importance

TEACHING POINTS :

Definition of tolerances and its importance

Signature of faculty

Gokaraju Rangaraju Institute of Engineering and Technology
Department of Civil Engineering

LESSON PLAN

Academic Year : 2021-22 Date:9/23/2021

Semester : I

Name of the Program: B.Tech **Year:** IV **Section:** A/**B**

Course/Subject: GIS AND SCIENCE **Course Code: GR18A4010**

Name of the Faculty: Rathod Ravinder

Designation: Assoc. Prof **Dept.:** Civil Engineering

Lesson No: 17 Duration of Lesson: 1hr

Lesson Title: Map – mapping concepts

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be:
Mapping with existing data

Assignment
Explain Mapping with existing data

TEACHING POINTS :

Mapping with existing data

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Department of Civil Engineering

LESSON PLAN

Academic Year : 2021-22 Date:9/24/2021

Semester : I

Name of the Program: B.Tech **Year:** IV **Section:** A/**B**

Course/Subject: GIS AND SCIENCE **Course Code: GR18A4010**

Name of the Faculty: Rathod Ravinder

Designation: Assoc. Prof **Dept.:** Civil Engineering

Lesson No: 18 Duration of Lesson: 1hr

Lesson Title: analysis with paper based maps

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be:
Discussion on Paper based map toposheet and their importance

Assignment

Discussion on Paper based map toposheet and their importance

TEACHING POINTS :

Discussion on Paper based map toposheet and their importance

Signature of faculty

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Department of Civil Engineering

LESSON PLAN

Academic Year : 2021-22 Date:9/28/2021

Semester : I

Name of the Program: B.Tech **Year:** IV **Section:** A/**B**

Course/Subject: GIS AND SCIENCE **Course Code: GR18A4010**

Name of the Faculty: Rathod Ravinder

Designation: Assoc. Prof **Dept.:** Civil Engineering

Lesson No: 19 Duration of Lesson: 1hr

Lesson Title: Computer Automated Cartography

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be:
Digitization technique using GIS software

Assignment
Discuss Digitization technique using GIS software

TEACHING POINTS :

Digitization technique using GIS software

Signature of faculty

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Department of Civil Engineering

LESSON PLAN

Academic Year : 2021-22 Date:9/30/2021

Semester : I

Name of the Program: B.Tech **Year:** IV **Section:** A/**B**

Course/Subject: GIS AND SCIENCE **Course Code: GR18A4010**

Name of the Faculty: Rathod Ravinder

Designation: Assoc. Prof **Dept.:** Civil Engineering

Lesson No: 20 Duration of Lesson: 1hr

Lesson Title: History and Developments

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be:
History of map generations from Normal map to satellite maps

Assignment
Discuss History of map generations from Normal map to satellite maps

TEACHING POINTS :

History of map generations from Normal map to satellite maps

Signature of faculty

Gokaraju Rangaraju Institute of Engineering and Technology
Department of Civil Engineering

LESSON PLAN

Academic Year : 2021-22 Date:10/1/2021

Semester : I

Name of the Program: B.Tech **Year:** IV **Section:** A/**B**

Course/Subject: GIS AND SCIENCE **Course Code: GR18A4010**

Name of the Faculty: Rathod Ravinder

Designation: Assoc. Prof **Dept.:** Civil Engineering

Lesson No: 21 Duration of Lesson: 1hr

Lesson Title: GIS- Definition

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be:
Definition of GIS and application GIS

Assignment

Definition of GIS and application GIS

TEACHING POINTS :

Definition of GIS and application GIS

Signature of faculty

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Department of Civil Engineering

LESSON PLAN

Academic Year : 2021-22 Date:10/5/2021

Semester : I

Name of the Program: B.Tech **Year:** IV **Section:** A/**B**

Course/Subject: GIS AND SCIENCE **Course Code: GR18A4010**

Name of the Faculty: Rathod Ravinder

Designation: Assoc. Prof **Dept.:** Civil Engineering

Lesson No: 22 Duration of Lesson: 1hr

Lesson Title: Advantages of digital maps

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be:
Advantages of digital maps

Assignment
Explain Advantages of digital maps

TEACHING POINTS :

Advantages of digital maps

Signature of faculty

Gokaraju Rangaraju Institute of Engineering and Technology
Department of Civil Engineering

LESSON PLAN

Academic Year : 2021-22 Date:10/7/2021

Semester : I

Name of the Program: B.Tech **Year:** IV **Section:** A/**B**

Course/Subject: GIS AND SCIENCE **Course Code: GR18A4010**

Name of the Faculty: Rathod Ravinder

Designation: Assoc. Prof **Dept.:** Civil Engineering

Lesson No: 23 Duration of Lesson: 1hr

Lesson Title: Spatial Analysis and Modelling

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be:
Spatial Analysis and Modelling

Assignment
Discuss Spatial Analysis and Modelling

TEACHING POINTS :

Spatial Analysis and Modelling

Signature of faculty

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Department of Civil Engineering

