## Programme Outcome (PO) and Course Outcome (CO)

Name of the Department MASTER OF ARTS IN GEOGRAPHY

| Programme Outcomes (PO) | Short Title of the POs | Description of the Programme Outcomes<br><br>Graduates will be able to : |
|---|---|---|
| PO-1 | Problem Analysis and Solutions | Think critically, identify, analyze problems/ situations and further attempt to design/ develop solutions that meet the specified goals. |
| PO-2 | Use of Technology | Apply appropriate IT tools efficiently in their daily activities of communication and academics. |
| PO-3 | Environment and Sustainability | Analyze and attempt solutions to environmental issues and commit themselves to sustainable development in the local/ national and global context. |
| PO-4 | Ethics | Recognize and understand professional ethics /human values and be responsible for the same. |
| PO-5 | Individual and Team work | Function effectively at various levels, capacities and situations. |
| PO-6 | Communication | Communicate proficiently (oral and written) as a responsible member of society. |
| PO-7 | Research Aptitude | Understand general research methods and be able to analyse, interpret and derive rational conclusions. |
| PO-8 | Life Skills | Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of domain specific change. |

Program specific outcomes (PSO)

After successful completion of a Master's degree in Geography, the student will:

| **Program outcome(PO)** | **Short Title of PSOs** | **Description of the program outcomes** |
|---|---|---|
| PSO 1 | Map Skills | Students will be able to read, interpret and generate maps and other cartographic representations from temporal and spatial perspectives. |
| PSO2 | Fundamentals of Geography | Students will be able to understand fundamentals of geography (physical, human and regional) in general and apply in specialized domains of geography. |
| PSO3 | Research Skills | Students will be able to present completed research including review of literature, methodology and discussion and utilize cartographic tools and other visual formats both orally and in written formats. |
| PSO4 | Practical Skills | Students will be able to understand various theoretical and methodological approaches, including quantitative as well as qualitative data in physical and human geography through practical, fieldworks and presentations. |

| S.N. | Course Code | Course Title | Course Outcomes |
|---|---|---|---|
| 1 | PG.GEG.C1 | Advanced Geomorphology | CO1: Understand the dynamics of the physical geography including the origin of the Earth and its evolution through geologic time and related topographic ad structural evolution.<br>CO2: Understand and explain how the endogenous and exogenous processes shape landforms and distinguish the mechanisms that control these processes.<br>CO3: Analyze the relationship between folding, faulting, volcanic activity and plate tectonics.<br>CO4: Outline the early development of geomorphology and the people involved with its development.<br>CO5: Understand how different scales of time and space affect geomorphological processes.<br>CO6: Differentiate between the general degradational processes of rock weathering and their effects on landforms.<br>CO7: Describe the morphology and evolution of landscapes and related processes in areas influenced by fluvial, glacial, periglacial, aeolian, karst, and coastal systems.<br>CO8: Understand landform development by various theories.<br>Analyze geomorphological issues at global, regional and local scale and application of geomorphology to solve realistic problems |
| 2 | PG.GEG.C2 | Advanced Climatology | CO1: Develop basic knowledge of atmospheric weather and climate and the structure of the atmosphere.<br>CO2: Understand and explain how temperature, pressure, humidity and wind motion vary in time and space and their effect on weather.<br>CO3: Knowledge about meteorological observations and measurements.<br>CO4: Describe climatic diversity over the Earth and knowledge of the climatic zones.<br>CO5: Describe the global circulation of the atmosphere, frontal systems and atmospheric motions.<br>CO6: Ability to perform climatological analysis on the basis of meteorological data. |
| 3 | PG.GEG.C3 | Practical in Geomorphology and Climatology | CO1: Understand Geomorphic data and its importance<br>CO2: Create different types of thematic maps and |

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| | | | interpreting the results.<br>CO3: Apply different statistical methods used in geomorphological data.<br>CO4: Understand and apply geomorphic signs and symbols and to understand geomorphic pattern on field.<br>CO5: Use geomorphologic data to communicate effectively by creating graphs and charts.<br>CO6: Understand the importance of climatic data in day to day life.<br>CO7: Apply statistical data in a given climatic datasets.<br>CO8: Understand and analyze the relationship between different climatic data like rainfall & temperature, height & temperature, Normal lapse rate & Dry adiabatic rate.<br>CO9: Create results and graphs; and build up their interdependence.<br>CO10: Use climatic data to communicate effectively by creating graphs and charts. |
| 4 | PG.GEG.E1 | Introduction to Tourism | CO1: At the end of this course students are expected to have a holistic understanding of fundamental concepts of tourism and tourist resources in India and thereby be able to analyze the interrelationships among them.<br>CO2: Students will be able to demonstrate an awareness and sensitivity to retail and tourism management operations in an international marketplace.<br>CO3: Demonstrate the ability to critically evaluate and compare diverse perspectives in the retailing and tourism management industry. |
| 5 | PG.GEG.E2 | Rural Studies | CO1: Apply their knowledge and understanding, and problem-solving abilities, to independently identify rural development issues from a geographical perspective.<br>CO2: Demonstrate an ability to critically and systematically integrate knowledge, to analyze and assess complex phenomena and issues in the fields of rural development.<br>CO3: Identify and analyze specific urban and rural development needs; and demonstrate an ability to clearly present and discuss conclusions, and the arguments, orally and in writing. |
| 6 | PG.GEG.E3 | Geography of Environment | CO1: Understand human-environment interactions and environmental problems – their causes, effects and remedies. |

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| | | | CO2: Evaluate the impacts of human activities on natural environments with special reference to India.<br>CO3: Understand environmental hazards and management.<br>CO4: Show awareness and responsibility towards the environment. |
| 7 | PG.GEG.E4 | Advanced Regional Geography | CO1: Students will be able to comprehend the global trends and their relation to the physical and socio-economic issues. |
| 8 | PG.GEG.C4 | Geography of Population | CO1: Understand the nature, scope and approaches of population geography<br>CO2: Understand concepts like fertility, mortality, migration, gender and urbanization<br>CO3: Apply population theories and models in the present day context<br>CO4: Conduct mini research on population using approaches in population geography |
| 9 | PG.GEG.C5 | Advanced Economic Geography | CO1: On completion of this course, student will gain insights of the various concepts in economic geography and its approaches. Students will able to link economic development with the geo-spatial data. |
| 10 | PG.GEG.C6 | Practicals in Population and Economic Geography | CO1: The knowledge drawn from this course will acquaint students in analyzing and interpreting statistical data from Census documents, reports, etc and aid in drawing effecting conclusions. |
| 11 | PG.GEG.C7 | Basics of Geographical Thought | CO1: At the end of this course, student will gain sense of chronological organization and areal variation in human activities. The students will be able to evaluate theoretical concepts from geography and elsewhere; and be able to demonstrate an understanding of the dynamic and contested nature of the discipline and its contemporary issues. |
| 12 | PG.GEG.C8 | Basics of Research Methodology | CO1: Understand the importance of review of literature in research<br>CO2: Develop skills of writing review of literature<br>CO3: Understand and use different referencing skills<br>CO4: Create hypothesis/formulate<br>CO5: Critically assess literature review/research paper |
| 13 | PG.GEG.E5 | Advanced Regional Geography of India | CO1: On completion of this course, the students will understand the issues related of disparities in various regions of India. Students will gain a firm knowledge base of various regions in |

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| | | | India and its resource distributions, particularly from the perspective of physical, environmental and human perspective. |
| 14 | PG.GEG.E6 | Urban Development and Processes | CO1: On successful completion of the course, it is intended that each student will have achieved an understanding of:<br>i) Application of theoretical knowledge to practical case studies or selected urban set ups.<br>ii) Will be able to undertake mini research on selected urban issues.<br>CO2: Explain and evaluate historical and contemporary global urbanization processes;<br>CO3: Understand the social, economic, demographic dimensions metropolitan areas and impacts country side (city region). |
| 15 | PG.GEG.E7 | Islands of Indian Ocean | CO1: Students will be able to understand the significance of geo-political location of islands.<br>CO2: Students will be able to understand and analyze the role of history in growth and development of oceanic islands.<br>CO3: Students will be able to critically identify, enquire and reflect on the threats, environmental as well as human, to the Indian Ocean Islands. |
| 16 | PG.GEG.E8 | Techniques of Academic Report Writing | CO1: The students will understand the various components of academic writing and field report.<br>CO2: The students will be able to formulate effective statement of argument and validate the same<br>CO3: The students will be able to use and apply referencing style as per the requirement of the course. |
| 17 | PG.GEG.E9 | Geography of Tourism | CO1: At the end of this course students are expected to have a holistic understanding of fundamental concepts of tourism and tourist resources in India and thereby be able to analyze the interrelationships among them.<br>CO2: Understand and describe spatial patterns of international and domestic tourism.<br>CO3: Understand and describe spatial patterns of international and domestic tourism.<br>CO4: Identify tourism actors and career opportunities in tourism. |

**Parvatibai Chowgule College of Arts & Science**
**(Autonomous)**
**Margao – Goa**

# MINUTES OF MEETING OF THE BOARD OF STUDIES IN PSYCHOLOGY

## HELD ON 06TH March 2020 AT 10.00am

Vide Chowgule College notice (F.133(C)/1944 dated 19th February, 2020) a meeting of this BoS was convened on 06th March, 2020 in the conference room, Parvatibai Chowgule College of Arts & Science, Margao – Goa. Since the number of members present represented the Quorum, the BoS began its proceedings.

