Notification

No. :22 /2013 Date : 14/3/2013

Subject : Syllabus for Certificate / Diploma / Advanced Diploma Courses in i) Computer for Preparation in Civil Services, ii) Geographical Infiormation System (GIS) and Remote Sensing, iii) Applications of Statistical Techniques in Various Field & iv) Disaster Management, under U.G.C. Scheme of Career Oriented Programme.

It is notified for general information of all concerned that the Authorities of the University have accepted the syllabus for Career Oriented Certificate / Diploma / Advanced Diploma Courses in i) Computer for Preparation in Civil Services, ii) Geographical Infiormation System (GIS) and Remote Sensing, iii) Applications of Statistical Techniques in Various Field & iv) Disaster Management under the Faculty of Social Sciences as given in Appendices A, B, C & D respectively, which are enclosed with this notification and to be implemented from 2012-2013 Academic Session.

The eligibility criteria and other details along with the scheme of examinantions shall be as provided under Ordinance No.47 of 2005 and regulation No. 38 of 2005.

Sd/-
(Dineshkumar Joshi)
Registrar
Sant Gadge Baba Amravati University

Appendix-A

Syllabus under the Scheme of Career Oriented Programme for the subject <u>Certificate Course</u> in Computer for Perparation in Civil Services.

<u>Unit-I</u> <u>Fundamental of Computer</u> :
Evolution of Computer, History,Definition, Block Diagram, Functioning, Algorithms, Flowcharts, Programming Languages, Software, Types & Classification, Fundamentals of C programming, Introduction to CPP/Java, Working with Windows & Internet.

<u>Unit-II</u> **<u>´Ö¸ÖšßÖ †×नवार्य :</u>**
A) निबंध (५०० श²¤Ö“ÖÖ)
वैचारी / वर्णनात्मक / कल्पनापर / ज्वलंत समस्येवर.
B) ¯Öj×व्यहार अर्ज
C) †Ö**क**लन - <ग्रंजी उतार्याचे मराठीत भाषांतर करणे.
D) व्या**क**रण - ¿Ö²¤Ö्च्या जाती, वाक्य प्रकार, काळ,म्हणी, <ग्रंजी ¿Ö²¤Öना पर्यायी ¿Ö²¤.

<u>Unit-III</u> <u>English Compulsory</u> :

A) Essay in about 300 words.
B) Letter writing Informal letters, Formal letters, official/business letter , letter to the editor in about 100 words.
C) Communication Skills
In about 100 to 150 words.
i) Report
ii) Notice
iii) Dialogue writing
iv) Speeches
D) Precis writing
E) Comperhension
F) <u>Grammar</u> :

1) Transformation of sentences
2) Correction of sentences
3) Use of Tenses
4) Punctuation
5) Word formation and use phrases.

<u>Unit-IV</u> <u>General Studies</u> : Human Resource Development and Human Rights.

A) Human Resource Development in India.
B) Education

i) Pre-primary to Higher Education System in India.
ii) Problems & Issues of Education.
iii) Govt. Policies, Schemes Programmes for Education.

C) Vocational Education

i) Present Status & System in India
ii) Institutes Involved in Promoting Technical Education.

D) Health & Rural Development.

i) Objectives of World Health Organization and Indian Government.
ii) Employment Guarantee Scheme.

E) i) International Human Rights Standard.
ii) Protection of Human Rights in India.
iii) Problems related to human rights deprivation such as poverty, illiteracy & unemployment, violence, corruption, exploitation of labour.

Unit-V History, Geography, & Political Economy :

A) History :
1) History of Modern India, Introduction of Modern Education, Industries, Socio-Religious Reforms.
2) Establishment of British rule; Structure of British Rule upto 1857.
3) Socio Cultural Change-Contacts with Christian Mission, English Education.
4) Emergence of India Nationalism.
5) National Movement in Gandhian Era.
Gandhiji's Leadership and Ideology of Registance, Non co-operation, Civil Disobedience, Satyagraha Quit India Movement, Untouchability.
6) India after Independence : Consequences of Partition, Linguistic; Reorganization of States, Liberation of Bangladesh.

B) Geography :
1) Geographical Diversity in India.
2) Land Water & Forests : Environmental Movements.
3) Agricultural System in India.

C) Policy :
1) Nation, Democracy & Citizenship.
2) Political Parties, Pressure Groups, Social & Political Elite.
3) Regionalim and decentralization of Power
4) Secularization.

Diploma Course in Computer for Preparation in Civil Services.

Unit-I A) Introduction to MS OFFICE :

Working with MS Office, MS-Word Basics, Excell Basics, Working with Power Point & Paint Brush.

B) Selected Social Reformers of Maharashtra-Their Ideology & Work :

i)Gopal Ganesh Agarkar, Mahatma Phule, M.G. Ranade, Prabodhankar Thakare, Maharshi Karve, Rajarshi Shahu Maharaj, Maharshi Vithal Shinde, Babasaheb Ambedkar, Lokmanya Tilak, Mahatma Gandhi, Vinoba Bhave, Vinayak D. Savarkar, Annabhau Sathe, Krantivir Nana Patil , Lahuji Sarve, Kramavir Bhaurao Patil.

Unit-II History : Cultural Heritage of Maharashtra (Ancient to Modern)
1) Performing Atrs :(Dance, Drama, Films, Music, Folk Arts, Lavani, Tamasha, Povada & Bharud)
2) Visual Arts : Architecture, Painting & Sculpture, Festivals.
3) Literature : Bhakti, Dalit, Urban & Rrural Literature.
4) Problems of Weaker Sections : Children, Women, SCs, STs and Other Minorities.