LESSON PLAN

Academic Year : 2021-22 Date:10/8/2021

Semester : I

Name of the Program: B.Tech **Year:** IV **Section:** A/**B**

Course/Subject: GIS AND SCIENCE **Course Code: GR18A4010**

Name of the Faculty: Rathod Ravinder

Designation: Assoc. Prof **Dept.:** Civil Engineering

Lesson No: 24 Duration of Lesson: 1hr

Lesson Title: Proximity Analysis,

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be:
Proximity Analysis, Relationships with surrounding

Assignment
Explain Proximity Analysis, Relationships with surrounding

TEACHING POINTS :

Proximity Analysis, Relationships with surrounding

Signature of faculty

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Department of Civil Engineering

LESSON PLAN

Academic Year : 2021-22 Date:10/12/2021

Semester : I

Name of the Program: B.Tech **Year:** IV **Section:** A/**B**

Course/Subject: GIS AND SCIENCE **Course Code: GR18A4010**

Name of the Faculty: Rathod Ravinder

Designation: Assoc. Prof **Dept.:** Civil Engineering

Lesson No: 25 Duration of Lesson: 1hr

Lesson Title: Overlay Analysis, Buffer Analysis, Network Analysis

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be:
Overlay Analysis, Buffer Analysis, Network Analysis

Assignment
Explain Overlay Analysis, Buffer Analysis, Network Analysis

TEACHING POINTS :

Overlay Analysis, Buffer Analysis, Network Analysis

Signature of faculty

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Department of Civil Engineering

LESSON PLAN

Academic Year : 2021-22 Date:10/14/2021

Semester : I

Name of the Program: B.Tech **Year:** IV **Section:** A/**B**

Course/Subject: GIS AND SCIENCE **Course Code: GR18A4010**

Name of the Faculty: Rathod Ravinder

Designation: Assoc. Prof **Dept.:** Civil Engineering

Lesson No: 26 Duration of Lesson: 1hr

Lesson Title: Spatial Auto Correlation

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be:
Spatial Auto Correlation, temporal and atmospheric corrections

Assignment

Explain Spatial Auto Correlation, temporal and atmospheric corrections

TEACHING POINTS :

Spatial Auto Correlation, temporal and atmospheric corrections

Signature of faculty

Gokaraju Rangaraju Institute of Engineering and Technology
Department of Civil Engineering

LESSON PLAN

Academic Year : 2021-22 Date:10/15/2021

Semester : I

Name of the Program: B.Tech **Year:** IV **Section:** A/**B**

Course/Subject: GIS AND SCIENCE **Course Code: GR18A4010**

Name of the Faculty: Rathod Ravinder

Designation: Assoc. Prof **Dept.:** Civil Engineering

Lesson No: 27 Duration of Lesson: 1hr

Lesson Title: Gravity Modelling

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be:
Gravity Modelling

Assignment

Explain Gravity Modelling

TEACHING POINTS :

Gravity Modelling

Signature of faculty

Gokaraju Rangaraju Institute of Engineering and Technology
Department of Civil Engineering

LESSON PLAN

Academic Year : 2021-22 Date:10/19/2021

Semester : I

Name of the Program: B.Tech **Year:** IV **Section:** A/**B**

Course/Subject: GIS AND SCIENCE **Course Code: GR18A4010**

Name of the Faculty: Rathod Ravinder

Designation: Assoc. Prof **Dept.:** Civil Engineering

Lesson No: 28 Duration of Lesson: 1hr

Lesson Title: Integration with Remote Sensing data

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be:

Integration with Remote Sensing data

Assignment

Explain Integration with Remote Sensing data

TEACHING POINTS :

Integration with Remote Sensing data

Signature of faculty

Gokaraju Rangaraju Institute of Engineering and Technology
Department of Civil Engineering

LESSON PLAN

Academic Year : 2021-22 Date:10/21/2021

Semester : I

Name of the Program: B.Tech **Year:** IV **Section:** A/**B**

Course/Subject: GIS AND SCIENCE **Course Code: GR18A4010**

Name of the Faculty: Rathod Ravinder

Designation: Assoc. Prof **Dept.:** Civil Engineering

Lesson No: 29 Duration of Lesson: 1hr

Lesson Title: GIS Project Planning

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be:
GIS Project Planning

Assignment

Explain GIS Project Planning

TEACHING POINTS :

GIS Project Planning

Signature of faculty

Gokaraju Rangaraju Institute of Engineering and Technology
Department of Civil Engineering

LESSON PLAN

Academic Year : 2021-22 Date:10/22/2021

Semester : I

Name of the Program: B.Tech **Year:** IV **Section:** A/**B**

Course/Subject: GIS AND SCIENCE **Course Code: GR18A4010**

Name of the Faculty: Rathod Ravinder

Designation: Assoc. Prof **Dept.:** Civil Engineering

Lesson No: 30 Duration of Lesson: 1hr

Lesson Title: GIS Implementation – Under Standing the Requirements

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be:

GIS Implementation – Under Standing the Requirements

Assignment

Explain GIS Implementation – Under Standing the Requirements

TEACHING POINTS :

GIS Implementation – Under Standing the Requirements

Signature of faculty

Gokaraju Rangaraju Institute of Engineering and Technology
Department of Civil Engineering