Minutes are presented in the format.

Members present:

1. Mrs. Sobita Kirtani - Chairperson
2. Mr. Aresh Naik – Member Secretary
3. Dr. Ubaldina Noronha – Vice-Chancellor's Nominee
4. Dr. Shanmukh Vasant Kamble – Academic Council Nominee
5. Dr. Aldina Braganza – Academic Council Nominee
6. Dr. Ravindra Agrawal – Industry Representative
7. Ms. Aditi Tendulkar - Alumni
8. Ms. Aiswarya M. Babu – Member
9. Dr. Golda Vas - Member
10. Ms. Shobika Jaju – Member
11. Ms. Rochelle Pereira – Member
12. Ms. Pranita Kalangutkar – Member
13. Ms. Tanya Keni – Member
14. Ms. Asawari Nayak - Member

Proceedings

The Chairperson welcomed the members of the Board of Studies (BoS). The Chairperson introduced and explained the agenda for the meeting and Board transacted the following business:

Agenda Items:

1. To approve changes in UG Syllabus.
2. To approve changes in PG Syllabus.
3. Any Other Business

PART A: Resolution:

**For the UG Section**

i. The BoS passed the resolution to approve changes in the syllabus to the following courses at the undergraduate program.

| Course Titles | Code | Nature of course |
|---|---|---|
| Basic Course in Psychology | PSY-I.C-1 | Core |
| Emotional Development | PSY-I.C-2 | Core |
| Basics of Counselling | PSY-II.C-4 | Core |
| Experimental Psychology | PSY-V.C-7 | Core |
| Psychological Testing | PSY-VI.C-8 | Core |
| Psychopathology I | PSY-III.C-5 | Core |
| Psychopathology II | PSY-IV.C-6 | Core |
| Cognitive Psychology | PSY-V.E-9 | Elective |

**For the PG Section**

ii. The BoS passed the resolution to approve changes in the syllabi of the following courses in the postgraduate program.

| Course Titles | Code | Nature of course |
|---|---|---|
| Counselling Therapies for Children II | PG-PSY-III.S-5 | Core |
| Pediatric Psychology | PG-PSY-III.E-7.1 | Elective |
| Child and Crime | PG-PSY-III.E-8.1 | Elective |
| Management of Learning Disabilities | PG-PSY-IV.S-7 | Core |
| Rehabilitation Psychology | PG-PSY-IV.E-9.1 | Elective |
| Counselling with Parents | PG-PSY-IV.E-10.1 | Elective |

PART B: Important Points/ recommendations of BoS that require consideration / approval of Academic Council:

**For the UG Section**

i. Approval for changes in the syllabi to the following courses at the undergraduate program.

| Course Titles | Code | Nature of course |
|---|---|---|
| Basic Course in Psychology | PSY-I.C-1 | Core |
| Emotional Development | PSY-I.C-2 | Core |
| Basics of Counselling | PSY-II.C-4 | Core |
| Experimental Psychology | PSY-V.C-7 | Core |
| Psychological Testing | PSY-VI.C-8 | Core |

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| Psychopathology I | PSY-III.C-5 | Core |
| Psychopathology II | PSY-IV.C-6 | Core |
| Cognitive Psychology | PSY-V.E-9 | Elective |

**For the PG Section**

i. Approval for changes in the syllabi of the following courses in the postgraduate program.

| Course Titles | Code | Nature of course |
|---|---|---|
| Counselling Therapies for Children II | PG-PSY-III.S-5 | Core |
| Pediatric Psychology | PG-PSY-III.E-7.1 | Elective |
| Child and Crime | PG-PSY-III.E-8.1 | Elective |
| Management of Learning Disabilities | PG-PSY-IV.S-7 | Core |
| Rehabilitation Psychology | PG-PSY-IV.E-9.1 | Elective |
| Counselling with Parents | PG-PSY-IV.E-10.1 | Elective |

The foregoing minutes of the meeting were read out by the Member Secretary at the meeting itself and they were unanimously approved by all the members present.

1. Mrs. Sobita Kirtani - Chairperson
2. Mr. Aresh Naik – Member Secretary
3. Dr. Ubaldina Noronha – Vice-Chancellor's Nominee
4. Dr. Shanmukh Vasant Kamble – Academic Council Nominee
5. Dr. Aldina Braganza – Academic Council Nominee

6. Dr. Ravindra Agrawal – Industry Representative
7. Ms. Aditi Tendulkar - Alumni
8. Ms. Aiswarya M. Babu – Member
9. Dr. Golda Vas - Member
10. Ms. Shobika Jaju – Member
11. Ms. Rochelle Pereira – Member
12. Ms. Pranita Kalangutkar – Member
13. Ms. Tanya Keni – Member
14. Ms. Asawari Nayak - Member

Date: 06th March, 2020 Signature of the Chairperson

(Sobita Kirtani)

PART C: The remarks of the Dean of the Faculty: -

a. The minutes are in order
b. The minutes may be placed before the Academic Council with remark, if any.
c. Important points of the minutes which need clear policy decision of the Academic council to be recorded.

Date:

Signature of the Dean: _____

# M.A. in Child Development & Child Psychology

## PROGRAMME OUTCOMES

| Programme Outcomes (PO) | Short Title of the POs | Description of the Programme Outcomes<br><br>Post Graduates will be able to: |
|---|---|---|
| PO-1 | Analysis | Describe overall physical, cognitive & emotional development across the lifespan & distinguish between age and gender specific development. |
| PO-2 | Ethics | Recognize and understand professional ethics /human values and be responsible in therapy/Child counselling settings |
| PO-3 | Communication | Communicate effectively (oral and written) as a responsible person in the society. |
| PO-4 | Research Aptitude | Review literature, understand general research methods and be able to analyse, interpret and derive rational conclusions. |
| PO-5 | Life Skills | Apply concepts learnt in psychology to real life situations |
| PO-6 | Critical Thinking | Analyse/Review cases, movies, books etc underpinning the psychological concepts |
| PO-7 | Planning & Implementation | Prepare and implement workshop modules, therapeutic strategies and community awareness programs on topics related to mental health |
| PO-8 | Counselling Skills | Identify mental health disorders among the clientele (children and adolescents) and provide counselling in schools. |
| PO-9 | Community outreach | Coordinating with the community (state agencies, institutions, workplaces, etc.) toward the betterment of the society's mental health |
| PO-10 | Testing | Be able to conduct screening and assessments tools. |

| **PROGRAMME SPECIFIC OUTCOMES (PSO) of Post Graduate Department of Psychology**<br>After successful completion of a Master's degree in Psychology, the students will: | | |
|---|---|---|
| PSO-1 | Testing | Assist in screening and psychometric assessments |
| PSO-2 | Screening & Intervention | Identify children with learning disabilities and design intervention programs for the same |
| PSO-3 | Content Development/ Workshop Module and delivery | Develop workshop modules and conduction of workshops on any topic related to children and adolescents |
| PSO-4 | Career development programs | Design career development programs for school children |
| PSO-5 | Classroom management | Handle problem students and motivate them effectively while handling the course curriculum |
| PSO-6 | School Counselling | Provide counselling to school children/ early adolescents |

Course Outcomes

| Sr. No | Course Code | Course Title | Course Outcomes |
|---|---|---|---|
| 1. | PG-PSY-I.C-1<br>(Core Theory) | **Child Development** | CO1. Understand prenatal development and processes involved in child birth.<br>CO2. Describe human development from all perspectives.<br>CO3. Differentiate between physical, cognitive and socioemotional development during infancy, early and late middle childhood.<br>CO4. Apply the different aspects of child development in real life counselling settings. |

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| | | | CO5. Evaluate the transitions in child development in various developmental periods.<br><br>CO6. Analyse the causes for developmental disabilities and abnormalities.<br>CO7. Critically evaluate theories.<br>CO8. Distinguish between intelligence amongst different cultures.<br>CO9. Distinguish between slow learners and gifted children.<br>CO10. Devise effective strategies to enhance memory skills among children.<br>CO11.Evaluate various parenting styles.<br>CO12. Understanding various developmental milestones which helps in counselling settings. |
| 2. | PG-PSY-I. S-1<br><br>**(**Core Skill based**)** | **Practicum** | CO 1. Communicate effectively<br><br>CO 2. Devise and deliver workshops related to important topics of mental health care specially targeted at children & adolescents.<br><br>CO 3. Comparative analysis in personality, developmental and intelligence tests.<br><br>CO 4. Establish rapport building skills needed in counselling settings.<br><br>CO 5. Conduct psychometric tests for both children and adolescents.<br><br>CO6. Write reports, Take case histories of Children & adolescents. |

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| | | | CO7. Understand different neuro-cognitive psycho diagnostic tests.<br>CO8. Understand different behaviour rating scales.<br>CO9. Analyse difference in objective and subjective personality tests.<br>CO10. Analyse differences in verbal and non-verbal tests of intelligence.<br>CO11. Develop interviewing skills required in clinical settings |
| 3. | PG-PSY-I. S-2<br><br>(Core Skill-based) | **Case Studies in Child Development** | CO 1. Identify children's strengths and behaviours that require intervention.<br>CO2. Record the pattern of interaction and behaviour of children with others.<br>CO3. Analyse causes of faulty behaviours in children<br>CO4. Recommend therapeutic treatment |
| 4. | PG-PSY-I. E-1.1<br><br>(Elective-theory) | **Research Methodology for Psychology** | CO1. Describe and distinguish between various research processes.<br>CO2. Formulate a research proposal<br>CO3. Understand ethics involved in research<br><br>CO4. Distinguish between various research designs.<br>CO5. Design experiments and research problems |