Unit-III Geography :

1) Physical Geography, Composition & Interior of the Erth.
2) Economic Geography : Minerals and Energy Resources and Their Distribution.
3) The State of Maharashtra : Districts, and Block Crops & Climate.
4) Land, Water and Forest Management-Sustainable Envirnoment and Development

Unit-IV Polity : Indian Constitution and Indian Politics.
1) The Constitution of India : Features, Philosophy of the Peramble.

2) The Political System : Structure of Power & Functions of Governments.
   i) The Central Government (Executive)
   ii) The Union Legislature (Rajyasabha & Loksabha)
   iii) Judiciary.
3) The State Government : Block & Local Self Govt., District Administration and Rural Development.
4) State Legislature (Vidhan Sabha & Vidhan Parishad)

Unit-V Economy :

1) Indian Agriculture & Industry, Agriculture in National Economy
2) Economy of Maharashtra.
3) The Media: Print & Electronic Media, Code of Conduct of Mass media. Freedom of Speech and Expression & Limitations.
4) Role of Science and Technology : Energy, IT, Biotechnology, Nuclear Policy of India, Natural Calamities & Disaster Management.

Advanced Diploma Course in Computer For preparation in Civil Services.

Unit-I A) Web Technology :
Introduction to Information Technologies, Introduction to Web Technologies, Components & Tools of Information Technology, Web Administration and Management, Structure of web, Web Programming, Languages, Introduction to Mobile Computing, Cloud Computing. Security Issues, Viruses, Attacks & Threats
Web Technology Applications, e-learning, M -Learning

B) 1) Information about Maharashtra -
Block and District : Agriculture, Education, Tourism, Industry, Geography.

2) Information about India-
Capital, Languages, Communication, Industry, Main Feautures.

Unit-II General Knowledge :-

1) Award, Books and Writer, Science, Discovery and Invention, Sports, Players, Record. Tournament, World Cup, Firsts in Maharashtra and World.

2) Current affairs : President, Prime Minister, Chief Minister, Governor, Cabinets, Guest from Foreign.

3) Current Events : Sports, Games, Problems to National Integration, National and International Events, etc.

Unit-III Banking :

a) Reserve Bank of India, Nationalized Banks in India
b) Role of National Bank for Agriculture, Unit Trust of India and Land Development Bank, etc.
c) Liberization, Privatization & Globalization
d) Intelligence Test. (Reasoning) :

1. Addition, Subtraction, Multiplication
2. Root, cube, square
3. Series, coding, decoding, Relationship, direction, time & periods.

Unit-IV Question Pattern for Competitive Examination:

1) Question pattern of paper for Clerks. Multiple Choice Objective type questions
2) Question pattern of paper for Perliminary Examination for MPSC/UPSC : Multiple Choice, Objective type questions.
3) Main Examination paper pattern. :

a) Short Essay type questions (10 Marks) answer in 250 words
b) Short questions (5 Marks) answer in 125 words
c) Long essay type questions (20 Marks) answer in 500 words.

Unit-V Test series of papers for all types of Competitive examinations .
1) For Banking & Clerical Jobs.
2) For M.P.S.C./UPSC Preliminary Exam.
3) For Main Examinations (MPSC/UPSC).

Reference Books :-

1) Puri. G.k., : Indian History, IIMS. Publication.
2) Arora, Prem :Political Science, Book-hives, Publication : New Delhi.
3) Pandey, P. : Self Review Agriculture, Book-hives, Publication : New Delhi.
4) Chopra, J.K..: Economics, Unique Publication : New Delhi.
5) Madan, S.S. : Studies in Indian History, Career’s (Bright) : Publication.
6) Sinha, Bhaskar : Objective Agriculture, Career Publication : New Delhi.
7) Malhotra, A.M. : State Bank & its Associate Banks, Probationary Officers Exam, Model Solutions.
8) Chopra, J.K. : Current National Issues & Topics of Social Relevance , Unique Quitessence Publication, New Delhi.
9) Chanderam, E. : Indian Economy : Cosmos Book-hive’s : New Delhi.
10) Chopra, J.K..: UPSC Civil Services Parliminary, Unique Publication : New Delhi.
11) Ajaz, S.M..: Objective Sociology, Career’s : New Delhi.
12) Book-hives Public Administration, Book-hive’s. Publication : New Delhi.
13) Singh, S : U.G.C.-NET Paper-III COSMOS Book-hives : New Delhi.
14) Bookhive’s : Political Science, COSMOS Book-hives : New Delhi.
15) Chopra, J.K. : Currents Events, Unique Publication : New Delhi.
16) Dwivedi, R.K. : Macmillan Foundation English, Macmillan : New Delhi.
17) CSR : Economics : for Civil Services Preliminary Examination, Competition Success.
18) Kachrao, J.L.: Sociology, Cosmas : New Delhi.
19) Chanderan, E,: Indian Economy, Cosmas : New Delhi.
20) Chopra, J.K..: History of Modern India and Indian Culture, Unique Publication : New Delhi.
21) Malhotra, A.M. : Mass Communications Journalism, (Bright’s) Career’s Publication : New Delhi.
22) Chopra, J.K.: Indian History, Unique Publication : New Delhi.
23) Chopra, J.K.: Geography, Unique Publication : New Delhi.
24) Economic and Social Problems, Career’s. (Bright) Publication : New Delhi.
25) के. सागर व घांगरेकर, भारताचे शासन आणि राजकारण, के. सागर प्रकाशन : पुणे.
26) ¾ÆB.²ÖB.¯ÖÖ™B»Ö : भारतीय प्रशासन, के. सागर हाऊस ऑफ बुक्स : पुणे-2
27) ¤ÉÒ. ¤ÉÒ. {ÉÉÊ]õ±É : लोकप्रशासन, ¡òbEò प्रकाशन : कोल्हापूर
28) ¤ÉÒ. ¤ÉÒ. {ÉÉÊ]õ±É : ³ÖÖ¸ÛÖÖSÖ ¿ÖÖºÉन +ÉÊhÉ ¸Ö•Ö¶कÖ¸hÉ, ¡òbEò प्रकाशन : कोल्हापूर.
29) ¦ÉÉ. »Ö. ¦ÉÉ ³|. ¦ÉÉ®iÉÒªÉ MÉhÉ¸Ö•ªÉÖSÖ ¿ÖÖºÉन +ÉÊhÉ ¸Ö•Ö¶कÖ¸hÉ, पिंपळापूर प्रकाशन : नागपूर.
३०) श्री.मु. देसाई व निर्मल भालेराव : भारतीय अर्थव्यवस्था, निराली प्रकाशन : पुणे.
31) ¦ÉÉ]õ , ¦ÉÖºÉ»Ö : ¦ÉÉ®iÉÒªÉ +lÉ´ªÉ´ÉºlÉÖ, ¡òbEò, प्रकाशन : कोल्हापूर.
३२) विद्याधर महाजन : आधूनिक भारताचा ईतिहास, एस. चांद प्रकाशन : नवी दिल्ली.
33) -----’’ ¦ÉÉ®iÉÒªÉ º´ÉÖiÉjÉ SÉ³|´É³|ÖSÉÉ <ÊiÉ½ÉºÉ ¡òbEò, प्रकाशन : कोल्हापूर.
34) बी.एल. ग्रोव्हर व एस.के. वेल्हेकर : आधूनिक भारताचा इतिहास,एस. चांद प्रकाशन : नवी दिल्ली.
३५) ए.बी. सवदी : महाराष्ट्र, निराली प्रकाशन : पुणे.