LESSON PLAN

Academic Year : 2021-22 Date:10/26/2021

Semester : I

Name of the Program: B.Tech **Year:** IV **Section:** A/**B**

Course/Subject: GIS AND SCIENCE **Course Code: GR18A4010**

Name of the Faculty: Rathod Ravinder

Designation: Assoc. Prof **Dept.:** Civil Engineering

Lesson No: 31 Duration of Lesson: 1hr

Lesson Title: Phases of Planning and Specifications

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be:

Assignment

Explain Phases of Planning and Specifications

TEACHING POINTS :

Phases of Planning and Specifications

Signature of faculty

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Department of Civil Engineering

LESSON PLAN

Academic Year : 2021-22 Date:10/28/2021

Semester : I

Name of the Program: B.Tech **Year:** IV **Section:** A/**B**

Course/Subject: GIS AND SCIENCE **Course Code: GR18A4010**

Name of the Faculty: Rathod Ravinder

Designation: Assoc. Prof **Dept.:** Civil Engineering

Lesson No: 32 Duration of Lesson: 1hr

Lesson Title: Data Procurement and Tendering

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be:
Data Procurement and Tendering

Assignment

Explain Data Procurement and Tendering

TEACHING POINTS :

Data Procurement and Tendering

Signature of faculty

Gokaraju Rangaraju Institute of Engineering and Technology
Department of Civil Engineering

LESSON PLAN

Academic Year : 2021-22 Date:10/29/2021

Semester : I

Name of the Program: B.Tech **Year:** IV **Section:** A/**B**

Course/Subject: GIS AND SCIENCE **Course Code: GR18A4010**

Name of the Faculty: Rathod Ravinder

Designation: Assoc. Prof **Dept.:** Civil Engineering

Lesson No: 33 Duration of Lesson: 1hr

Lesson Title: Human Resources

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be:
Human Resources

Assignment

Discuss Human Resources

TEACHING POINTS :

Human Resources

Signature of faculty

Gokaraju Rangaraju Institute of Engineering and Technology
Department of Civil Engineering

LESSON PLAN

Academic Year : 2021-22 Date:11/2/2021

Semester : I

Name of the Program: B.Tech **Year:** IV **Section:** A/**B**

Course/Subject: GIS AND SCIENCE **Course Code: GR18A4010**

Name of the Faculty: Rathod Ravinder

Designation: Assoc. Prof **Dept.:** Civil Engineering

Lesson No: 34 Duration of Lesson: 1hr

Lesson Title: Back Up and Monitoring Progress

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be:
Back Up and Monitoring Progress

Assignment
Back Up and Monitoring Progress

TEACHING POINTS :

Back Up and Monitoring Progress

Signature of faculty

Gokaraju Rangaraju Institute of Engineering and Technology (Autonomous)

Bachupally, Kukatpally, Hyderabad – 500 090. (040) 6686 4440

TUTORIAL SHEET - 1

Academic **Y**ear : 2021-22

Semester : I

Name of the Program: B.Tech Civil Engineering Year: IV Section: A&B

Course/Subject: GIS&S Course Code: GR18A4010

Name of the Faculty: Rathod Ravinder Dept.: Civil Engineering

Designation: Professor / Assistant Professor

This Tutorial corresponds to Unit No. / Lesson: One

Q1. What is a GIS and its importance in real life. **Cob1** **CO1**

Q2. Discuss various components of GIS. **Cob1** **CO1**

Please write the Questions / Problems / Exercises which you would like to give to the students and also mention the Objectives/Outcomes to which these Questions / Problems / Exercises are related.

Objective Nos.: 1

Outcome Nos.: 1

Signature of HOD Signature of faculty

Date: Date:

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Bachupally, Kukatpally, Hyderabad – 500 090. (040) 6686 4440

TUTORIAL SHEET - 2

Academic **Y**ear : 2021-22

Semester : I

Name of the Program: B.Tech Civil Engineering Year: IV Section: A&B

Course/Subject: GIS&S Course Code: GR18A4010

Name of the Faculty: Rathod Ravinder Dept.: Civil Engineering

Designation: Professor / Assistant Professor

This Tutorial corresponds to Unit No. / Lesson: Two

Q1. Discuss various types of topology **Cob2 CO2**

Q2. Explain the errors during digitization and their rectifications. **Cob2 CO2**

Please write the Questions / Problems / Exercises which you would like to give to the students and also mention the Objectives/Outcomes to which these Questions / Problems / Exercises are related.

Objective Nos.: 2

Outcome Nos.: 2

Signature of HOD Signature of faculty

Date: Date:

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TUTORIAL SHEET - 3

Academic **Y**ear : 2021-22

Semester : I

Name of the Program: B.Tech Civil Engineering Year: IV Section: A&B

Course/Subject: GIS&S Course Code: GR18A4010

Name of the Faculty: Rathod Ravinder Dept.: Civil Engineering

Designation: Professor / Assistant Professor

This Tutorial corresponds to Unit No. / Lesson: Three

Q1. What are the advantages and disadvantages of paper based maps. **Cob3** **CO3**

Q2. Explain the history and development of maps **Cob3** **CO3**

Please write the Questions / Problems / Exercises which you would like to give to the students and also mention the Objectives/Outcomes to which these Questions / Problems / Exercises are related.