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| | | | CO6. Understand sampling methods used in data collection<br>CO7. Critically review literature<br>CO8. Prepare Research report in APA format |
| 5. | PG-PSY-I. E-2.1<br><br>(Elective-theory) | **School Counselling** | CO1. Realize the significance of school counselling;<br>CO2. Understand the qualities of a school counsellor.<br>CO3. Identify & appreciate the roles of a school counsellor;<br>CO4. Realize the importance of ethics in school counselling<br>CO5. Understand and be able to conduct interventions for special cases within the school context.<br>CO6. Learn and be able to conduct career guidance for elementary, secondary and higher secondary students.<br>CO7. Communicate effectively as a counsellor |
| 6. | PG-PSY-I. E-3.1<br><br>(Elective-theory) | **Positive Psychology** | CO1. Describe positive emotions and differentiate it from positive affect.<br>CO2. Critically evaluate the role of Positive Emotions in happiness & wellbeing<br>CO3. Describe the process of mindfulness.<br>CO4. Conduct basic mindfulness meditation sessions.<br>CO5. Analyse positive psychology from eastern and western perspective<br>CO6. Describe the factors which influence happiness and subjective well-being. |

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| | | | CO7. Classify the virtues of strengths in character and well being<br>CO8. Describe the significance of positive psychology as a therapeutic technique.<br>CO9. Explain in detail the growth through trauma<br>CO10. Critically evaluate positive effects & negative effects of trauma |
| 7. | PG-PSY-II.C-2<br><br>(Core-theory) | **Child Psychopathology** | CO1. Identify & describe the neurodevelopmental disorders experienced in childhood.<br>CO2. Identify & describe the other common disorders of childhood, including the eating, anxiety, & attachment disorders.<br>CO3. Use the DSM-V, which is the international handbook for mental disorders.<br>CO4. Describe the risk & protective factors responsible for childhood disorders.<br>CO5. Use a diagnostic framework to work with children and adolescents.<br>CO6. Plan, prepare & conduct psycho-educational sessions for mental health disorders.<br>CO7. Apply their understanding of the developmental psychopathology in their interactions with clients on the field. |
| 8. | PG-PSY-II. S-3<br><br>(Core Skill based) | **Counselling Therapies for Children I** | CO1. Understand the importance of the child counsellor relationship |

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| | | | CO2. Develop the qualities required for a counsellor<br>CO3. Understand the internal processes of a child during therapy<br>CO4. Enable to handle a resistant or difficult child during therapy<br>CO5.To develop effective listening skills<br>CO6. To understand and apply techniques of REBT in real problem situations<br>CO7. To effectively use play as a therapeutic tool<br>CO8. Be able to formulate behavior modification plans for children<br>CO9. To be able to successfully psycho-educate the parents<br>CO10. To effectively use audio visual aids in psychoeducation<br>CO11. Describe art-based therapies and use techniques in sessions<br>CO12. Describe the various gestalt techniques in therapy settings. |
| 9. | PG-PSY-II. S-4<br>(Core Skill-based) | **Case studies in Child Psychopathology** | CO1. Identify children's strengths and behaviours that require intervention.<br>CO2. Record the pattern of interaction and behaviour of children with others. |

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| | | | CO3. Analyze causes of faulty behaviours in children.<br>CO4. Recommend therapeutic treatment |
| 10. | PG-PSY-II.E-4.1<br>(Elective-theory) | **Advanced Statistics for Psychology** | CO1. 1. Understand the advanced statistical procedures used in Psychology.<br>CO2. Differentiate between Parametric and Non-parametric statistical procedures.<br>CO3. Differentiate between Techniques used for causal connections and establishing relations.<br>CO4. Apply learnt statistical techniques in designing research.<br>CO5. Understand and conduct Normality testing.<br>CO6. Process and analyse the data using SPSS Software. |
| 11. | PG-PSY-II.E-5.1<br>(Elective-theory) | **Psychology of Adolescence and adulthood** | CO1. Describe the physical, cognitive & emotional development among adolescents.<br>CO2. Describe the challenges faced by adolescents during everyday life.<br>CO3. Conduct counselling sessions with adolescents and their parents.<br>CO4. Apply their understanding of adolescent's concerns in developing awareness programs at the community level.<br>CO5. Evaluate the patterns of adjustment among adolescents. |

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| | | | CO6. Analyse the various mental health concerns present among adolescents.<br>CO7. Analyse threats to adolescent development.<br>CO8. Distinguish between adolescent development in western countries versus that of the Indian society.<br>CO9. Describe the physical, cognitive & emotional development during adulthood.<br>CO10.Describe the challenges faced during adult life.<br>CO11. Evaluate the support system available during the last stages of life.<br>CO12. Conduct basic counselling sessions with people of all age groups.<br>CO13. Evaluate the transition from one phase of life into another.<br>CO14. Analyse the various mental health concerns present among adults.<br>CO15. Identify core areas of adult development which require more attention from a therapeutic perspective. |
| 12. | PG-PSY-II.E-6.1<br><br>(Elective-theory) | **NGO Management** | CO1. Understand and explain the steps involved in registration of an NGO<br>CO2. Describe the processes involved in management of an NGO |

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| | | | CO3. Describe the various NGOs and Government schemes<br>CO4. Develop skills required for volunteering in NGO's |
| 13. | PG-PSY-III.C-3<br>(Core-Theory) | **Counselling Approaches** | CO1. Describe various counselling approaches.<br>CO2. Distinguish the different therapeutic techniques and relationships in each counselling approach.<br>CO3.Apply various counselling approaches in client settings. (child and adolescent)<br>CO4. To analyse cases using different counselling approaches.<br>CO5. To devise/formulate therapeutic intervention based on a given counselling approach. |
| 14. | PG-PSY-III-S-5<br>(Core Skill-based) | **Counselling Therapies for Children II** | CO1. Develop skills to counsel children in groups<br>CO2. Apply family therapy to handle disputes in the family<br>CO3. Construct behaviour intervention plans for problem behaviour<br>CO4. Integrate alternative therapies as an adjunct to main therapies |
| 15. | PG-PSY-III.S-6<br>(Core Skill-based) | **Case studies – way to understand Psychotherapies** | CO1. Identify children's strengths and behaviours that require intervention.<br>CO2. Record the pattern of interaction and behavior of |

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| | | | children with others.<br><br>CO3. Analyse causes of faulty behaviours in children<br><br>CO4. Recommend therapeutic treatment. |
| 16. | PG-PSY-III.E-7.1<br><br>(Elective-theory) | **Pediatric Psychology** | CO1. Identify various coping mechanisms to help children with long term illnesses, tragic losses and disabilities.<br><br>CO2. To be able to understand the role of counsellor in pediatric set up.<br><br>CO3. To understand the role of empathy and sensitization in paediatric setup.<br><br>CO4. Deal with child illnesses more effectively by equipping them with strategies that would serve them to manage their own fears, anxieties and stresses.<br><br>CO5. To understand adherence in pediatric setup and use effective strategies to improve adherence in pediatric medical regimens<br><br>CO6. To devise/formulate intervention models to be able to deal with children suffering from long term illness.<br><br>CO7. Devise school reintegration models.<br><br>CO8. Be able to highlight and compare the various effective & emerging treatments in Pediatric Psychology |
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| 17. | PG-PSY-III.E-8.1<br><br>(Elective-theory) | **Child and Crime** | CO1.Analyze the impact of the risk factors which predispose children to committing or becoming a victim of crime.<br>CO2. Assess the way in which protective factors prevent children from committing crime.<br>CO3. Apply the developmental trajectory of childhood victimization in understanding victimization impact.<br>CO4. Develop interventions based on the developmental dimensions model of childhood victimization impact.<br>CO5. Analyse the efficacy of the preventive strategies to reduce childhood crime.<br>CO6. Apply intervention strategies to help the victims of crime as well as juvenile offenders. |
| 18. | PG-PSY-IV.C-4<br><br>(Core-Theory) | **Children with**<br><br>**Disabilities and**<br><br>**Understanding**<br><br>**Special needs** | CO1. Identify children with various disabilities/ special needs.<br>CO2. To understand the nature and causes of disabilities<br>CO3. To be able to differentiate between the severity of disabilities<br>CO4. Develop strategies to improve social skills<br>CO5. Be able to teach children self-management skills<br>CO6.To draw up an intervention plan for affected children<br>CO7.To develop practical activities and intervention strategies for gifted children |
| 19. | PG-PSY-IV. S-7<br><br>(Core Skill-based) | **Management of Disabilities** | CO1. Conduct screening for learning disabilities and arrive at a diagnosis<br>CO2. Develop and implement intervention techniques for learning disabilities. |

