



गुरुवार, दिनांक ११ डिसेंबर, २०१४

अधिसूचना

क्रमांक : १४६/२०१४

दिनांक : ११-१२-२०१४

विषय : संलग्निकरणाबाबत..

सर्व संबंधीतांचे माहितीकरीता अधिसूचित करण्यात येते की, खाली दर्शविलेल्या महाविद्यालयांकरीता, अभ्यासक्रम / विषय / अतिरीक्त तुकडी च्या संलग्निकरण वाढीसंदर्भात नियुक्त करण्यात आलेल्या चौकशी समित्यांचे अहवाल दि.२६.०९.२०१४ व तहसुब सभा दि. २९.०९.२०१४ रोजी झालेल्या विद्वत परिषदेने विषय क्र. ४४, ६५, ७० व ९८ अन्वये तसेच दि.१८.०४.२०१३ रोजी झालेल्या विद्वत परिषदेने विषय क्र. ४४ अन्वये मान्य केल्यानुसार स्तंभ क्र.२ मध्ये दर्शविलेल्या महाविद्यालयास, स्तंभ क्र.३ मध्ये दर्शविलेल्या अभ्यासक्रम / विषय / अतिरीक्त तुकडीस, स्तंभ क्र.४ मध्ये दर्शविलेल्या कालावधीकरीता म.वि.कायदा १९९४ मधील कलम ८३, ८६ व ८७ मध्ये दर्शविलेल्या तरतुदींचे तसेच B.Ed., M.Ed., LL.B. या अभ्यासक्रमास संबंधीत शिखर संस्थांच्या (Apex Body) मान्यतेचे अधिन राहून, विद्वत परीषदेच्या खालील निर्णयाचे अनुषंगाने संलग्निकरण प्रदान करण्यात येत आहे.

‘ Council took the decision that, the colleges having less than 50% of approved teachers, such colleges will be granted continuation of affiliation till 2014-2015. ’

TABLE

Sr. No.	Name of the College	Subject(s) / Course(s)/ Add. Section(s)	Period of continuation of affiliation
1.	2.	3.	4.
1.	Govt. Vidarbha Institute of Science & Humanities, Amravati.	B.A., B.Sc., B.Sc.(Home-Science) M.A. (Marathi,Sanskrit, English,Economics, History,Psychology, Urdu,Political Sci., Hindi,Geography, Philisiophy,Music) M.Sc. (Math,Physics, Chemistry,Botany, Zoology,Stastics, In-organic Chemistry, Home-Science) M.Phil (Marathi,English, Urdu,Economics, Geography, Physics,Chemistry, Zoology,Botany, Stastics,Math, Home-Science)	For the session 2009-2010 2010-2011 2011-2012 2012-2013 & 2013-2014
2.	Amravati Nagar Wachanalaya, Amravati.	C.Lib.	For the session 2013-2014 & 2014-2015
3.	Matoshri Vimalabai Deshmukh Mahavidyalaya, Panchawati Chowk, Morshi Road, Amravati .	B.A, B.Sc.(Home-Science) D.B.M.	For the session 2014-2015 2015-2016 2016-2017 2017-2018 & 2018-2019