३६) श्री नांदेडकर : पंचायत राज के. सागर प्रकाशन : पुणे.
३७) श्रीकांत कार्लेकर व भागवत, नलावडे : भूगोल, डायमंड प्रकाशन : पुणे.

Appendix-B

Syllabus prescribed under the scheme of Career Oriented Programme. Certificate Course in Geographic Information System (GIS) and Remote Sensing

(Duration One Year)

Unit -1 Concepts and Foundation of Remote Sensing : Concept, Definition and Scope of Remote Sensing, Remote Sensing terminology, An Ideal Remote Sensing System, History and recent development in remote sensing.

Unit –II Stages in Remote Sensing : Emissin of electromagnetic radition (EMR), Transmission of energy from the Source to the surface of the earth as well as absorption and scattering of energy in the atmosphere, Interaction of EMR with the Earth's Surface-Reflection., Transmission of Energy from the surface to Remote Senor, Sensor Data output, Data Transmission , Processing and analysis.

Unit-III Platforms and Sensors : Platforms-Ground borne, Air borne and space borne. Classification of Sensors-Operating in Optical infrared region (OIR), Microwave region, Passive and active. Resolution- Spatial Resolution,Spectral rediometric Resolution, Rediometric Resolution, Temporal Resolution.

Unit-IV Introduction to GIS Technology and Applications : Definition of GIS, GIS as automated Geography, GIS Terminology, Analogue Versus digital GIS, Elements of GIS : Hardware, Software, Data and Liveware, Application of GIS in land in information system, Urban management, Environmental management and Emergency responce system.

Unit-V Raster and Vector Spatital Data Analysis : Data base management system GIS – data file management, storage of GIS Data, Types of data structure – Raster and vector formats, Advantages and disadvantages of various data format.

Recommended Books :

1. Americal Society of Photogrammerty : Manual of remote Sensing. ASP, falls churh, V.A. 1983.
2. Barrett E.C. and L.F. Curtis : Fundamentals of Remote Sensing and Air Phota Interpretation, Mcmillan, New York, 1992.
3. Compbell J. : Introduction to Remote Sensing, Guilford, New York, 1989.
4. Curran Paul J. : Principles of Remote Sensing, Longman, London, 1985.
5. Hord R.M. : Digital Image Processing of Remotely Sensed Data, Academic, New York, 1989.
6. Luder D. Aerial Photography Interpretation : Principles and Application, McGraw Hill, New York, 1959.
7. Pratt W.K. Digital Image Processing, Wiley, New York, 1978.
8. Rao D.P. (eds.) : Remote Sensing for Earth Resources, Association of Exploration Geophysicist, Hyderabad, 1998.
9. Thomas M. Lillesand and Ralph W. Kefer, remote Sensing and Image Interpretion, John Wiley & Sons New York, 1994.
10. Aronoft S. Geographic Information Systems : A Management Perspective, DDL Publication Ottawa, 1989.
11. Burrough P.A. Principles of Geographic Information Systems for Land Resorce Assessment Oxford University Press, New York, 1986.
12. Fraser Taylor D.R. Geographic Information System, Pergamon Press, Oxford, 1991.
13. Maquire D.J.M.F. Goodchild and D.W. Rhind (eds.). Geographic Information Systems : Principles and Application. taylor & Francis, Washington, 1991.
14. Mark S. Monmonier. Computer-asisted Cartopgraphy. Prentice-Hall Eaglewood Cliff, New Jersey, 1982.
15. Peuquet D.J. and D.F. Marble, Introductory reading in Geographic Information Systems. Taylor & Francis, Washington, 1990.
16. Star J and J, Eates, Geographic Information Systems : An Introduction Prentice Hall, Eaglewood Cliff, New Jersey, 1994.

Diploma Course in Geographic Information System (GIS) and Remote Sensing

(Duration One Year)

Unit -1 Air Photos and Photogrammetry : Elements of photographic system : types, scales and ground coverage, resolution, radiometric characteristics, flims, filters, aerial cameras, flim exposures, geometric funamentals of photogrammetry : elements of vertical photographs, relief displacement, image parallax, streoscopic, orthophotos airphoto interpreation : shape, size pattern, tone, texture, shadows, site.