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| | | | CO3. Apply the strategies to the school curriculum<br>CO4. Appraise the progress of the child in school and modify strategies if required. |
| 20. | PG-PSY-IV. S-8<br><br>(Core Skill-based) | **Case Studies**<br><br>**in Childhood**<br><br>**Disabilities and**<br><br>**Understanding**<br><br>**Special needs** | CO1. Identify children's strengths and behaviours that require intervention.<br><br>CO2. Record the pattern of interaction and behaviour of children with others.<br><br>CO3. Analyse causes of faulty behaviours in children<br><br>CO4. Recommend therapeutic treatment. |
| 21. | PG-PSY-IV.E-9.1<br><br>(Elective-theory) | **Rehabilitation Psychology** | CO1. To understand the importance of rehabilitation and rehabilitation psychology<br><br>CO2. Realize the different aspects of rehabilitation, plan assessments accordingly and understand the usage of assistive technology.<br><br>CO3. Be able to evaluate the different applications of rehabilitation psychology.<br><br>CO4. Be able to highlight various issues and challenges in the field of rehabilitation psychology<br><br>CO5. Plan and design intervention programs for persons with disabilities. |

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| 22. | PG-PSY-IV. E-10.1<br><br>(Elective-theory) | **Counselling Parents** | CO1. Analyze in which way the concepts of parenting and parenting styles influence daily parenting behavior.<br>CO2. Encourage parents of their clients to be holistically involved in their child's development.<br>CO3. Use and teach positive parenting skills to their clients.<br>CO4. Conduct workshops on the positive parenting skills suitable for the new age child.<br>CO5. Assess the role that parenting may play as an etiological factor in childhood disorders.<br>CO6. Develop and execute parenting programs for childhood externalizing disorders.<br>CO7. Conduct REBT based parenting programs.<br>CO8. Assist parents of children with mental disabilities to accept and cope with their child's diagnosis |

**Revised Syllabus**

**Course: Counselling Therapies for Children II**

**Code: PG-PSY-III.S-5**

**Marks: 100**

**Credits: 04**

**Course Objectives**:

1. To familiarize the learners with the concepts & theory involved in counselling children & adolescents.
2. To equip the learners with therapeutic skills & strategies for dealing with the commonly presented concerns of childhood & adolescence.

**Course Outcomes:**

CO1. Develop skills to counsel children in groups

CO2. Apply family therapy to handle disputes in the family

CO3. Construct behaviour intervention plans for problem behaviour

CO4. Integrate alternative therapies as an adjunct to main therapies

## Syllabus

**Unit I: Counselling Children in Groups** (30marks) Number of Hours: 20

a) Counselling children in groups: Practice Framework
b) Skills for counselling children in groups

**Unit 2: Family therapy** ( 20 marks) Number of hours: 10

a) How does family counselling differs from individual counselling
b) Systems Approach to Family Therapy
c) Structural Family
d) Strategic Family Therapy
e) Communications Approach to Family Therapy

**Unit 3: Behaviour therapy with children (ABA)** (30 marks) Number of hours: 20

a) Meaning of ABA
b) Understanding Behaviour

c) Antecedents and Consequences
d) Other Kinds of Learning
e) Behavioural Analysis
f) What to do next
g) Behavioural Education

**Unit 4: Expressive Art Therapies (any two)** (20 marks) Number of Hours: 10

a) Overview of Expressive Arts
b) Visual Arts
c) Music Therapy
d) Drama Therapy
e) Expressive Writing/ Poetry Therapy
f) Dance/ Movement Therapy

**References:**

Geldard, K., & Geldard, D. (2008). Counselling Children: A Practical Introduction (3rd Ed). New Delhi: Sage Publication India Pvt Ltd.

Henderson, D.A., & Thompson, C.L. (2011). Counseling Children (8th Ed.). Belmont, CA: Brooks/Cole.

**Web References:**

Family Interventions: Basic principles and techniques
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7001353/

Art therapy https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1071468/

ABA https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2931781/

**Course: Pediatric Psychology**

**Code: PG-PSY-III.E-7.1**

**Marks: 100**

**Credits: 04**

**Course Objectives:**

1. To educate students in the coping strategies used to help children deal with critical long-term illness.

2. To develop an attitude of empathy towards sick children and adolescents.

3. To teach students the types of supportive management that parents of sick children require.

**Course Outcomes:** At the end of the course the student will be able to:

CO1. Identify various coping mechanisms to help children with long term illnesses, tragic losses and disabilities.

CO2. To be able to understand the role of counsellor in pediatric set up.

CO3. To understand the role of empathy and sensitization in paediatric setup.

CO4. Deal with child illnesses more effectively by equipping them with strategies that would serve them to manage their own fears, anxieties and stresses.

CO5. To understand adherence in pediatric setup and use effective strategies to improve adherence in pediatric medical regimens

CO6. To devise/formulate intervention models to be able to deal with children suffering from long term illness.

CO7. Devise school reintegration models.

CO8. Be able to highlight and compare the various effective & emerging treatments in Pediatric Psychology

## Syllabus

**Unit 1. Understanding Pediatric Psychology** Number of hours: 15

a. Overview of the field of Pediatric psychology- Global and Indian Context

b. Common presenting concerns for Pediatric psychology practice

c. Cross-Cutting Issues in Pediatric Psychology

d. School re-integration in Pediatric Psychology

**Unit 2 Adherence to Pediatric treatment regimes** Number of hours:15

a. Definitions of Adherence, Types of Adherence Problems, and Adherence Rates
b. Adherence Theories: Review, Critique, and Clinical Implications
c. Consequences of Nonadherence and Correlates of Adherence
d. Strategies for Improving Adherence to Pediatric Medical Regimens

**Unit 3. Effective and Emerging Treatments in Pediatric Psychology** Number of hours:15

I. Treatment research and practice

a. Effective treatments in pediatric psychology
b. Treatment manuals and clinical practice

II. Intervention approaches

a. Individual therapies
b. Multiperson and systemic Interventions

**Unit 4. Coping strategies for Parents and Children** Number of hours: 15

a. Preparing child for hospitalization, painful procedures

b. Pediatric oncology, diabetes, HIV, seizures, heart disease

c. Pediatric organ transplantation

d. Losing a child

**References**

Brown, R (2004). *Handbook of Pediatric Psychology in School Settings*. London: Lawrence Erlbaum Associates, Inc

Gross, A & Drabman, R. (1990). *Handbook of Clinical Behavioral Pediatrics*. New York and London: Plenum Press

Rapoff, M (2010). *Adherence to Pediatric Medical Regimens*. (2nd edition). NewYork Springer:

Roberts, M et al (2014). *Clinical Practice of Pediatric Psychology.* The Guilford Press

Roberts $ Steele (2009). *Handbook of Pediatric Psychology*. (3rd edition). The Giulford Press.

Spirito, A & Kazak, A. (2006). *Effective and Emerging Treatments in Pediatric Psychology*. NewYork: Oxford University Press, Inc

**Journal Reference:**

Indian Journal of Psychiatry http://www.indianjpsychiatry.org/

JIACAM www.jiacam.org. *Journal* of *Indian* Association for *Child* and Adolescent Mental Health

**Web Reference**:

Pediatric psychology in an Indian context

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3146195

Pediatric psychology in an Indian context

https://www.indianjpsychiatry.org/cpg/cpg2008/cpg-cap_14.pdf

**Assessment and Evaluation:**

Continuous Assessment: 20 marks written test and 20 marks assignment

Semester End Examination: 60 marks: - a set of 04 short questions of 05 marks each and 04 long questions of 10 marks each.

**Course: Child and Crime**
**Code: PG-PSY-III.E-8.1**
**Marks: 100**
**Credits: 04**

**Course Objectives**:

1. To acquaint the students with the nature of crime in childhood.
2. To familiarize the students with the intervention strategies to help the victims and offenders of crime during childhood.

**Course Outcomes**: At the end of this course students will be able to:

CO1.Analyze the impact of the risk factors which predispose children to committing or becoming a victim of crime.
CO2. Assess the way in which protective factors prevent children from committing crime.
CO3. Apply the developmental trajectory of childhood victimization in understanding victimization impact.
CO4. Develop interventions based on the developmental dimensions model of childhood victimization impact.
CO5. Analyse the efficacy of the preventive strategies to reduce childhood crime.
CO6. Apply intervention strategies to help the victims of crime as well as juvenile offenders.

## Syllabus

**Unit I: Children as Offenders: Risk & Protective Factors** Number of Hours: 15

a. Understanding Risk & Protective Factors
b. Individual Risk & Protective Factors for Childhood Delinquency
c. Family based Risk & Protective Factors for Childhood Delinquency
d. Socioeconomic, Peer, School and Community Risk & Protective Factors for Childhood Delinquency

**Unit II: Children as Offenders: Risk – Focused Prevention** Number of Hours: 15

a. Understanding Risk – Focused Prevention
b. Individual Prevention Strategies
c. Family based Prevention Strategies
d. Socioeconomic, Peer, School and Community Based Prevention Strategies

**Unit III: Children as Victims** Number of Hours: 15

a. Understanding Childhood Victimization
b. Identifying At Risk Children
c. Developmental Context of Victimization: Developmental Victimology & Impact

d. Child Abuse and Neglect [POCSO Act, Goa Children's Act, Role of Goa State Commission for Protection of Child Rights & Govt. Children's Home in Goa (e.g., Apna Ghar)]

**Unit IV: Interventions: Case Studies** Number of Hours: 15

a. Cognitive Behavioural Interventions
b. Boot Camps & Scared Straight
c. Early Parent Training
d. Child Social Skills Training

**References:**

Farrington, D.P., and Welsh, B.C. (2006). *Preventing crime: What works for children, offenders, victims, and places.* Springer: The Netherlands

Farrington, D.P., and Welsh, B.C. (2007). *Saving children from a life of crime: Early risk factors and effective interventions.* Oxford University Press: New York.