4.	Shri R. R. Lahoti Science College, Morshi, Dist-Amravati.	M.Sc. (Pharmaceutical Chemistry)	For the session 2013-2014
5.	Prof. Rajabhau Deshmukh Kala Mahavidyalaya, Nandgaon Khandeshwar, Dist.Amravati.	M.A. (Home-Economics)	For the session 2013-2014 2014-2015 & 2015-2016
6.	Shahid Bhagatsingh Physical Education Mahavidyalaya, Amravati.	B.P.Ed., B.P.E.	For the session 2013-2014 & 2014-2015
7.	College of Library & Information Science, Amravati.	B. Lib.	For the session 2013-2014
8.	Ratrakalin (Night) Arts, Commerce College, Amravati.	B.A., B.Com.	For the session 2013-2014
9.	Mahatma Jyotiba Fule Mahavidyalaya, Parvatinagar, Amravati.	B.Com. (English, Marathi Med.) M.C.M., M.A. (Music) P.G.Diploma in Performing Flok Arts B.C.A.	For the session 2013-2014 2014-2015 2015-2016 2016-2017& 2017-2018 2014-2015 2015-2016 2016-2017 2017-2018 & 2018-2019
10.	Late Babasaheb Kadu Kala Mahavidyalaya, Gurukunj Mozari, Tq.Teosa, Dist.Amravati.	B.A.	For the session 2011-2012 & 2012-2013
11.	Maharashtra Arts College, Shirala, Dist: Amravati.	B.A.	For the session 2013-2014 & 2014-2015
12.	Arts college, Wadhona Ramnath, Tq: Nangaon (Kh.), Distt: Amravati.	B.A.	For the session 2012-2013
13.	Late.Yadaorao Dada Deshmukh Vidhi Mahavidyalaya, Achalpur Camp, Distt. Amravati.	LL.B. (3 Years) LL.B. (5 Years)	For the session 2013-2014 For the session 2012-2013
14.	Institute of Management Studies Mahavidyalaya, Warud, Distt. Amravati.	B.B.A., B.C.A., D.Tax., B.Lib., M.Lib., B.J.M.C.	For the session 2013-2014
15.	Science & Home Science College, Chandur Bazar Tq.Chandur Bazar Distt:-Amravati	B.Sc. (Home-Science) B.Sc., B.Com., B.A.(Social Work)	For the session 2013-2014 & 2014-2015
16.	Keshar Vidnyan Mahavidyalaya, <u>Paratwada</u> Tq.Achalpur Distt:-Amravati	B.C.A.	For the session 2013-2014
17.	S.P. Mahavidyalaya, Gajanan Township Campus, Kathora Road, Amravati	B.C.A., B.B.A., B.F.A.	For the session 2013-2014 For the session 2012-2013 & 2013-2014

18.	Late. R.G. Deshmukh Arts, Commerce & Science Mahavidyalaya, Tiosa Distt:-Amravati	B.A., B.Com., B.Sc.	For the session 2013-2014 & 2014-2015
19.	Shriram Kala, Vanijya & Vidhyan Mahavidyalaya, Morshi Distt:-Amravati	B.B.A., P.G.D.C.A., B.F.D.	For the session 2013-2014
20.	Babaji Date Kala & Vanijya Mahavidyalaya, Yavatmal.	M.A. (History) COP (Insurance)	For the session 2013-2014 2014-2015 & 2015-2016
21.	Kala, Vanijya & Vidhyan Mahavidyalaya, Maregaon Distt:-Yavatmal	B.Com., B.Sc., B.A.-I (Addi. Sect.)	For the session 2013-2014
22.	Shivshakti Arts , Commerce College, Babhulgaon, Distt., Yeotmal.	B.Sc.	For the session 2013-2014 & 2014-2015
23.	Janata Shikshan Prasarak Mandal's Physical Education College, Pusad, Distt. Yeotmal	B.P.Ed., B.P.E.	For the session 2013-2014 2014-2015 & 2015-2016
24.	Mungasaji Maharaj Physical Education College, Darwha, Distt. Yeotmal.	B.P.Ed., B.P.E.	For the session 2013-2014
25.	Shri Jagannath Maharaj College, Wani, Dist. Yeotmal.	B.A.	For the session 2013-2014 & 2014-2015
26.	Smt.Savitabai Uttamrao Deshmukh Mahavidyalaya, Digras, Distt. Yeotmal.	B.A.	For the session 2013-2014 & 2014-2015
27.	Rajiv Arts College, Patanbori, Tq. Kelapur., Distt. Yeotmal	B.A.	For the session 2013-2014
28.	Amolokchand Law College, Yavatmal, Distt: Yawatmal	LL.B. (3 Yrs), LL.B. (5 Yrs)	For the session 2013-2014 & 2014-2015
29.	Mahajan College of Technology, Arni Road, Yavatmal.	B.C.A., B.B.A., B.Com.-I,II B.A.-I,II	For the session 2013-2014
30.	Smt.Maherbanu Commerce & Science College, Akola.	B.C.A, B.B.A, B.Tech.(Cosmetic) B.Sc.(Bio informatic)	For the session 2013-2014 & 2014-2015
31.	Shankarlal Khandelwal Arts, Science and Commerce College, Akola.	B.C.A, B.B.A, B.A.(Sanskrit Litt.) B.Com. (Eng.Med.) M.A.(English) M.Sc. (Bio-infomatics) M.Sc. (Chemistry) COP i) Biomedical Instrumentation ii) Communication Skill in English iii) Banking & Insurances	For the session 2013-2014