Objective Nos.: 3

Outcome Nos.: 3

Signature of HOD | Signature of faculty

Date: | Date:

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TUTORIAL SHEET - 4

Academic **Y**ear : 2021-22

Semester : I

Name of the Program: B.Tech Civil Engineering Year: IV Section: A&B

Course/Subject: GIS&S Course Code: GR18A4010

Name of the Faculty: Rathod Ravinder Dept.: Civil Engineering

Designation: Professor / Assistant Professor

This Tutorial corresponds to Unit No. / Lesson: Four

Q1. What is meant by Buffer and how it will be map using geospatial technique?

Cob4 CO4

Q2. Discuss spatial analysis in GIS. **Cob4 CO4**

Please write the Questions / Problems / Exercises which you would like to give to the students and also mention the Objectives/Outcomes to which these Questions / Problems / Exercises are related.

Objective Nos.: 4

Outcome Nos.: 4

Signature of HOD | Signature of faculty

Date: | Date:

Gokaraju Rangaraju Institute of Engineering and Technology (Autonomous)

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TUTORIAL SHEET - 5

Academic **Y**ear : 2021-22

Semester : I

Name of the Program: B.Tech Civil Engineering Year: IV Section: A&B

Course/Subject: GIS&S Course Code: GR18A4010

Name of the Faculty: Rathod Ravinder Dept.: Civil Engineering

Designation: Professor / Assistant Professor

This Tutorial corresponds to Unit No. / Lesson: Five

Q1. Explain the various phases in project planning.	**Cob5**	**CO5**
Q2. What are the steps involved data procurements.	**Cob5**	**CO5**

Please write the Questions / Problems / Exercises which you would like to give to the students and also mention the Objectives/Outcomes to which these Questions / Problems / Exercises are related.

Objective Nos.: 5

Outcome Nos.: 5

Signature of HOD

Date:

Signature of faculty

Date:

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ASSIGNMENT SHEET - 1

Academic **Y**ear : 2021-22

Semester : I

Name of the Program: B.Tech Civil Engineering Year: IV Section: A&B

Course/Subject: GIS&S Course Code: GR18A4010

Name of the Faculty: Rathod Ravinder Dept.: Civil Engineering

Designation: Professor / Assistant Professor

This Tutorial corresponds to Unit No. / Lesson: Five

1. **Discuss various components of GIS with an example** **COB1, CO1**
2. **Differentiate between Raster and Vector Data Models** **COB2, CO2**

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ASSIGNMENT SHEET - 2

Academic **Y**ear : 2021-22

Semester : I

Name of the Program: B.Tech Civil Engineering Year: IV Section: A&B

Course/Subject: GIS&S Course Code: GR18A4010

Name of the Faculty: Rathod Ravinder Dept.: Civil Engineering

Designation: Professor / Assistant Professor

This Tutorial corresponds to Unit No. / Lesson: Five

3. **Discuss types of Modelling topological Relationship.** **Cob2, CO2**

4. **Classify the types errors during digitization** **Cob3, CO3**

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ASSIGNMENT SHEET - 3

Academic **Y**ear : 2021-22

Semester : I

Name of the Program: B.Tech Civil Engineering Year: IV Section: A&B

Course/Subject: GIS&S Course Code: GR18A4010

Name of the Faculty: Rathod Ravinder Dept.: Civil Engineering

Designation: Professor / Assistant Professor

This Tutorial corresponds to Unit No. / Lesson: Five

1. Discuss the various types of maps **Cob3, CO3**

2. Differentiate between digital maps and paper based maps along with their merits and demerits. **Cob3, CO3**

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ASSIGNMENT SHEET - 4

Academic **Y**ear : 2021-22

Semester : I

Name of the Program: B.Tech Civil Engineering Year: IV Section: A&B

Course/Subject: GIS&S Course Code: GR18A4010

Name of the Faculty: Rathod Ravinder Dept.: Civil Engineering

Designation: Professor / Assistant Professor

This Tutorial corresponds to Unit No. / Lesson: Five

Q1. Explain the various phases in project planning **Cob5, CO5**

Q2. What are the steps involved data procurements **Cob5, CO5**

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ASSIGNMENT SHEET - 5

Academic **Y**ear : 2021-22

Semester : I

Name of the Program: B.Tech Civil Engineering Year: IV Section: A&B

Course/Subject: GIS&S Course Code: GR18A4010

Name of the Faculty: Rathod Ravinder Dept.: Civil Engineering

Designation: Professor / Assistant Professor

This Tutorial corresponds to Unit No. / Lesson: Five

Q1. Explain the various phases in project planning **Cob5, CO5**

Q2. What are the steps involved data procurements **Cob5, CO5**

Gokaraju Rangaraju Institute of Engineering and Technology
Department of Civil Engineering