Finkelhor, D. (2008). Childhood victimization: Violence, crime, and abuse in the lives of young people. Oxford University Press: New York.

**Assessment and Evaluation:**

Continuous Assessment: 20 marks written test and 20 marks assignment.
Semester End Examination: 60 marks: 4 short notes of 5 marks each and 4 long answers of 10 marks each.

**Course: Management of Learning Disabilities**
**Code: PG-PSY-IV.S-7**
**Marks: 100**
**Credits: 04**

**Course Objectives**:

1. To familiarize students with learning disabilities and their management.
2. To acquaint students with the intervention techniques for the various types of learning difficulties.

**Course Outcomes**: At the end of this course students will be able to
CO1. Conduct screening for learning disabilities and arrive at a diagnosis
CO2. Develop and implement intervention techniques for learning disabilities.
CO3. Apply the strategies to the school curriculum
CO4. Appraise the progress of the child in school and modify strategies if required.

**Course Description:**

In today's world it is imperative that everyone dealing with children is equipped to handle any kinds of learning challenges exhibited by them. This course aims to establish a firm understanding among the students regarding the learning disabilities, the evaluation and diagnostic strategies of these disabilities and emphasizes on specific interventions for each type of learning disability.

**Unit I: Introduction and Types of Evaluation** (30 marks)

Number of Hours: 20

a. Definition of Learning disability, types
b. Neurodevelopmental evaluation
c. Psychological evaluation
d. Educational & Language evaluation
e. Arriving at an interdisciplinary diagnosis

**Unit II: Planning for treatment of Learning disabilities** (10 marks)

Number of hours: 05

a. IEP
b. IFSP

**Unit III: Intervention Strategies for learning disabilities**

(45 marks)

Number of hours: 25

a. Effective instruction for Learning difficulties
b. Strategies for overcoming / preventing reading problems
c. Helping students improve their writing skills
d. Developing spelling skills
e. Developing numeracy and math problem – solving skill
f. Adapting curriculum

**Unit IV: Classroom screening tools and board concessions**

**(**15 marks)

Number of hours: 10

a. Teacher sensitization
b. Teacher screening tools for learning disabilities in classrooms
c. CWSN government concessions

**References:**


Brown, F.R., Aylward, E.H., Keogh, B.K. (1992). *Diagnosis and management of learning disabilities: An interdisciplinary / lifespan approach (2nd ed.).* Springer Publishing Group.

Harris, K.R. & Graham, S. (2010). *Working with families of young children with special needs.* The Guilford Press: New York and London

Westwood, P. (2003). *Commonsense methods for children with special needs (4th ed.).* RoutledgeFalmer: London and New York

Hayes, Anne M, Dombrowski Eileen, Shefcyk Allison & Bulat Jennae (2018). *Learning Disabilities Screening and Evaluation guide for Low and Middle Income Countries,* Research Triangle Park (NC): RTI Press; 2018

Hammeken A. Peggy, 92007), *The Teachers guide to inclusive education: 750 strategies for success (1st edition)*, Corwin Press


**Web Reference**:
Clinical Practice guidelines on assessment and management of SLD
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6345134/

IEP
https://pubmed.ncbi.nlm.nih.gov/11450386/

CWSN government concessions

https://education.goa.gov.in/sites/default/files/Scheme-for-Children-with-Special-Needs-2018.pdf

**Evaluation Criteria:**

Unit I & Unit II:

Students will have to practice the management for learning disabilities techniques with students exhibiting these techniques and share reports about the same.

**Course**: **Rehabilitation Psychology**

**Course Code: PG-PSY-IV.E-9.1**

**Marks: 100**

**Credits: 04**

**Course Objectives:**

1. To introduce the importance of rehabilitation and rehabilitation psychology
2. To understand the different aspects of assessment, technology and legal issues regarding rehabilitation.
3. To understand the different issues and applications of rehabilitation psychology.
4. To learn psychological interventions and counseling strategies for rehabilitating individuals with disabilities.

**Course Outcomes:** At the end of the course, students will be able to

CO1. To understand the importance of rehabilitation and rehabilitation psychology

CO2. Realize the different aspects of rehabilitation, plan assessments accordingly and understand the usage of assistive technology.

CO3. Be able to evaluate the different applications of rehabilitation psychology.

CO4. Be able to highlight various issues and challenges in the field of rehabilitation psychology.

CO5. Plan and design intervention programs for persons with disabilities.

**Unit I. Nature and Scope of Rehabilitation psychology** Number of Hours: 10

Marks: 20

- Definition, scope and methods,
- Functions of Rehabilitation Psychology: General functions and special functions, Goals and objectives of rehabilitation
- History and Philosophy of Disability Rehabilitation
- Medical, social and biopsychosocial model of disability

**Unit II: Rehabilitation of Persons with Disability** Number of Hours: 15

Marks: 25

- Rehabilitation of persons with physical disabilities: medical/physical, psycho- social and vocational rehabilitation.
- Assessment of persons with disabilities

- Assistive technology for enhancing functional capacities of persons with disabilities
- Legal issues in rehabilitation for persons with disabilities: overview of PWD act, RCI act, national trust act, United Nations convention on the rights of persons with disabilities.

**Unit III: Application of Rehabilitation Psychology** Number of Hours: 15

Marks: 25

- Rehabilitation of addictions: drug and alcohol
- Rehabilitation after abuse and violence
- Palliative care, pain management and symptom control
- Sports Injury and Rehabilitation.

**Unit IV. Psychological Intervention** Number of Hours: 20

Marks: 30

- Life span development of people with disabilities, Screening and early identification of people with developmental disabilities.
- Early intervention: definition, assessment and strategies for intervention.
- Guidelines for Interventions, Counselling Strategies, Therapeutic services and Restorative techniques.
- Disability and Rehabilitation services in India: Issues and Challenges.

**Reference Books**

**Mandatory reading**

Frank R. Handbook of Rehabilitation Psychology. APA

Kennedy P. Oxford Handbook of Rehabilitation. Psychology, OUP

Falvo, D. R., & Holland, B. (2018). Medical and psychosocial aspects of chronic illness and disability. Burlington, MA: Jones & Bartlett Learning.

**Supplementary reading**

Manual of Psychosocial Rehabilitation (2012), Wiley Blackwell.

Best and Promising Practices in Developmental Disabilities. Pro-Ed Texas

Beyond Disability – Towards an Enabling Society. Sage Publications

**Web Reference:**

What is Rehabilitation Psychology. Retrieved from http://www.div22.org/what-is-rehab-psych

Rehabilitation Psychology, American psychological Association. Retrieved from https://www.apa.org/ed/graduate/specialize/rehabilitation

Association of Rehabilitation Psychologists - India. Retrieved from http://rehabilitationpsychologist.org/aboutus.aspx

Personality Assessment in Medical Rehabilitation. Retrieved from https://www.researchgate.net/publication/234166242_PERSONALITY_ASSESSMENT_IN_MEDICAL_REHABILITATION

Psychological Assessment and Intervention in Rehabilitation. Retrieved from https://clinicalgate.com/psychological-assessment-and-intervention-in-rehabilitation/

Current Concepts in Sports Injury Rehabilitation. Retrieved from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5609374/

Drug Rehabilitation. Retrieved from https://www.rehabs.com/treatment/rehab/

Rights of People with Disabilities Act, 2016. Retrieved from https://indiacode.nic.in/handle/123456789/2155?view_type=browse&sam_handle=123456789/1362

**Assessment and Evaluation:**

Continuous Assessment: 40 marks

Semester End Examination: 60 marks: 3 short notes of 4 marks each and 4 long answers of 12 marks each**.**

**Course: Counselling with Parents**
**Code: PG-PSY-IV.E-10.1**
**Marks: 100**
**Credits: 04**

**Course Objectives**:

1. To acquaint the students with the concept of parenting, parenting styles and balanced parenting.
2. To help students understand the new age positive parenting skills.
3. To enable students to understand how parenting may contribute to development of childhood disorders.
4. To help the students understand the nuances of positive parenting programs.
5. To appreciate the difficulties faced by parents of children with mental disabilities & assist them.

**Course Outcomes**: At the end of this course students will be able to:

CO1. Analyze in which way the concepts of parenting and parenting styles influence daily parenting behavior.
CO2. Encourage parents of their clients to be holistically involved in their child's development.
CO3. Use and teach positive parenting skills to their clients.
CO4.Conduct workshops on the positive parenting skills suitable for the new age child.
CO5.Assess the role that parenting may play as an etiological factor in childhood disorders.
CO6.Develop and execute parenting programs for childhood externalizing disorders.
CO7.Conduct REBT based parenting programs.
CO8. Assist parents of children with mental disabilities to accept and cope with their child's diagnosis.

## Syllabus

**Unit I: Understanding Parenting** Number of Hours: 15

a. Concepts of Parenting & Parenting Styles
b. Different Contexts for Parenting
c. Role of Fathers in Parenting
d. Letting Go & Leaving a Legacy

**Unit II: Positive Parenting Skills** Number of Hours: 15

a. Skills to Create Co-operation [Focus on Positive Vocabulary Usage]
b. Skills to Minimize Resistance [Listening, Preparation, Distraction, Rituals]
c. Skills to Improve Communication [Hard-Love / Soft – Love Parenting, Delaying Gratification]
d. Skills for Increasing Motivation [Focus on Positive Rewards & Punishment]
e. Skills for Asserting Leadership [Making Commands Positive]

**Unit III: Parenting Programs for Children Externalizing Disorders** Number of Hours: 15

a. Understanding Externalizing Disorders among children
b. Cognitive Behavioural Parenting Program
c. The REBT approach of Parenting Program
d. Rational Positive Parenting Program

**Unit IV: Parenting Children with Neurotypical Disabilities** Number of Hours: 15

a. Accepting the Verdict
b. Searching for Expert Guidance for children
c. Understanding Parental Suffering & their Role as Caregivers
d. Managing & Coping with Everyday Life Struggles

**References:**

David, O.A. & DiGiuseppe, R. (2016). *The Rational Positive Parenting Program*. Springer: New York.