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32.	Late. Anil Ramdas Kambe B.Ed. College, Sirso Tq.Murtizapur Distt:-Akola	B.Ed.	For the session 2013-2014
33.	Akola Law College, Akola.	LL.M. 1.Constitutional Law 2.Criminal Law 3.Business Law 4.Corporate Law 5.Human Rights	For the session 2013-2014 & 2014-2015
34.	Hon. R.R.Patil Science College Telhara, Tq.Gadegaon Telhara Distt:-Akola	B.Sc.	For the session 2013-2014
35.	Shri Dhabekar Kala Mahavidyalaya, Khadki (Cha) Dist. Akola.	B.A. (Music,Home-Economics)	For the session 2012-2013 & 2013-2014
36.	Shri Sant Gajanan Maharaj College of Science & I.T., Karanja (Lad) Distt. Washim	B.C.A.	For the session 2013-2014
37.	Matoshri Shanabai Gote Arts, Commerce & Science College, Washim.	B.Sc.	For the session 2013-2014
38.	Shri Ramrao Sarnaik College of Social Work, Washim.	B.S.W., M.S.W.	For the session 2013-2014 2014-2015 2015-2016 2016-2017 & 2017-2018 2013-2014 & 2014-2015
39.	Science College, Risod Distt:-Washim	B.Sc.	For the session 2012-2013
40.	Late.Pundlikrao Gawali Arts, Science College, Shirpur Jain Distt:- Washim	B.A., B.Sc.	For the session 2013-2014 & 2014-2015
41.	Mahatma Phule Arts & Science College, Patur, Dist: Akola.	B.A., B.Sc. B.A., B.Sc.	For the session 2011-2012 2013-2014
42.	Shripad Krishna Kolhatkar College Jalgaon (Jamod), Distt. Buldhana.	B.A., BA -I,II,III (Music,Sanskrit, Sociology) B.Com.	For the session 2013-2014 2014-2015 2015-2016 2016-2017 & 2017-2018
43.	Late.Ganesh B. Shingane Arts College, Deulgaon Mahi, Buldana	B.A.	For the session 2012-2013 & 2013-2014
44.	Dadasaheb Rameshsingh Rajput Sharirik Shikshan Mahavidyalaya, Malkapur, Distt. Buldhana.	B.P.Ed. B.P.E.	For the session 2011-2012 & 2012-2013
45.	Bapumiya Sirajoddin Patel Arts, Commerce & Science College, Pimpalgaon Kale, Buldana.	B.A. B.Com. B.Sc.	For the session 2012-2013
46.	Smt. Surajdevi Ramchandra Mohata Mahila Mahavidyalaya Khamgaon, Distt. Buldhana.	B.Com.	For the session 2013-2014 2014-2015 & 2015-2016

47.	Rajiv Gandhi Science College, Mehakar Distt. Buldhana.	B.Sc., B.Com., B.Sc.(Home-Science) B.C.A.	For the session 2013-2014
48.	Shahu Maharaj College of Education, Buldana	M.Ed.	For the session 2013-2014
49.	Rambhau Lingade Shikshan Mahavidyalaya, Buldhana.	B.Ed.	For the session 2013-2014
50.	Satyajit B. Ed. College, Mehakar. Distt. Buldhana.	B.Ed.	For the session 2013-2014 & 2014-2015
51.	Shri Pundalik Maharaj College, Nandura Rly. Distt. Buldhana.	B.Sc.	For the session 2011-2012 & 2012-2013
52.	Abhinav College of Education, D.P. Road, Chikhali.Distt. Buldhana.	B.Ed.	For the session 2013-2014 & 2014-2015
53.	Saraswati College, Gaulkhed, Road, Shegaon. Distt. Buldhana.	B.B.A., B.C.A.	For the session 2013-2014
54.	Savitribai Fule Vidyan Mahavidyalaya, Shindkhed Raja. Distt. Buldhana.	B.Sc., B.A.	For the session 2013-2014
55.	Mahatma Jyotiba Fule Science College,Sangrampur Tq.Sangrampur Distt. Buldhana.	B.Sc.	For the session 2013-2014
56.	Shinde B.Ed. College, Anjani Bu. Mehakar. Distt. Buldhana.	B.Ed.	For the session 2013-2014 & 2014-2015
57.	G.S. Science, Arts And Commerce College, Khamgaon, Distt. Buldhana.	B.C.A., M.Sc.(Chemistry, Zoology,Computer Science) COP 1.Stastical Application of Various Techniques 2.Fiber optics Communications 3.Solar Energy	For the session 2013-2014
58.	Chhaganrao Bhujbal Arts & Commerce College, Hiwara Ashram, Tq. Mehakar, Distt. Buldhana.	B.A.	For the session 2013-2014
59.	Shivajirao Moghe Kala, Vanijya & Vidnyan Mahavidyalaya, Kelapur (Pandharkawada) Distt:-Yavatmal.	B.A., B.Com., B.Sc.	For the session 2013-2014 & 2014-2015
60.	Shri Govindrao Pawar Physical Education College, Kalamb. Distt:-Yavatmal.	B.P.Ed., B.P.E	For the session 2013-2014