EVALUATION STRATEGY

Academic Year : 2021-22

Semester : I

Name of the Program: B.Tech **Year:** IV **Section:** A/**B**

Course/Subject: GIS AND SCIENCE **Course Code: GR18A4010**

Name of the Faculty: Rathod Ravinder

Designation: Assoc. Prof **Dept.:** Civil Engineering

1. TARGET:
a) Percentage for pass: 100%
b) Percentage of class:

First Class with distinction	90
First class	30
Pass class	13
Total Strength	133

2. COURSE PLAN& CONTENT DELIVERY

S.No	Plan	Brief Description
1	Practice classes	34 Theory classes for Section A, B
3	Assignments	Assignments for solving numerical problems

2. COURSE PLAN& CONTENT DELIVERY

- 102 practice classes for detailed demonstration of experiments and for analyzing real time experiments in the lab.

3. METHOD OF EVALUATION

3.1 ☐ Continuous Assessment Examinations (CAE-I, CAE-II)

3.2 ☐ Assignments/Seminars

3.3 ☐ Major Projects

3.4 ☐ Quiz

3.5 ☐ Semester/End Examination

3.6 ☐ Others

4. List out any new topic(s) or any innovation you would like to introduce in teaching the subjects in this Semester.

- Introducing new experiments relating to soil design parameters.

Signature of HOD

Signature of faculty

Date:

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MAPPING

GR18A4010/ **GIS&Science**	**Course Outcomes**				
Course Objectives	1	2	3	4	5
1	X				
2		X			
3			X		
4				X	
5					X

`

Assessments

1. Assignment, 2. Internal Examination, 3. External Examination

4. Practical Projects 5. Viva

GR18A4010/ **GIS&Science**	**Course Outcomes**				
Assessments	1	2	3	4	5
1	X	X	X	X	X
2	X	X	X	X	X
3	X	X	X	X	X
4	X	X	X	X	X
5	X	X	X	X	X

GR18A4010/ **GIS&Science**	**Course Objectives**				
Assessments	1	2	3	4	5
1	X				
2		X			
3			X		
4				X	
5					X

MAPPINGS OF CO'S AND PO'S

Course Outcomes	**Geographic Information System and Science**													
	a	**b**	**c**	**d**	**e**	**f**	**g**	**h**	**i**	**j**	**k**	**l**	**PSO1**	**PSO2**
1. Analyse the basic components of GIS.	H	H	M		H	M	H		M			H		
2. Classify the maps, coordinate systems and projections.	M	M			H		H	H			H	H		
3. Process spatial and attribute data and prepare thematic maps.	H	H			H		H			H	H	H		
4. Identify and rectify mapping inaccuracies.	H	H	M	H	H		H	H		H	H	H		
5. Formulate and solve geospatial problems.	H	H			H	H	H	H	M			H	H	

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RUBRICS FOR COURSE

			Beginnings	Developing	Reflecting Development	Accomplished	Exemplary	Score
S.N	**Name of the student**	**Performance Criteria**	**1**	**2**	**3**	**4**	**5**	
1	18241A0103/ Anumatla Manoj	Analyse the basic components of GIS	Low level	Able to understand	Ability to explain	Full knowledge	Thoroughly analysing & applying	4
2		Classify the maps, coordinate systems and projections.	Low level	Able to understand	Ability to explain	Full knowledge	Thoroughly analysing & applying	5
3		Process spatial and attribute data and prepare thematic maps	Low level	Able to understand	Ability to explain	Full knowledge	Thoroughly analysing & applying	5
4		Identify and rectify mapping inaccuracies	Low level	Able to understand	Ability to explain	Full knowledge	Thoroughly analysing & applying	4
5		Formulate and solve geospatial problems	Low level	Able to understand	Ability to explain	Full knowledge	Thoroughly analysing & applying	5

Model Paper

Geographic Information System and Science

(Civil Engineering)

Time: 3 hours **Max Marks: 70**

Instructions:

1. Question paper comprises of **Part-A** and **Part-B**
2. **Part-A** (for 20 marks) must be answered at one place in the answer book.
3. **Part-B** (for 50 marks) consists of **five questions with internal choice,** answer all questions.

PART – A
(Answer ALL questions. All questions carry equal marks)
10 * 2 = 20 Marks

1. a.	Discuss Spatial and None spatial data	**[2]**	**CO1**	**BL2**
b.	Elaborate the ways to collect the data for processing	**[2]**	**CO1**	**BL1**
c.	Give a short note on tolerances	**[2]**	**CO2**	**BL2**
d.	Explain the Geo-referencing and rectification process	**[2]**	**CO2**	**BL3**
e.	Discuss and analysis on paper based maps	**[2]**	**CO3**	**BL3**
f.	List out the limitation in paper based maps	**[2]**	**CO3**	**BL3**
g.	Give a short note on Spatial analysis	**[2]**	**CO4**	**BL3**
h.	Elaborate the concept of Overlay analysis	**[2]**	**CO4**	**BL3**
i.	Explain why planning is important in any project	**[2]**	**CO5**	**BL2**
j.	Discuss the data procurement process	**[2]**	**CO5**	**BL3**