Gray, J. (1999). *Children are from Heaven: Positive Parenting Skills for raising competitive, confident and compassionate children.* HarperCollins.

LeCroy, C.W. (2011). *Parenting Mentally Ill Children*. Praegar: California.

Miller, S. (2010). *Supporting Parents: Improving Outcomes for Children, Families and Communities.* McGraw Hill: New York.

**Assessment and Evaluation:**

Continuous Assessment: 20 marks written test and 20 marks assignment

Semester End Examination: 60 marks: 4 short notes of 5 marks each and 4 long answers of 10 marks each.

# M.Sc. in Information Technology
# PROGRAMME OUTCOMES

After successful completion of M.Sc. in Information Technology, the students will:

| Programme Outcomes (PO) | Short Title of the POs | Description of the Programme Outcomes |
|---|---|---|
| PO-1 | Conduct Investigations of Complex Problems | Develop deep theoretical and practical knowledge of important disciplines of Information Technology like Data Structures, Database Management Systems, Operating Systems and Networks, Design and Analysis of Algorithms, Software Architecture, Data Mining and Information Retrieval. |
| PO-2 | Problem Analysis and Solutions | Imbibe the skill of writing optimal software programs independent of any particular programming language and platform so as to make the student self-reliant to learn and work in any programming language, tool or platform. |
| PO-3 | Use of Technology | Inculcate Soft Skills and Mathematical skills in the student that are required in IT sector. |
| PO-4 | Research Aptitude | Develop the ability of conducting research independently. |
| PO-5 | Communication | Develop the skill of working in teams. |
| PO-6 | Project Management | Acquire an edge of having real-world experience by virtue of the internship in Software Industry/Research Organization being a mandatory part of the programme. |

**Course Outcomes:**

| S. No. | Course Code | Course Title | Course Outcomes |
|---|---|---|---|
| 1. | MIT 11 | Data Structures and Algorithms | CO1: Have an idea of applications of algorithms in a variety of areas such as game theory etc.<br>CO2: Make foundation of writing programs using algorithms on trees, graphs etc.<br>CO3: Design and analyze the time and space efficiency of the data structure.<br>CO4: Identify the appropriate data structure for given problem. |
| 2. | MIT 12 | Operating Systems and Networks | CO1: Analyze the structure of Operating system.<br>CO2: Analyze various Resource management and fault tolerance techniques for real time systems.<br>CO3: Discuss the fundamentals of IP addressing.<br>CO4: Apply subnet masking concepts to allocate space for host in subnet.<br>CO5: Examine techniques to protect the network. |
| 3. | MIT 21 | Software Architecture, Design Patterns and Frameworks | CO1: Examine the various concepts of Object-Oriented Analysis and Design.<br>CO2: Study Creational, Structural and Behavioral Design Patterns.<br>CO3: Analyze a given problem and study the applicability of Design Patterns to the problem.<br>CO4: Understand Software architecture and Frameworks.<br>CO5: Understand Anti Patterns and steps that should not be taken while developing software. |

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| 4. | MIT 22 | Design and Analysis of Algorithms | CO1: Analyze the running time of various Algorithms.<br>CO2: Apply the algorithms and techniques to solve various problems.<br>CO3: Analyze the complexities of various problems in different domains.<br>CO4: Design their own algorithmic strategies to Solve problem and analyze their correctness. |
| 5. | MIT 23 | Advanced Database Management Systems | CO1: Critically evaluate alternative designs and architectures for Databases and Data Warehouses.<br>CO2: Discuss and evaluate methods of storing, managing and interrogating complex data.<br>CO3: Analyze the background processes involved in queries and transactions, and explain how this impact on Database operation and design.<br>CO4: Develop a high-level understanding of major DBMS components and their function. |
| 6. | MIT31 | Data Mining | CO1: Understand the evolution of Data Mining and Data Warehousing.<br>CO2: Study various Association Rules Mining Algorithms.<br>CO3: Study Decision Trees, Bayesian Classification, Artificial Neural Networks, Fuzzy Set Theory and Genetic Algorithms.<br>CO4: Apply various types of Clustering Algorithms, Web Mining Techniques and techniques of mining complex types of data. |
| 7. | MIT 32 | Information Retrieval | CO1: Develop system for IR using various models.<br>CO2: Perform Query evaluation and Relevance feedback.<br>CO3: Design systems that include hyperlinks, multimedia and the web.<br>CO4: Understand |

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| | | | XML, Parallel, Distributed and Multimedia IR. |
| 8. | Elective | Software Metrics & Project Management | CO1: Understand the various types of management namely scope, time, cost, quality, human resource, communication, risk, procurement and integration management.<br>CO2: Understand software metrics and quality standards.<br>CO3: Plan a metrics measurement programme.<br>CO4: Enforce Quality standards in projects |
| 9. | Elective | Mobile Computing | CO1: Apply data communicating methods and networking protocols for wireless and mobile environments.<br>CO2: Understand positioning techniques and location based services and applications.<br>CO3: Utilize and employ application frameworks for developing mobile applications.<br>CO4: Use java for wireless devices and understand wireless messaging. |
| 10. | Elective | Compiler Design | CO1: Understand the different phases of a compiler.<br>CO2: Use tools such as Lexand YACC etc.<br>CO3: Apply the concepts of Register allocation.<br>CO4: Design and code a compiler for a programming language. |
| 11. | Elective | Computer Graphics | CO1: Describe the purpose of Computer Graphics and its applications.<br>CO2: Describe and implement methods for performing 2-Dimentional geometric transformations.<br>CO3: Describe the concept of 3-Dimentional Graphics and methods for performing 3-Dimensional geometric transformations.<br>CO4: Discuss basic illumination models and surface rendering algorithms. |

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| | | | CO5: Develop familiarity with key algorithms for modelling and rendering graphical data.<br>CO6: Gain experience in constructing interactive computer graphics programs like Babylon JS. |
| 12. | Elective | Natural Language Processing | CO1: Compose key NLP elements to develop higher level processing chains.<br>CO2: Assess / Evaluate NLP based systems.<br>CO3: Choose appropriate solutions for solving typical NLP subproblems (tokenizing, tagging, parsing).<br>CO4: Perform Lexical and Semantic Analysis. |
| 13. | Elective | Image Processing | CO1: Understand how digital images are represented and manipulated in a computer, including reading and writing from storage, and display.<br>CO2: Analyze and implement image processing algorithms.<br>CO3: Perform Image Compression.<br>CO4: Apply Morphological Image Processing. |
| 14. | Elective | Middleware Technology | CO1: Understand the distributed systems, asynchronous communication and event-based systems in detail.<br>CO2: Gain knowledge of Servlet technology and Enterprise Java beans.<br>CO3: Understand web services and reflective middleware.<br>CO4: Apply concepts that are learnt while working in live projects that involve Web Component and Business Component Programming. |
| 15. | Elective | Software Testing | CO1: Revise fundamentals of testing and learn about Functional testing and Object Oriented testing methods.<br>CO2: Gain knowledge of test case design, execution and report.<br>CO3: Understand testing of web |

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| | | | applications and automated testing tools.<br>CO4: Apply knowledge of Software Testing in the industry. |
| 16. | Elective | Cloud Computing | CO1: Understand cloud infrastructure model and cloud deployment model.<br>CO2: Gain knowledge about the underlying principles of cloud virtualization.<br>CO3: Explore different cloud programming platforms and tools.<br>CO4: Develop and deploy applications by utilizing cloud platforms. |
| 17. | Elective | Network Security | CO1: Understand fundamentals of Cryptography and security.<br>CO2: Gain knowledge about Block and Stream Ciphers, public key cryptography and asymmetric algorithms.<br>CO3: Acquire knowledge about authentication and web security protocols.<br>CO4: Implement Cryptographic Algorithms in a programming language. |
| 18. | Elective | Communication Skills Course | CO1: Apply creative thinking abilities necessary for effective communication at a modern workplace.<br>CO2: Demonstrate clarity, precision, conciseness and coherence in the use of language.<br>CO3: Learn to make one's writing better, fasterand more successful.<br>CO4: Produce successful documents in any given situation in different formats, while considering the writer's objectives, the reader's needs, the reader-writer relationship and the context.<br>CO5: Increase personal confidence in delivering speeches to small & large audiences.<br>CO6: Understand and gain non- |