Unit –II Satelite Remote Sensing : Platforms – LANDSAT, SPOT, NOAAAVHRR, RADARSAT, IRS, INSAT : Principles and geometry of scanners and CCD arrays, orbital characteristics and data products-MSS, TM,LISS I &II, SPOTPLA & MLA, SLAR.

Unit-III Image Processing : types imagery, techniques of visual interpretation, ground verification,transfer of interpreted thematic information to base maps-digital processing rectification and restoration, image enchancement, -contrast manipulation, classification : supervised and unsupervised,post-classification analysis and accuracy assessment, microwave sensing interpretation of SLAR imageries. elements of passive microwave sensing.

Unit-IV GIS ans Remote Sensing Data Integration, Thematic Mapping, Network Analysis –Network Data Model, GIS and Intergration of Other types of Data, Virtual GIS and SDSS, Project design and management, need assessment: conceptual design of GIS; survey of available data; database planninig and design; pilot studies; GIS system intergration; GIS application development; GIS use and maintenance.

Unit-V Overview of GIS Packages : ARC/INFO, IL WIS, Map Info, Intergraph MGE, Intergraph Geo-media and ENVI, Other GIS Interface : HTML, Web GIS, 3D GIS, Object Oriented GIS, Mobile GIS, Location Based Services, Knowldge Based GIS, Spatial Data Warehousing, Spatial Data Mining GIS design and implementation, GIS and integration of other types of data, Application of Remote Sensing Based GIS, Status of GIS in India-Indigenous GIS Packages.

Recommended Reading Books :

1. DeMers. M.N. 2000. Fundamentals of Geographic Information systems, Second Edition, John Wiley & sons, Inc., New York.
2. Kang-tsung Chang 2006. Interoduction to Geographic Information System. Tata McGraw Hill, New Delhi.
3. Nag , P and Sengupta, S 2007. Geographcial Information System – Concepts and Business Opportunities, Concepts Publishing Company.
4. Jensen, J.R.2002.Remote Sensing of the Environment-An Earth Resource Management. Pearson Education, Singapore, First Indian Reprint (Low Price Edition).
5. Joseph, G 2003. Fundamentals of Remote Sensing, ‘‘Universities Press Pvt.Ltd.,Hyderabad.
6. Panda, B.C.2005. Remote Sensing Principles and Applications. Viva Books Pvt. Ltd., New Delhi.
7. Sabnis F.F.Jr. 1997.Remote Sensing-Principles and Interpretation. 3rd Edition, W.H.Freeman and Company, New York.
8. Lillesand, T.M. and Kiefer, R.W. 2000, Remote Sensing and Image Interpretation. 4th Edition, John Wiley Sons, New York.
9. Rampal, k.K., Handbook of Aerial Photography and Interpreation, Concept Publishing Company, New Delhi, 1999.

Advanced Diploma Course in Geographic Information System (GIS) and Remote Sensing

(Duration One Year)

Unit-I Application of Geoinformatics Emergence of geoinformatics technology in application areas understanding potentials of geoinformatics in alied sectors. geoinformatics advantage over conventional techniques. Indian satellite missions with focused applications. Recent trends in geoinformatics applications.

Applications in Land Resource Remote sensing in mapping soil degaradation. impact of suface mining in land resources, forest resources

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Applications in Water Resource Remote sensins in hydro—geomorphological interpretation for groundwater explorations. Water quality monitoring. Reservoir sedimentation, snow cover mapping and modeling approaches

Applications in Environmental Management selection of disposal sites for industrial and municipal wastes, solid waste management Environmental impact asassments (EIA)

Unit-II **Hydrologic Cycle,** hydrological parameters, porosity, permeability, specific yield, types of aquifers, Watershed management : watershed characterization, delineation and codification, watershed problems and managements strategy. Geoinformatics approach for watershed prioritization. Remote sensing in surface-subsurface water exploration: Application of remote sensing in hydro-geomorphologic interpretation for ground water exploration, water quality monitoring through remote sensing.

Applications in Urban Planing : mapping urban land use, transportation network, Utility – facility mapping, urban sprawl, site selection for urban development, urban information system.

Unit-III **Concepts Cartography and Map Projections :**

Definition and Scope of Cartography, Maps as Data Models and information Products, Interpretation of topographic Maps, Map Use is Communication, Maps Types-Choropleth Maps and Proportional symbol Maps, Isopleth Maps, and Dot Maps, Attribute Data – Data Analysis and Classification, Principle of Symbolization and Scale of Generalization, Map Compilation and Map Production.

The Earth and its Co-ordinate System and Elements of Map Projection – Map Projection Concepts, The Reference Globle Developable Surfaces, The Mathematics of Map Projections, Map Projection Characteristics, Distortion of map Projections, Projection Properties and Selecting Appropriate Map Projection.

Unit-IV **Digital Mapping and Visualization :**

Defination and Scope of Computer Cartography, the nature of Data, Database and Data Sturctures, Data Input : Method of data Capture, Scanning Method, Software for Digital Mapping and Techniques of Digitization, Vector and raster Data Output – Screen Display System, File Organization and Formates, Rectification of Digital Maps.

Visualization of Geospatial Data : Design Aspects, Multiscale and Geometric Aspects, 3D Visualization Use and Users of Map, Web Mapping, Virtul Environments, Various Issues in Map Visualization and Interactive Cartography.

Unit-V **Generalization, Simplification and Global Postioning System :**

Categories of Maps, Cartographic Objects and Databased, Cartographic Design, Map Compilation-Map Scale Co-ordinate Systems and Co-ordinate Transformation, Colour and Colour Schemes, Map Lettering and Map Layout, Legend, symbolization, Dot, isarithmic and choropleth mapping , 3 D multivariate and dynamic mapping, Map reproduction and Dissemination, Basic Concepts of Globle Positioning system.