PART – B
(Answer ALL questions. All questions carry equal marks)
5 * 10 = 50 Marks

2.	(a) Discuss on Data Collection and Input and Data Conversion GIS	**[10]**	**CO1**	**BL4**

	(b) Differentiate between Raster and Vector formats			
	OR			
3.	(a) List out the major components of GIS (b) Figure out the limitation and advantages of vector over raster	**[10]**	**CO1**	**BL3**
4.	(a) List out the types of Errors during the digitization in GIS (b) Explain the Spaghetti model	**[10]**	**CO2**	**BL4**
	OR			
5.	(a) Explain the types of topology (b) Discuss the error detection and rectification	**[10]**	**CO2**	**BL4**
6.	(a) Classify the various types of maps (b) Explain the limitation and advantages of digital maps	**[10]**	**CO3**	**BL3**
	OR			
7.	(a) Differentiate between paper and digital based maps (b) Discuss the history and Developments in computer automated cartography	**[10]**	**CO3**	**BL5**
8.	(a) Explain the spatial auto correlation technique (b) Discuss the following analysis: i) Proximity analysis ii) Buffer analysis	**[10]**	**CO4**	**BL5**
	OR			
9.	(a) Explain the gravity modelling (b) Discuss the Network analysis and Neighbourhood analysis	**[10]**	**CO4**	**BL4**
10.	(a) Explain the Phases of Planning in project (b) Discuss the Tendering and Human Resources in project implementation	**[10]**	**CO5**	**BL5**
	OR			
11.	(a) Discuss the Data Procurement process and Back Up (b) Explain the monitoring progress in GIS project planning	**[10]**	**CO5**	**BL5**

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GOKARAJU RANGARAJU INSTITUTE OF ENGINEERING AND TECHNOLOGY

IV B.Tech, I Sem, I MID-Term Examinations, October 2021

GEOGRAPHIC INFORMATION SYSTEM AND SCIENCE (GR18A4010)

Department of Civil Engineering

Duration: 90min Max Marks: 15M

SUBJECTIVE

Answer any three Out of Four **3*5 = 15 Marks**

1.	List out the components of GIS	BL2, CO1
2.	Explain the raster and vector data structures	BL3, CO2
3.	Explain the Spaghetti model	BL2, CO3
4.	Classify the type errors during digitization.	BL3, CO3

GOKARAJU RANGARAJU INSTITUTE OF ENGINEERING AND TECHNOLOGY

IV B.Tech, I Sem, I MID-Term Examinations, Dec 2021

GEOGRAPHIC INFORMATION SYSTEM AND SCIENCE (GR18A4010)

Department of Civil Engineering

Name: _____ Roll Number: _____

Duration: 10Min Total Marks = 5M

Multiple Choice Questions

1. Among the available formats, which are most commonly used in case of GIS? [ ]
   a) GIF b) TIFF
   c) JPEG d) DXF
2. Which data structure required low storage [ ]
   a) Raster b) Vector
   c) TIN d) all the above
3. Study of geometric objects will come under the category of _____ [ ]
   a) Surveying b) Cartography
   c) Surface geometry d) Topology
4. Which type of data set is/are in GIS related software's? [ ]
   a) Line b) Point
   c) Polygon d) All the above
5. By 'spatial data' we mean data that has [ ]
   a) Complex values b) Positional values
   c) Decimal values d) Graphic values
6. Which of the following data structure expensive in terms of technology [ ]
   a) Raster b) Vector
   c) Can't compare d) Both A and B
7. Field survey data can be fall into [ ]
   a) Spatial data b) Attribute data
   c) Both A and B d) None of the above
8. The point data feature can be used to represent _____ [ ]
   a) Location b) Area
   c) 3D area d) Volume
9. What are the two general data formats used in GIS? [ ]
   a) Vector and raster b) Points and lines
   c) Features and attributes d) Digital and paper maps
10. The polygonal data feature uses which of the following data format? [ ]
    a) Scientific character b) Math
    c) Character d) Integer

GOKARAJU RANGARAJU INSTITUTE OF ENGINEERING AND TECHNOLOGY

IV B.Tech, I Sem, II MID-Term Examinations, Dec 2021

GEOGRAPHIC INFORMATION SYSTEM AND SCIENCE (GR18A401Department of Civil Engineering

Duration: 90min Max Marks: 15M

SUBJECTIVE

Answer any three Out of Four **3*5 = 15Marks**

1. Discuss about digital maps BL1, CO3
2. Differentiate between digital and physical maps along with their merits and demerits BL3, CO3
3. Explain the following terms Proximity Analysis, Overlay Analysis, Buffer Analysis BL2, CO4
4. Discuss phases of Project Planning BL4,CO5

IV

GOKARAJU RANGARAJU INSTITUTE OF ENGINEERING AND TECHNOLOGY

B.Tech, I Sem, I MID-Term Examinations, Dec 2021

GEOGRAPHIC INFORMATION SYSTEM AND SCIENCE (GR18A4010)