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| | | | verbal skills essential to effective speaking.<br>CO7: Make proper presentations that disseminate information, conduct negotiations and use persuasion. |
| 19. | Elective | Applied Probability and Statistics | CO1: Gain knowledge about the probability theory.<br>CO2: Solve problems containing Discrete and Continuous Random variables.<br>CO3: Apply the concepts of Statistical Inference to Mathematical problems.<br>CO4: Provide statistical quality control. |
| 20. | Elective | Machine Learning | CO1: Understand the fundamentals of machine learning.<br>CO2: Understand the techniques for supervised learning and unsupervised learning.<br>CO3: Recognize various ways of selecting suitable model parameters for different machine learning techniques.<br>CO4: Perform experiments in Machine Learning using real-world data. |
| 21. | Elective | Statistical Computing | CO1: Gain knowledge of various types of Plots and Charts.<br>CO2: Use various types of distributions and statistical tests for solving problems.<br>CO3: Configure software environment to develop programs to implement statistical concepts.<br>CO4: Use a tool to apply the |

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| | | | theoretical concepts to practical problems. |
| 22. | Elective | Educational Technology | CO1: Define educational technology and identify its role in teaching.<br>CO2: Determine the technology requirements and describe the teaching challenges and opportunities associated with integrating technology in the classroom.<br>CO3: Inculcate capability of carrying out research in the Educational Technology domain.<br>CO4: Master usage of ICT tools. |

## Programme Outcome (PO) and Course Outcome (CO)

Name of the Department: **MASTER OF SCIENCE IN GEOINFORMATICS**

| Program outcome | Short Title of POs | |
|---|---|---|
| PO1 | Find out problem and solution | Recognized, Identify, analyze problem and further attempt to design /develop solution that meet the specific goals |
| PO2 | Technology characteristic | Use appropriate IT tools efficiently and effectively in daily activities of research and academic |
| PO3 | Ethics | Recognized and understand professional ethics/ human value and be responsible same |
| PO4 | Team work and communication | Team work essential for handle big project, function effectively at various level. Communicate skillful as a responsible member of society |
| PO5 | Research ability | Understanding general research methods and be able to analyze, interpret and resultant rational conclusion |
| PO6 | Life Skills | Recognize the need for and have preparation and ability to engage in independent and lifelong learning in the broadest context of domain specific change |

Program specific outcomes (PSO)

After successful completion of a Master degree in Geoinformatics, the student will:

| Program outcome(PO) | Short Title of PSOs | Description of the program outcomes |
|---|---|---|
| PSO 1 | Personal development | Personal effectiveness and workplace competencies are practiced through engagement in discussion boards, following course guidelines, and interactions with the instructor and other students in the class |
| PSO2 | Technology of Geospatial aspect | Workplace competencies are strengthened as students apply the analytical and evaluative tools to GIS mapping and apps |
| PSO3 | Critical and analytical skills | Be able to demonstrate proficiency in quantitative reasoning and analytical skills |
| PSO4 | Development of practical Skills | Be equipped with practical skills and the ability to apply their theoretical concept to design, perform experiments, analyze and interpret data and thus develop proficiency in lab management |
| PSO5 | Analysis and problem solving | To be able use these skills to identify and analyzed real world problem and preparing them for a successful career in geospatial industry and research institute. |
| PSO6 | Developing an tendency towards research | Develop a tendency towards research through the compulsory internship in industry /research/ academic institutes which promote and inculcate professional ethics and code of practice among students, enabling them to work in a team with multidisciplinary approach. |
| PSO7 | Advanced knowledge of Geoinformatics | Acquire of fundamental and advanced knowledge of the different aspect in Geoinformatics with the means ability to specialize in a specific field. |

**COURSE OUTCOMES**

| S.N. | Course Code | Course Title | Course Outcomes |
|---|---|---|---|
| 1 | PG.MGIS.C1 | Basics of GIS and GPS | CO1: Students will demonstrate proficiency and conceptual understanding in using software and automated techniques to carry out thematic maps and analysis through a series of laboratory exercises and creation of reports. |
| 2 | PG.MGIS.C2 | Basic of Remote Sensing and Photogrammetry | CO2: Students will be able to understand the concept of remote sensing and EMR apart from this basic level of fundamental physical principles of remote sensing, including the electromagnetic spectrum; the emission, scattering, reflection, and absorption of electromagnetic (EM) radiation; how EM radiation interactions vary across a limited number of substances, geometries, and temperatures; and geometric properties of photographs and imagery. |
| 3 | PG.MGIS.C3 | Geostatistics | CO1: After completion of the course students will understand various types of datasets and applying different statistical techniques to different data sets. This will systematically access, analyze and evaluate information and ideas from multiple sources in order to identify underlying assumptions, and formulate conclusions. The course will enhance skills like solving quantitative problems and statistical queries. |
| 4 | PG.MGIS.E1 | Digital Cartography | CO1: Students will understand different types of projections and datum used in various locations. Proficiency and conceptual understanding in using Manual and computer techniques to carry out thematic maps and special purpose maps. Remote sensing, image processing and analysis through a series of laboratory exercises and reports |
| 5 | PG.MGIS.E2 | Principles of Computer and Programming | CO1: Students will demonstrate proficiency and conceptual understanding in data creation and storage, languages or manuscripts techniques to carry out geographical data for developing and designing application and use of Programming in GIS. |
| 6 | PG.MGIS.C4 | Spatial Analysis and Modeling | CO1: Student will able to apply spatial tool and techniques in spatial datasets for carry out |

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| | | | | Surface and 3d analysis. Students will demonstrate proficiency and conceptual understanding spatial model making process. |
| 7 | PG.MGIS.C5 | Advanced Remote Sensing and GIS | CO1: | Students will be able to apply mathematical relationships (at a pre-calculus level) describing fundamental physical, geometric, and computational principles relevant to remote sensing and GIS. They will create Remote sensing application |
| 8 | PG.MGIS.E3 | Digital Image Processing | CO1: | Students will demonstrate proficiency and conceptual understanding in using software or manual techniques which will prove how digital technology has come over traditional technology to carry out remote sensing image processing and analysis through a series of laboratory exercises and reports |
| 9 | PG.MGIS.E4 | Programming and Customization | CO1: | Student will develop new tools and software also customizes open source software. They design and built web base platform for geospatial database. |
| 10 | PG.MGIS.E5 | Field Techniques and Report Writing | CO1:<br><br><br><br>CO2: | Students will describe a survey method and different instruments and it's assemble and summarize relevant survey for relevant work which will skill development in using different instruments.<br>Report writing and Interpretation of Maps will focus on writing skills. |

# Post Graduate Diploma in Computer Application
# PROGRAMME OUTCOMES

After successful completion of a Post Graduate Diploma inComputer Application, the students will:

| Programme Outcomes (PO) | Short Title of the POs | Description of the Programme Outcomes |
|---|---|---|
| PO-1 | Problem Analysis and Solutions | Acquire problem-solving skills, especially the ability to analyze, design and implement solutions. |
| PO-2 | Modern Tool Usage | Demonstrate technical skills to be employed in a competitive Position in the IT field related sectors. |
| PO-3 | Project Management | Start an Entrepreneurial venture. |
| PO-4 | Use of Technology | Work in different fields like content development, Multimedia, Website designing, Networking, Banking industry, Academics etc. |
| PO-5 | Life Skills | Recognize the need for, and have the preparation and ability to pursue higher education and engage in independent life-long learning. |

**Course Outcomes:**

| S. No. | Course Code | Course Title | Course Outcomes |
|---|---|---|---|
| 1. | DCA11 | Object Oriented Programming | CO1: Apply fundamental object-oriented concepts in problem solving.<br>CO2: Analyze problem scenario and identify classes/objects, their properties/functionalities and associations.<br>CO3: Analyze the problem scenario and model the system using UML diagrams.<br>CO4: Implement the object oriented model in any object oriented language. |
| 2. | DCA12 | Data Base Management Systems | CO1: Gain a broad understanding of database concepts and the need for the same.<br>CO2: Identify different entities and relationship between them.<br>CO3: Represent the given system diagrammatically using ER diagram.<br>CO4: Convert an ER diagram to a schema and effectively represent it using appropriate RDBMS.<br>CO5: Formulate queries in Relational Algebra, SQL to manipulate the database.<br>CO6:Analyze the schema to see if they fulfill normalization criterion. |
| 3. | DCA13 | Client Side Technologies | CO1: Use fundamental skills to develop a website. Select and apply markup languages for processing, identifying, and presenting of information in web pages. Use scripting languages and web services to transfer data and add interactive components to web pages.<br>CO2: Incorporate formal concepts of layout and organization to design websites that effectively communicate using visual elements.<br>CO3: Combine multiple web technologies to create advanced web components.<br>CO4: Design websites using appropriate security principles, focusing specifically on the vulnerabilities inherent in common web implementations.<br>CO5: Incorporate best practices in navigation, usability and written content to design websites that give users easy access to the information they seek.<br>CO6: Conceptualize and develop a mini project for a website with appropriate business models and web technologies. |
| 4. | DCA21 | Computer Networks | CO1: Understand the working of reference model of communication to provide end to end services for the various applications.<br>CO2: Differentiate between various types of transmission media.<br>CO3: Understand different layers, protocols and their functioning. |