Recommended Reading Books :

1. Cromley, R.G. 1992, Digital Cartography, Prentice-Hall of India, New Delhi.
2. Dent, B.D.1999. Cartography-thematic Map Design, 5th Edition, W.C.B. McGraw-Hill, Boston.
3. Jenson. J.R 2000. Remote Sensing of the environment-An Earth Resource Perspective, Prentice Hall Inc.
4. Lillesand, T.M. and Keifer, R.W. ,1994, Remote Sensing and Image Interpretation, John willey and Sons, New York, Third Edition..
5. P.S.Roy (2000). Natural Disaster and Their Mitigation. Published by Indian Institute of Remote Sensing (IIRS), 2000.
6. Rampal K.K. (1993) : Mapping and compilation. concept Publishing Co., New Delhi.
7. Robinson A. H., Morrison, J.L. Muehrcke., A.C., Kimerling, A.J. and Guptill, S.C. 1995. Elements of Cartography 6th Edition (Student Edition), John Wiley & Sons, New York..
8. Schulz, G.A. and Engman., E.T. 2000 remote Sensing in Hydrology and Water Management, springer-Verlag, Berlin, Germany.
9. Slocum, T.A. McMaster, R.B.., Kessler, F.C. and Howard, H.H. 2008. Thematic Cartography and Geovisualization. 3rd Edition, Prentice Hall.
10. Singh, R.L. and Singh R.P.B. 1992, Elements of Practical Geography. Reprint 2002, Kalyani Publishers, New Delhi.

Appendix-C

Syllabus prescribed for Certificate Course in
" Applications of statistical Techniques in various field "
Under the scheme of Career Oriented Programme

Theory papers shall be of 3 hours duration & carry 100 marks. Each unit carries 20 marks. The practical shall be of 4 hours duration and carry 50 marks.

Unit I:- Introduction of Statistics :

1.1] Defination of Statistics given by various scientist

1.2] Scope of Statistics: Industry, Biological sciences, Medical sciences, Economics, Social Science, Agriculture,, Insurance, I.T., Education and Psychology.

1.3] Statistical organizations in India and their functions: CSO, ISI, NSS, IIPS, Bureau of Economics & Statistics.

1.4] Types of data: Primary data, Secondary data, Cross sectional data, time series data, Quantitative data, time series data, Qualitative data, Questionnaire method.

1.5] Types of characteristics: Nominal scale, Ordinal scale, Interval scale, ratio scale, discrete and continuous variables.

Unit II :- Population and Sample :

2.1] Statistical Population: Finite population, Infinite population, homogeneous population, heterogeneous population.

2.2] Sampling methods (description only): Sample, random sample, nonrandom sample, simple random sampling with and without replacement, Stratified sampling, Systematic sampling, Cluster sampling.

2.3] Presentation of data: Classification: Raw data and its classification, Discrete frequency distribution, continuous frequency distribution, Sturge's rule, inclusive & exclusive classification, cumulative frequency distribution.

2.4] Graphical presentation of data: Histograms, Frequency polygon, ogive curves, Stem & leaf chart, Pareto diagram.

2.5] Examples and problems based on classification and graphical representation.

Unit III :- Measures of central tendency :

3.1] Concept of central tendency, statistical average, characteristics of good statistical average.

3.2] Arithmetic mean and its properties, weighted arithmetic mean.

3.3] Median and its properties.

3.4] Mode with its properties.

3.5] Partition values: Quartiles, Deciles and percentiles.

3.6] Examples based on measures of central tendency

Unit IV:- Measures of dispersion :

4.1] Concept of dispersion, Characteristic of good measure of dispersion

4.2] Range, Semi interquartile range.

4.3] Mean deviation with its properties.

4.4] Mean square deviation, variance, standard deviation, combined variance & its properties.

4.5] Coefficient of dispersion.

4.6] Examples & problems.

Unit V:- Moments :

5.1] Raw moments & Central moments for grouped and ungrouped data.

5.2] Relation between central moments and raw moments.

5.3] Skewness & Kurtosis.

5.4] Concept of kutosis, leptokurtic, mesokurtic, platykurtic frequency distribution.

5.5] Measures of skewness and kurtosis.

5.6] Examples & problems.

Practical

Any 10 experiment based on above syllabus.

Distribution of Practical marks

One experiment:	- 30 marks
Viva	- 10 marks
Practical Record	- 10 marks

Total	- 50 marks

Syllabus prescribed for Diploma Course in
" Applications of statistical Techniques in various field "
Under the scheme of Career Oriented Programme

Theory papers shall be of 3 hours duration & carry 100 marks. Each unit carries 20 marks. The practical shall be of 4 hours duration and carry 50 marks.

Unit I :- Correlation and Regression :

1.1] Concept of correlation: Scatter diagram, Positive, negative , zero correlation.

1.2] Karl Pearson's coefficient of correlation for grouped and ungrouped data, Limits of Karl Pearson Coefficient.

1.3] Spearman's rank correlation coefficient with its properties, Limits of spearman's rank correlation coefficient.

1.4] Regression: Linear regression, nonlinear regression, Limits of regression, Two lines of regression.

1.5] Regression coefficients with its properties.

1.6] Examples & problems.

Unit II :- Theory of probability :

2.1] Permutation and Combination, Algebra of events.

2.2] Concept of probability: Complete terminology used in probability,.

2.3] Classical & Statistical probability, Axiomatic probability.

2.4] Sample space : Discrete, Continuous, finite, infinite.

2.5] Simple theorems on probability

2.6] Examples & problems

Unit III Random variable and Mathematical Expectation :

3.1] Random variable: Discrete and Continuous & its illustration.

3.2] Probability mass function and probability density function with example.

3.3] Mathematical expectation& its properties.

3.4] Expectation of discrete and continuous random variable, Expectation of linear combination of random variable.

3.5] Variance and covariance in terms of mathematical expectation.