Department of Civil Engineering

Name: _____ Roll Number: _____

Duration: 10Min Total Marks = 5M

Multiple Choice Questions

1. Which are most commonly used in case of GIS? [ ]
   a) GIF b) TIFF
   c) JPEG d) DXF
2. Which data structure required high storage [ ]
   a) Raster b) Vector
   c) TIN d) all the above
3. Study of geometric objects will come under the category of _____ [ ]
   a) Surveying b) Cartography
   c) Surface geometry d) Topology
4. Which type of data set is not in GIS related software's? [ ]
   a) Line b) None-pint
   c) Polygon d) Point
5. By spatial data' we mean data that has [ ]
   a) Attribute b) Positional values
   c) Graphic values d) All the above
6. Which of the following data structure low expensive in terms of technology [ ]
   a) Raster b) Vector
   c) Can't compare d) Both A and B
7. Pseudonode means: [ ]
   a) Extra node on top of another b) Polygon overlapping
   c) Two lines not connected d) none of the above
8. Sources of Errors _____ [ ]
   a) Age of data b) Formatting
   c) Qualitative & Quantities d) All of the above
9. which of the following is manually updated? [ ]
   a) Physical data b) Digital data
   c) Both a and b d) None of the above
10. Which of the following works involves modeling? [ ]
    a) Tectonic plate movement b) Drainage Network
    c) Roadway line d) Railway line

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Department of Civil Engineering

INTERNAL MARKS MID-I & MID-II SECTION – A & B

MID II EXAMINATION -2021-22

Roll Number	MID I	MID II	TUTORIAL	ASSESSMENT
17241A0153	11	12	4	3
17241A0157	10	13	4	3
18241A0101	13	18	4	3
18241A0102	19	19	4	4
18241A0103	15	17	5	4
18241A0104	16	17	4	4
18241A0105	14	18	4	3
18241A0106	11	8	4	4
18241A0107	17	15	4	3
18241A0108	19	17	5	5
18241A0109	9	12	5	4
18241A0110	19	17	5	5
18241A0111	13	17	4	4
18241A0112	19	18	5	5
18241A0113	19	17	5	4
18241A0114	19	16	5	5
18241A0115	20	14	5	4
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19245A0104	18	19	4	4
19245A0105	19	18	4	5
19245A0106	14	17	4	4

MID I EXAMINATION -2021-22 Section -B				
Roll Number	**MID I**	**MID II**	**TUTORIAL**	**ASSESSMENT**
16241A0161	10	12	4	4
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19245A0109	17	17	5	5
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19245A0111	20	17	5	5
19245A0112	19	17	4	5

Gokaraju Rangaraju Institute of Engineering and Technology
Department of Civil Engineering
Mid sample script

Gokaraju Rangaraju Institute of Engineering & Technology
(Autonomous College Affiliated to JNTUH) (12 Pages)
Bachupally, Kukatpally, Hyderabad - 500090

M. Sathwik

I | II **MID TERM EXAMINATION**

No. 951715

H.T. No. 1 9 2 4 1 A 0 1 8 5

Name of the Examination IV. B.Tech - I - Semester - Mid - II.

Course CIVIL (B.Tech) Branch CIVIL Date 15/11/22

GISdS. Signature of the Invigilator

Q.NO.	1		2		3		4		5		6		TOTAL
	a	b	a	b	a	b	a	b	a	b	a	b	
MARKS			5		3		5						13

START WRITING FROM HERE

2 Any

physical Maps	Digital maps.
→ It requires physical space. for storage.	→ It requires digital space.
→ It is available in physically.	→ It is digitally available.
→ Scale of the map is limited.	→ Scale of the map is limitless.
→ All the features cannot show at once.	→ All the features can be showed at once.
→ It is static.	→ It is dig dynamic.
→ Skilled persons required to create maps.	→ Skilled persons are not necessary for the creation of maps

→ It is not updated easily.	→ It can be updated easily.
→ Features are represented with colour and symbols	→ Features are represented with out or with colours.

Advantages and Disadvantages of Digital maps.

1) Digital Space:- It requires digital space. it can be access with internet connection.

2) Availability:- This maps can be available in digital format. which can be downloaded for free

3) Scale of the map:- the scale of the map is limitless. As we can zoom the layers where we have interest.

4) All the features can be showed at once:- The features present on the land can be represented at a time with full of clarity.

5) Features colours:- The colours of the features represented has are with. Such as for water bodies.- blue colour. Vegetation green colour etc.

Advantages and Disadvantages of physical Maps.

1) physical storage:- For storaging it requires physical space. once we download we must print it on the paper

2) Availability:- these maps are avilable offline. which we can touch and feel.

3) Scale of the map:- the scale of the map is restricted to certain area. because we can't zoom it on paper. as this is available in physical format

4) All the features cannot be showed at once:- It is very diticult to show all the features on one map. It is highly impossible. in one map. but we can see all features through multiple maps

5) Features:- the avilable features are represented with colour and symbols.

3Ans) Proximity Analysis :-

In this Analysis is ~~used~~ to ~~identify~~ the geographical features are selected (point, line, polygon) by measuring distance from other physical features.

→ Distance between any objects are measured by taking a feature as reference.

→ The distance between the objects are shown by straight line in Network.