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| | | | CO4: Configure a network by assigning IP address.<br>CO5: Analyze the working of different protocols at Network, Transport and Application Layer. |
| 5. | DCA22 | Software Engineering | CO1: Understand testing of web applications and automated testing tools.<br>CO2: Apply modern software testing processes in relation to software development and project management.<br>CO3: Create test strategies and plans, design test cases, prioritize and execute them.<br>CO4: Develop an ability to understand and identify various software testing problems and solve them. |
| 6. | DCA-EL1 | Multimedia | CO1: Understand the concept of Multimedia – Team members and their roles.<br>CO2: Identify and describe the function of the general skill sets in the multimedia industry.<br>CO3: Classify and realize the types of Authoring tools and their functions.<br>CO4: Identify basic components of a multimedia project.<br>CO5: Analyze the requirements of Multimedia product.<br>CO6: Assemble and deliver multimedia projects. |
| 7. | DCA-EL2 | E-Learning | CO1: Develop instructional design skills with E-learning project.<br>CO2: Design and develop quality E-content.<br>CO3: Create, build and upload course material using an appropriate LMS.<br>CO4: Recommend the use of appropriate E-learning strategies to an E-learning course.<br>CO5: Apply and evaluate appropriate assessment Rubrics to the E-content. |
| 8. | DCA-EL3 | Python Programming | CO1: Students will learn Python programming, and apply it in data analysis and visualization. |
| 9. | DCA-EL4 | Human Computer Interface | CO1: Understand the intricacies of human interaction with a computer System.<br>CO2: Understand the principles of good screen design and layouts.<br>CO3:Understand the different navigation schemes on windows based interface; learn the different types of selection devices and components of a window based interface.<br>CO4: Analyze Requirements of system.<br>CO5: Classify human users based on their abilities, personalities.<br>CO6: Designing prototypes. Evaluate the design of user interfaces. Compare the interfaces different products. |
| 10. | DCA-EL5 | E-Commerce | CO1:Understand various E-Commerce Strategies.<br>CO2: Understand the Working of an E- |

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| | | | Commerce Website.<br>CO3 : Evaluate the various Payment Mechanisms.<br>CO3: Develop an E-Commerce Website. |
| 11. | DCA-EL6 | Digital Marketing | CO1: Optimize the website for various search engines.<br>CO2: Market the company/product using Search Engine and Social Media.<br>CO3: Analyze the Web for improving the marketing strategy. |
| 12. | DCA-EL7 | Network Administration | CO1: Understand the basic working of reference model of communication to provide end to end services for the various applications<br>CO2: Analyze the various behavior of network protocols using the networking tools.<br>CO3: Understand the basics of IP.<br>CO4: Design the basic computer network and maintain the network<br>CO5: Create and manage users and groups.<br>CO6: Configure routers and basic network application |
| 13. | DCA-EL8 | Software Testing | CO1: Understand testing of web applications and automated testing tools.<br>CO2: Apply modern software testing processes in relation to software development and project management.<br>CO3: Create test strategies and plans, design test cases, prioritize and execute them.<br>CO4: Develop an ability to understand and identify various software testing problems and solve them. |
| 14. | DCA-EL9 | Server Side Programming | CO1: Get hands-on programming experience using open -source software, PHP and MySQL to build professional-quality, database-driven websites.<br>CO2: Develop the skills to build interactive web sites with authentication and security by integrating PHP with HTML and CSS.<br>CO3: Apply basic and advanced object-oriented programming techniques, use libraries, frameworks and advanced database connectivity techniques, and integrate PHP with other web technologies to build secure e-commerce applications.<br>CO4: Customize an application to meet the specific needs of a client use case as would be done in a real-world application. |
| 15. | DCA-EL10 | Data Structures | CO1: Define relevant standard algorithms for various data structures.<br>CO2: Learn various applications of data structures.<br>CO3: Implementation of data structures.<br>CO4: Use of various data structures for sorting and searching. |

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| | | | CO5: Analyze and compare algorithms for efficiency using Big-O notation.<br>CO6: Formulate new solutions for programming problems. |
| 16. | DCA-EL11 | Accounting and Financial Management | CO1: Develop the skills of accountancy and book keeping with the help of software.<br>CO2: Prepare budget and business plan for the firms. |
| 17. | DCA-EL12 | Mobile Application Development | CO1: Explain mobile devices, including their capabilities and limitations.<br>CO2: Review current mobile platforms and their architectures.<br>CO3: Develop mobile applications on a popular mobile platform.<br>CO4: Evaluate development with another mobile platform. |
| 18. | DCA-EL13 | Office Automation Tools | CO1: Understand basic Spreadsheet features.<br>CO2: Work with different worksheets.<br>CO3: Analyze the data using various graphs.<br>CO3: Analyze data using various spreadsheet features such as lookup tables, Pivot tables, and other statistical features.<br>CO4: Use different features of DTP software.<br>CO5: Develop a desktop Publishing Application using given software. |

## Programme Outcome (PO) and Course Outcome (CO)

Name of the Department: **POSTGRADUATE DIPLOMA IN GEOINFORMATICS**

| Program outcome | Short Title of POs | Description of the Programme Outcomes<br>Graduates will be able to : |
|---|---|---|
| PO1 | Find out problem and solution | Recognized, Identify, analyze problem and further attempt to design /develop solution that meet the specific goals |
| PO2 | Technology characteristic | Use appropriate IT tools efficiently and effectively in daily activities of research and academic |
| PO3 | Ethics | Recognized and understand professional ethics/ human value and be responsible same |
| PO4 | Team work and communication | Team work essential for handle big project, function effectively at various level. Communicate skillful as a responsible member of society |
| PO5 | Research ability | Understanding general research methods and be able to analyze, interpret and resultant rational conclusion |
| PO6 | Life Skills | Recognize the need for and have preparation and ability to engage in independent and lifelong learning in the broadest context of domain specific change |

Program specific outcomes (PSO)

After successful completion of a Postgraduate Diploma in Geoinformatics, the student will:

| **Program outcome(PO)** | **Short Title of PSOs** | **Description of the program outcomes** |
|---|---|---|
| PSO 1 | Personal development | Personal effectiveness and workplace competencies are practiced through engagement in discussion boards, following course guidelines, and interactions with the instructor and other students in the class |
| PSO2 | Technology of Geospatial aspect | Workplace competencies are strengthened as students apply the analytical and evaluative tools to GIS mapping and apps |
| PSO3 | Critical and analytical skills | Be able to demonstrate proficiency in quantitative reasoning and analytical skills |
| PSO4 | Development of practical Skills | Be equipped with practical skills and the ability to apply their theoretical concept to design, perform experiments, analyze and interpret data and thus develop proficiency in lab management |
| PSO5 | Analysis and problem solving | To be able use these skills to identify and analyzed real world problem and preparing them for a successful career in geospatial industry and research institute. |
| PSO6 | Developing an tendency towards research | Develop a tendency towards research through the compulsory internship in industry /research/ academic institutes which promote and inculcate professional ethics and code of practice among students, enabling them to work in a team with multidisciplinary approach. |
| PSO7 | Advanced knowledge of Geoinformatics | Acquire of fundamental and advanced knowledge of the different aspect in Geoinformatics with the means ability to specialize in a specific field. |

**COURSE OUTCOMES**

| S.N. | Course Code | Course Title | Course Outcomes |
|---|---|---|---|
| 1 | PG.DGIS.C1 | Basics of Geographic Information system and GPS | CO1: Students will demonstrate proficiency and conceptual understanding in using software and automated techniques to carry out thematic maps and analysis through a series of laboratory exercises and creation of reports |
| 2 | PG.DGIS.C2 | Geostatistics | CO1: After completion of the course students will understand various types of datasets and applying different statistical techniques to different data sets which will systematically access, analyze and evaluate information and ideas from multiple sources in order to identify underlying assumptions, and formulate conclusions.<br>CO2: The course will enhance skills like solving quantitative problems and statistical queries. |
| 3 | PG.DGIS.C3 | Basic of Remote Sensing and Photogrammetry | CO1: Students will be able to understand the concept of remote sensing and EMR apart from this basic level of fundamental physical principles of remote sensing, including the electromagnetic spectrum; the emission, scattering, reflection, and absorption of electromagnetic (EM) radiation; how EM radiation interactions vary across a limited number of substances, geometries, and temperatures; and geometric properties of photographs and imagery. |
| 4 | PG.DGIS.E1 | Digital of Cartography | CO1: Students will understand different types of projections and datum used in various locations. Proficiency and conceptual understanding in using Manual and computer techniques to carry out thematic maps and special purpose maps.<br>CO2: Remote sensing, image processing and analysis through a series of laboratory exercises and reports |
| 5 | PG.DGIS.E3 | Principles of Computers and Computer Programming | CO1: Students will demonstrate proficiency and conceptual understanding in data creation and storage, languages or manuscripts techniques to carry out geographical data for developing and designing application and use of Programming in GIS. |
| 6 | PG.DGIS.C4 | Spatial Analysis & Modeling | CO1: Student will able to apply spatial tool and techniques in spatial datasets for carry out Surface and 3d analysis. |

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|---|---|---|---|
| | | | CO2: Students will demonstrate proficiency and conceptual understanding spatial model making process. |
| 7 | PG.DGIS.C5 | Advanced Remote Sensing and GIS | CO1: Students will be able to apply mathematical relationships (at a pre-calculus level) describing fundamental physical, geometric, and computational principles relevant to remote sensing and GIS.<br>CO2: They will create Remote sensing application |
| 8 | PG.DGIS.E4 | Digital Image Processing | CO1: Students will demonstrate proficiency and conceptual understanding in using software or manual techniques which will prove how digital technology has come over traditional technology to carry out remote sensing image processing and analysis through a series of laboratory exercises and reports. |
| 9 | PG.DGIS.E5 | GIS for Environmental Management | CO1: Students will describe a remote sensing application and assemble and summarize relevant literature in a written assignment, case study and development of models in various environmental activities. |