3.6] Simple theorems on mathematical expectation

.3.7] Examples & problems

Unit IV Estimation and Testing of hypothesis :

4.1] Estimation: Point & interval estimation, Characteristic of estimation.

4.2] Concept of bias and standard error of estimate.

4.3] Standard errors of sample mean and sample proportions.

4.4] Testing of hypothesis: Hypothesis, null hypothesis, alternative hypothesis, simple, composite hypothesis.

4.5] Types of errors, p values, level of significance, power of test.

4.6] Simple problems on estimation.

Unit V Time series analysis :

5.1] Concept of time series, Its different components & illustrations.

5.2] additive & multiplicative model.

5.3] Methods of determining trend.

5.4] seasonal fluctuations & methods of determining seasonal indices.

5.5] concept of cyclical variation & irregular variation.

5.6] Numerical problems.

Practical

Any 10 experiment based on above syllabus.

Distribution of Practical marks

One experiment:	- 30 marks
Viva	- 10 marks
Practical Record	- 10 marks
Total	- 50 marks

Syllabus prescribed for Advanced Diploma Course in
" Applications of statistical Techniques in various field "
Under the scheme of Career Oriented Programme

Theory papers shall be of 3 hours duration & carry 100 marks. Each unit carries 20 marks. The practical shall be of 4 hours duration and carry 50 marks. Project will be have 50 Marks.

Unit I Discrete and continuous probability distribution :

1.1] Binomial distribution: Probability mass function, mean & variance, recurrence relation for probabilities, real life situation where Binomial distribution is applicable.

1.2] Poisson distribution: Probability mass function, mean & variance, recurrence relation for probabilities, real life situation where Poisson distribution is applicable.

1.3] Negative Binomial distribution: Probability mass function, mean & variance,Geometric distribution: Probability mass function, mean & variance, Geometric Distribution, Probability Mass Function, Mean and variance.

1.4] Normal distribution: Probability density function, Properties of probability curve, mean and variance, standard normal distribution, real life situation where normal distribution is applicable.

1.5] Chisquare distribution: Probability density function, degrees of freedom, mean & variance, real life situation where chisquare distribution is applicable.

1.6] t distribution & f distribution: probability density function, mean & variance, relation between t F,χ^2 distribution, applications of t and f distribution

Unit II Statistical Quality Control & Acceptance sampling :

2.1] quality & its characteristics, causes of variation.

2.2] General theory of control charts, 3σ control limits.

2.3] Control charts for variables ($\bar{X}$, R charts).

2.4] Principles of acceptance sampling, concept of single sampling plan.

2.5] Explanation of the terms: AQL,LTPD, Producer's risk, Consumer's risk, AOQ, AOQL, ATI, Computation of OC,AOQ & ATI curves.

2.6] Concept of double sampling plan.

2.7] Comparison between single & double sampling plan

Unit III Analysis of variance(ANOVA) & Design of experiment :

3.1] One way analysis of variance: Model, Assumption & interpretation, hypothesis testing, ANOVA table, Use of F test.
3.2] Two way analysis of variance: Model, Assumption & interpretation, hypothesis testing, ANOVA table, Use of F test.
3.3] Completely randomized design: Complete analysis of CRD.
3.4] Randomized block design: Complete analysis of RBD.
3.5] Numerical problems.

Unit IV Demographic methods & life tables :

4.1] Sources of demographic data: Census, registers, adhoc survey, hospital records,
4.2] Measurement of mortality: Crude death rate, specific death rate, age-specific death rate, infant mortality rate, standardized death rate (direct & indirect)
4.3] Complete life table: vatious elements of life table & their relations, construction of life table, Uses of life tables,
4.4] Measurement of fertility: crude birth rate, general fertility rate, total fertility rate, age specific rate.
4.5] Measurement of population growth: Crude rate of natural increase, G.R.R., N.R.R.

Unit-V Operations Research :

5.1) Basics- Origin, objective, scope and phases in O.R.
5.2) Linear Programming problem, definition, formulation and solution of LPP – somplex and graphical method.
5.3) Transportation Problem – Definition, formulation and methods of obtaining basic feasible solution, north-west corner rule, matrix minima methods, vegel's approximation method.
5.4) Assignments problem, definition mathematical formulation and Hungarian method for solution of A.P.
5.5) Sequencing problem- sequencing problem of N jobs and 2 machines, assumptions, rotations, algorithms for optimum sequence.

Practical

Any 10 experiment based on above syllabus.

	Distribution of Practical marks
One experiment:	- 30 marks
Viva	- 10 marks
Practical Record	- 10 marks

Total	- 50 marks

Project work/Field work:- 50 marks

The project work / field work involving study tour/ visit to the related institution/ organization/ industry & the report should be submitted.

Recommended books:-

1] Fundamentals of Mathematical Statistics by Gupta S.C. & Kapoor V.K. (S.Chand & Sons)
2] Fundamentals of applied Statistics by Gupta S.C. & Kapoor V.K. (S.Chand & Sons)
3] Fundaments of statistics by Gupta S.C (S.Chand & Sons)
4] Fundaments of statistics by Elhance D. N. (S.Chand & Sons)
5] Basic Statistics by Agrawal B.L. (New Age International (P) Ltd.)
6] Sampling Techniques by W.G.Cochran
7] Fundamental of Statistics Vol I by Goon , Gupta, Dasgupta.
8] Fundamental of Statistics Vol II by Goon , Gupta, Dasgupta.
9] Theory & analysis of sample survey design by Singh D. & Choudhary F.S. (Wiley Eastern Ltd. New Delhi)
10] Sampling theory of surveys with applications Sukhatme P.V. & Sukhatme B.V.
11] Statistical Quality Control by Grant E.L. (Mc Graw Hill)
12] Quality control & industrial statistics by Duncan A. J. (Taraporewala & sons)
13] Experimental Designs by Cochran W.G. & Cox G. M (John Wiley & sons)
14] Design & analysis of experiment by Das M. N. & Giri (Springer Verlag)
15] An introduction to probability theory and Mathematical Statistics by Rohatgi V. K. (Wiley Eastern Ltd New Delhi)
16] Operations Research by Kanti swarup , Gupta P. K. & Manmohan (S. Chand & sons)
17] Operations Research by Goel B.S. & Mittal S. K (Pragati Prakashan Meerut)
18] Operations Research: An introduction by Taha H.A. (Macmillan Publishing House)
19] Probability & Statistics (Schaum's outline series) by Murray & Spigel (McGraw Hill Publishing Co.)
20] Statistics for management by Richard L Lewin & David S. Rubin (Prentie Hall of India Pvt Ltd.)
21] Probability & Statistics by Ronald E. Walpole (macmillan Publishing Co.)
22] Understandable Statistics by Brase & Brase.
23] Statistical method: An introductory test by J. Medhi.
24) Introduction to operation research- Premkumar Gupta, Dr.H.S.Hira, Aarti Kambos (S.Chand)