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61.	Rajiv Vidhyan & Vanijya Mahavidyalaya, Zari, Tq. Zari, Distt:-Yavatmal.	B.Com., B.Sc.	For the session 2013-2014
62.	Phulsingh Naik Mahavidyalaya, Pusad. Distt:-Yavatmal.	B.A.(Urdu,Urdu Litt., Persian Litt.) B.Com.(Urdu) B.Sc.(Urdu)	For the session 2013-2014 & 2014-2015
63.	Akola College of Journalism & Social Work, Akola.	B.J.M.C. M.J.M.C.	For the session 2013-2014
64.	Jai Bajrang Arts College, Channi, Dist :- Akola.	B.A.	For the session 2013-2014
65.	Shri Datt Arts College, Asegaon Pen, Tq. Risod.Distt :- Washim	B.A.	For the session 2013-2014
66.	Matoshri Nanibai Gharphalkar Science College,Babhulgaon Distt:-Yavatmal	B.Sc.	For the session 2014-2015
67.	Abasaheb Parvekar Arts, Commerce College, Yavatmal.	B.A. (Rural Handicraft) COP 1.Communication Skill in English 2. E-Commerce 3.Hotal Management 4.Library Office Automation	For the session 2013-2014
68.	Jijaoo College of Education, Yavatmal.	B.Ed.	For the session 2013-2014 & 2014-2015
69.	S.P.M. Science & Gilani Arts & Commerce Mahavidyalaya, Ghatanji Distt:-Yavatmal	M.A-I,II (History, Marathi)	For the session 2012-2013
70.	Mungsaji Maharaj Mahavidyalaya, Darwha Distt-Yavatmal	M.A.-I,II (Political Science) M.Com.-I,II	For the session 2012-2013

स्वा/-
(दिनेशकुमार जोशी)
कुलसचिव
संत गाडगे बाबा अमरावती विद्यापीठ

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 Information 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 Information 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 examinations 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 Certificate Course in Computer for Preparation in Civil Services.

Unit-I Fundamental of Computer :

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.

Unit-II मराठी अनिवार्य :

- A) निबंध (५०० शब्दांचा)
वैचारी / वर्णनात्मक / कल्पनापर / ज्वलंत समस्येवर.
B) पत्रव्यहार अर्ज
C) आकलन - इंग्रजी उतार्याचे मराठीत भाषांतर करणे.
D) व्याकरण - शब्दांच्या जाती, वाक्य प्रकार, काळ, म्हणी, इंग्रजी शब्दांना पर्यायी शब्द.

Unit-III English Compulsory :

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

Unit-IV General Studies : Human Resource Development and Human Rights.

- A) Human Resource Development in India.
B) Education

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 Planning : 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 Globe 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 Structures, 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 Globe 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 kurtosis, 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: various 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 – simplex and graphical method.
- 5.3] Transportation Problem – Definition, formulation and methods of obtaining basic feasible solution, north-west corner rule, matrix minima methods, Vogel'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] Fundamentals of statistics by Gupta S.C (S.Chand & Sons)
- 4] Fundamentals 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 & Spiegel (McGraw Hill Publishing Co.)
- 20] Statistics for management by Richard L Lewin & David S. Rubin (Prentice 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)