→ For example, if we want to known the distance between two points.

→ First we need to select the point A and the second point B. using gis software joint it.

→ The measured distance. and the features are known to us. Such as area in acre etc.

Overlay Analysis :-

The process of merging two (or more maps by one after another in sequence order is known as overlaying.

→ The layers must have same area.

→ It should in the same format like raster (or) vector.

→ Generally thematic maps are used for overlaying purpose it may consists of points, line and polygon.

→ By overlaying using gis, the data is analysed and shows the map which contains all information about the map.

→ overlaying maps are three types.

1) Raster overlaying
2) Topographical overlaying
3) Vector overlaying.

4Ans:- Phases of project planning

There are Five stages are available

1) planning.
2) Requirement Development.
3) Design.
4) Developed System and Implementation
5) operation and maintance.

① planning:-

→ In this stage, Scope and general plan of the project is selected.

→ It includes various catageories.

(i) Scope:- The scope, nature and of the project is useful for the future planning and implementation

(ii) Participants :- the general participants are users, organizers, and Stake holders.

(iii) Resources:- the resources required for this are money, time and Staff members.

(iv) Approach:- Approch is essential in order to fulfill the planned target.

② Requirement Development:-

→ The user requirements are taken for the development purpose.

→ It required detailed information, which includes.

→ the need and functionality of the project

→ the benifits of the projects

→ If any problems occured, resolve it.

③ Design:-

→ By intiegrating all developed and planned data together

→ It consists of following.

(i) Data base:- Data base is the essential for the project most of the budget is invested for this.

(ii) Software:- It requires OS, software, Hardware and need software for procen.

(iii) Staff:- Additionally, it requires staff members whose are responsible for each and every step of the project.

④ Implementation :-

→ the collected data is analysed by Contributors all together to produce a product

→ Implementation is the most important and care should be taken.

⑤ Operation and maintance :-

→ After implementation, the product should be operated.

→ At this stage the performance of the product is known.

→ this is the last stage of the project

Gokaraju Rangaraju Institute of Engineering and Technology
Department of Civil Engineering
Assignments sample Script

Assignment -3 | 1424-14A0140 Patil-Apoorva

① Types of Resolutions explain in det

Ans ① Spatial Resolution :- The measure of smallest angular or linear seperation between two objects that can be resolved by the sensor.
IRS 1C/1D PAN 5.8 Mt, WIFS 188-3 Mt,

② Spectral resolution :- Refers to the band width and the no. of bands used for collecting the data.
IRS 1C/1D LISS III 4 Bands,

③ Radiometric resolution :- Refers to the no of quantisation levels into which the radiant flux reflected from the scene elements is recorded.
IRS 1C/1D PAN 6 Bits,

④ Temporal resolution :- Refers to the frequency of collection of data or the time interval between repetitive coverage of an area. It is vital for monitoring changes with.
IRS 1C/1D PAN 5 Days, LISS III 24 Days.

Assignment - 2
GI's

Jayath Reddy
142411A136

(1) Resolution :-

Spatial Resolution.

The measure of smallest angular or linear (Seperation between two objects that can be resolved by Sensor

IRS 1c/1D PAN 5.8 Mt, WIFS 188.3 Mt, LISS III 23.5 & 70.5 Mt; NOAA AVHRR 1.1 KM at nadir and 2.4 & 6.9 KM offnadir etc.

Spectral Resolution

Refers to the band width and the no. of bands used for collecting the data.

IRS 1c/1D LISS III '4 Bands', Landsat 7, ETM '8 Bands, Seasat CZCS 6 Bands

Radiometric Resolution

Refers to the no. of quantisation levels into which the radiant flux reflected from the Elements is recordes IRS 1c/1D PAN 6 Bits, LISS III 7 Bits

Inter relation Ship among above Three

large IFOV — H.R.S, L.S.Y.

large bandwidth — H.R.S, L.S.Y.

Temporal Resolution.

Refers to the frequency of collection of data or the time interval between repetitive coverage of an area is vital for monitoring changes with IRS 1C/1D PAN 5 days, LISS III 24 days NOAA AVHRR half day for one day for visible, MOS 1 & 1a MESSR, VTIR and MSR 17 days etc

Assignment - 1

P. Naresh

Remote Sensing and GIS

1. What are the Essential components of a Remote Sensing?

A. The Essential components of a Remote Sensing System are

① A uniform Energy source:- This would provide energy over all wave lengths so as to produce high level output irrespective of time and place.

② A non-Interfering atmosphere:- This type of atmosphere would not modify the energy from the source

③ A series of unique energy / matter interactions at the Earth's surface:- These interactions would generate reflected (or) Emitted signals which are not only selective with respective wave length but also are in variant and unique to each and every Earth surface feature.

④ A super sensor:- A sensor highly sensitive to all wave lengths yielding spatially detailed data on the absolute height - ness from a scene as a function of wave length throughout the spectrum.

⑤ A real time data handling system:- In this system as soon as the radiance Vs Wavelength responses over a terrain element is generated it would be processed into an interpretable formate and then reorganized as unique to the particular terrain element from which it is received.