Appendix-D

SYLLABUS PRESCRIBED FOR CERTIFICATE COURSE IN DISASTER MANAGEMENT
2012-2013

Full Marks (Theory)	-	100	Period per week Theory	-	3
Practical	-	50	Practical	-	4
Project work	-	50	Project	-	2

Time: 3 Hourse for Theory
4 Hourse for Practical Project.

Objective:

i) To Develop Social Aspects
ii) To understand the Basic Concept of Disaster
iii) To acquire knowledge and operation system of different types of disaster Management.
iv) Develop Administrative Managerial Skill

Part 'A' –

Theory : Maximum Marks-100

Unit-I Introduction:

1.1) Definition of Disaster
1.2) Meaning of Disaster Management
1.3) Objectives of disaster Management
1.4) Need & importance of Disaster Management

Unit-II Kinds of disaster:

2.1) Environmental Disaster
2.2) Geographical Disasters
2.3) Biological Disasters
2.4) Natural Disasters
2.5) Manmade Disasters

Unit-III Effects of disasters:

3.1) Medical Effects
3.2) Environmental Effects
3.3) Effects on Production
3.4) Social, Economical & Political Effects
3.5) Administrative & Managerial Effects
3.6) Effects on Distribution

Unit-IV Types of natural disasters:

4.1) Tsunamis
4.2) Flood
4.3) Land Slide
4.4) Earthquake
4.5) Wild Fire
4.6) Cyclone
4.7) Drought
4.8) Lightening
4.9) High Precipitation
4.10) Hailstorms
4.11) Epidemic and Contagious / Infectious

Unit-V Types of Manmade disaster

5.1) Fire
5.2) Nuclear, Biological & Chemical disaster
5.3) Riots
5.4) Burst of L P G Cylinders
5.5) War

NOTE :- Practical work, Project work , Viva-vice on Project Report shall be based on syllabus

Part 'B'- **PRACTICALS**

Allotment of marks of 50 for practical work for every end of academic year. This practical work will be evaluated by the External & Internal Examiner

SCHEME OF MARKING AS UNDER

1.	Assignment work	20 Marks
2.	Review of Literature and Practical Approach & it's Presentation (viva-voce)	30 Marks
	Total	50 Marks

Part 'C'- **Field work / Project work**

Project Work Based on critical Study of any One of the topics Included in Theory Practical should be completed.

SCHEME OF MARKING AS UNDER

1.	Field Trip	10 Marks
2.	Visit to disaster (If happen)	20 Marks
3.	Report Writing (Project)	20 Marks
	Total	50 Marks

Part 'B'- **PRACTICALS**

Allotment of Marks of 50 for Practical Work for every end of Academic Year. This Practical work will be Evaluated by the External & Internal Examiner

SCHEME OF MARKING AS UNDER

1.	Assignment work	15 Marks
2.	Class Test & work	15 Marks
3.	Field Visit & Report	20 Marks
	Total	50 Marks

Part 'C'- **PROJECT**

Project Report submitted by the candidate based on his training/field work/work experience shall be assessed by external & Internal Examiner.

SCHEME OF MARKING AS UNDER

1.	Project Report	30 Marks
2.	Viva	20 Marks
	Total	50 Marks

Books Recommended :

1. Disaster Management Strategies
   Edited by. Vivek Devlankar, Published by Commonwealth Publishers Pvt.Ltd.
2. Disaster Management
   Edited by. Dr. M.C. Pawar, Published by MPS publishers & Distributors
3. Disaster Management
   Edited by. Narendra Padhan, Published by. Surendra Publications
4. Human Made Disaster Management
   Edited by. Arun Kumar Talwar, Satish Juneja, Published by. Commonwealth Publishers.
5. Natural Disaster Management
   Edited by. Arun Kumar Talwar, Satish Juneja,
   Published by. Commonwealth Publishers.
6. आपत्ती व्यवस्थापन : डॉ. के.यु. घोरमोडे, डॉ. कला घोरमोडे, विद्या प्रकाशन.
7. तुम्ही सज्ज आहात का ?
   आपत्ती व्यवस्थापन मार्गदर्शक पुस्तीका, आय.सी. सिसोडिया.
8. आपत्ती व्यवस्थापनाचे 'आव्हान'
   डॉ. संजय चाकणे, डॉ. प्रमोद पाब्रेकर, डायमंड पब्लीकेशन, पुणे-2012.
   ISBN- 978-81-8483-456-7.

SYLLABUS PRESCRIBED FOR DIPLOMA COURSE IN DISASTER MANAGEMENT

Full Marks (Theory)	-	100	Period per week Theory -	3
Practical	-	50	Practical -	4
Project work	-	50	Project -	2

Time:3 Hours for Theory
4 hours for practical & project

Objective:

i) To develop social aspects
ii) To understand the basic concept of disaster
iii) To acquire knowledge and operation system of different types of disaster management.
iv) Develop Administrative Managerial Skill

Theory : Maximum Marks-100

Part 'A' –

Unit-I Kinds of Disaster Management Function:

1.1) Pre-disaster functions
1.2) Preventive Functions
1.3) Reducing the Intensity of Disaster

Unit-II Mitigation

2.1) Nature & Significance of Mitigation
2.2) Mitigation & Management

Unit-III Disaster Properness

3.1) At community level
3.2) At Individual Level
3.3) At Education Instructional Level
3.4) At Hospital Level
3.5) At Religious & Historical Places

Unit-IV Rescue from disaster

4.1) Nature and meaning of rescue
4.2) Types of Rescue
4.3) Basic principles of governming rescue

Unit-V Rescue Process

5.1) Stages of rescue process
5.2) Planning of rescue process
5.3) Stages of Properness
5.4) Executation

NOTE :- Practical work, Project work , Viva-vice on Project Report shall be based on syllabus

Part 'C'- PROJECT

Project Report submitted by the candidate based on his training/field work/work experience shall be assessed by external & Internal Examiner.

SCHEME OF MARKING AS UNDER

1.	Project Report	30 Marks
2.	Viva	20 Marks
	Total	50 Marks

Books Recommended :

1. Disaster Management Strategies
   Edited by. Vivek Devlankar, Published by Commonwealth Publishers Pvt.Ltd.
2. Disaster Management
   Edited by. Dr. M.C. Pawar, Published by MPS publishers & Distributors
3. Disaster Management
   Edited by Narendra Padhan, Published by. Surendra Publications
4. Human Made Disaster Management
   Edited by. Arun Kumar Talwar, Satish Juneja, Published be. Commonwealth Publishers.
5. Natural Disaster Management
   Edited by. Arun Kumar Talwar, Satish Juneja, Published by. Commmonwealth publishers
6. आपत्ती व्यवस्थापन : डॉ. के.यु. घोरमोडे, डॉ. कला घोरमोडे, विद्या प्रकाशन,
7. तुम्ही सज्ज आहात का ?

   आपत्ती व्यवस्थापन, मार्गदर्शक पुस्तीका, आय.सी. सिसोडिया.
8. अग्निशमन इंडस्ट्रीयल फायर फायरिंग लेखक : अच्युत दिक्षीत, मंगला प्रकाशन, डोंबीवली.
9. आपत्ती व्यवस्थापनाचे 'आव्हान'
   डॉ. संजय चाकणे, डॉ. प्रमोद पाब्रेकर, डायमंड पब्लीकेशन, पुणे-2012.
   ISBN- 978-81-8483-456-7.

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SYLLABUS PRESCRIBED FOR ADVANCED DIPLOMA COURSE IN DISASTER MANAGEMENT

Full Marks (Theory)	-	100	Period per week Theory -	3
Practical	-	50	Practical -	4
Project work	-	50	Project -	2

Time: 3 Hours for Theory
4 Hours for Practical and Project.

Objective:

i) To develop social aspects
ii) To understand the basic concept of disaster
iii) To acquire knowledge and operation system of different types of disaster management.
iv) Develop Administrative Managerial Skill

Theory : Maximum Marks-100

Part 'A' -

Unit-I Relief for Disaster

1.1) Introduction
1.2) Definition
1.3) Function: preparedness, response & Medicine

Unit-II Requirement of Medical Facilities at the time of disaster

2.1) Medical requirement
2.2) Establishing control centers
2.3) Risk Assessment & vulnerability analysis

Unit-III To relay Information of signs of disasters

3.1) Previous information about disaster
3.2) To acquires information before disaster
3.3) To acquire information after disaster

Unit-IV Co-ordination

4.1) To take quik decision
4.2) Co-ordination among commmunities
4.3) Co-ordination among all Constituents
4.4) Co-ordinations relief, Rehabilitation, Reconstruction & Recovery

Unit-V Post disaster Management

5.1) Forming and deploying of rescue teams
5.2) Management of Media
5.3) Organizaing activites at ground zero security
5.4) Planning the visits of V VIP
5.5) Records of deaths
5.6) Causality, Evacuation

NOTE :- Practical work, Project work , Viva-vice on Project Report shall be based on syllabus.

Part 'B'- PRACTICALS

Allotment of Marks of 50 for Practical work for every end of Academic Year. This Practical work will be Evaluated by the External & Internal Examiner

SCHEME OF MARKING AS UNDER

1.	Assignment work	15 Marks
2.	Class Test & work	15 Marks
3.	Field visit & Report	20 Marks
	Total	50 Marks

Part 'C'- PROJECT

Project Report submitted by the candidate based on his training/field work/work experience shall be assessed by external & Internal Examiner.

SCHEME OF MARKING AS UNDER

1. Project Report 30 Marks

Books Recommended :

1. Disaster Management Strategies
   Edited by. Vivek Devlankar,
   Published by Commonwealth Publishers Pvt.Ltd.
2. Disaster Management
   Edited by. Dr. M.C. Pawar, Published by MPS Publishers & Distributors
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   Published by. Commonwealth Publishers.
5. Natural Disaster Management
   Edited by. Arun Kumar Talwar, Satish Juneja,
   Published by. Commonwealth Publishers.
6. †Ûपत्ती व्यवस्थापन : डॉ. के.यु. घोरमोडे, डॉ. कला घोरमोडे, विद्या प्रकाशन,
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   आपत्ती व्यवस्थापन मार्गदर्शक पुस्तीका, आय.सी. सिसोडिया.
8. अग्निशमन इंडस्ट्रीयल फायर फायरिंग
   »Ûखक : अच्युत दिक्षीत, मंगला प्रकाशन, डोंबीवली.
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   ISBN - 978-81-8483-456-7.

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