3.4.1 The institution has a stated Code of Ethics for research and the implementation of which is ensured through the following: 1. Inclusion of research ethics in the research methodology course work 2. Presence of institutional Ethics committees (Animal, chemical, bio-ethics etc) 3. Plagiarism check 4. Research Advisory Committee	Copy of the syllabus of the research methodology course work to indicate if research ethics is included. Page No. 2-74

(Subject code: 18SPHDAH05)

RCT SUBJECT- RESPIRATORY CARE TECHNOLOGY

MODULE 1 - Respiratory Care Technology - Clinical

Symptoms of respiratory diseases • Cough, Haemoptysis, dyspnoea, cyanosis Concept of disease, clinical Evaluation and management of the following Respiratory Diseases • Acute Rhimitis • Acute sinusits • Acute pharynagitis • Larynogo tracheitis • Epiglotitis

Lower respiratory tract infection • Bronchietis • Pneumonia - commMODULEy acquired, hospital acquired • Innunocomprmised host • Lung abscess • Atypical pnecemia • Common viral and fungal lower respiratory • Pulmonary tuborcuiosis • Tropical consinophelia • Acute obstructive pulmonary diseases and acute respiratory failure • Pulmonary oedema • Acute lung injury • Toxic inhalation • Bronchial asthma and other types of chronic obstructive pulmonary disease

MODULE 2 - Oxygen therapy (rationale for oxygen therapy, precautions assessment of need and adequacy and therapy and the relevant devices) • Causes and responses to hypoxemia • Clinical signs of hypoxemia • Geals of oxygen therapy • Oxygen therapy devices • Hazards of oxygen therapy • Uses of humidification • Possible of inadequate humidification • Possible results if leained airway • Types of humidifies (including active and passive methods of humidification) • Goals of aerosol therapy • Hazards of aerosol therapy • Assessment of aerosol therapy • Factors influencing aerosol deposition in the lungs • Particle deposition

• Aerosol generators , Nebulisers and metered dose inhaler • Types of nebulisers • Aerosol output • Small volume nebuliser therapy-definition, physiological rationale Gas Analysers (Oxygen ,Carbon - Dioxide) • Gas analysis • Transcutaneos oxygen monitors • pulse oximeters • Capnography

Manual Resuscitators • types of resuscitator bags, bruits airway • Indications • Hazards

Artificial air way (oral and Nasal Endotracheal tubes tracheostomy tubes) • Parts of airway and features • Types sizes and method of insertion • Indications for use • Care of long term airway and complications • Face mask - types sizes and its usage

MODULE 3 - Respiratory Care Technology - Applied

Principles of mechanical ventilation -Airway resistance, lung compliance, dead space Ventilation, ventilatory failure, oxygenation failure, clinical conditions leading to mechanical ventilation. Operating modes of mechanical ventilation. Monitoring in mechanical ventilation- concepts of monitoring, vital signs, chest inspection and auscultation, fluid electrolyte balance, arterial blood gases, oxygen and end tidal carbon dioxide monitoring Management of mechanical ventilation-strategies to improve ventilation, improve oxygenation, acid base electrolyte balance and their correction. Fluid electrolyte nutrition balance and management. Troubleshooting of ventilator alarms and events, care of the ventilation circuit, care of the artificial airway. Pharmacotheraphy for mechanical ventilation

MODULE 4 - This includes drugs for improving ventilation, steroids, MDI medications, neuromuscular blocking agents like nitric oxide, propafol and Anaesthetic gases Effect of PEEP- Pulmonary considerations, effects on the cardiovascular system, Haemodynamics, renal neurological considerations. Basic ventilator waveform analysis. Haemodynamics monitoring; ECG arterial catheter, CVP , pulmonary artery catheter, Cardiac output and vascular resistance calculation, Preload after load contractility assessment, calculation of haemodynamic values, monitoring of mixed venous saturation Classification of mechanical ventilators- Ventilator classification, ventilatory work, drive mechanism, control circuits, control variables, phase variables, output waveform, alarm system. Airway management in mechanical ventilation-intubation, common artificial airways, intubation procedures, management of endotracheal and tracheostomy tubes, extubation, complications of the above. Tracheostomy minitracheostomy Endotracheal intubation Humidification

MODULE 5 -Respiratory Care Technology - Advanced

Initiation of mechanical ventilation- indications, contraindication, initial Ventilator settings, Ventilator alarm settings, hazards and complications Weaning from mechanical ventilation-weaning and its failure, weaning criteria and indices, weaning procedure, signs, causes of weaning failure. Neonatal mechanical ventilation - intubation and problems inherent to the neonate, surfactant replacement therapy, basic principles of neonatal ventilation, modes, initiation and maintenance, high frequency ventilation, liquid ventilation Clinical situations with case studies of mechanical ventilation and management. Noninvasive positive pressure ventilation - introduction, terminology, indications, CPAP, bi-level PAP , Home mechanical ventilation-goals, indications, patient selection, equipment selection. Miscellaneous -

barotraumas, transport during ventilation, hyperbaric therapy, caissons disease and high altitude sickness, sleep apnea and related disorders, drug overdosaging and poisoning requiring ventilation and their therapy, pulmonary edema, drowning, oxygen toxicity.

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[In compliance of University Grants Commission (MinimumStandards and Procedures for Award of Ph.D. Degree) Regulations, 2016]

COURSEWORK SYLLABUS OF Ph.D. PROGRAMME IN MANAGEMENT AND COMMERCE

COLLEGE OF MANAGEMENT AND COMMERCE

City Campus, Pandeshwar,
Mangaluru – 575 001.

SRINIVAS UNIVERSITY
COLLEGE OF MANAGEMENT & COMMERCE
Ph.D. PROGRAMME
SYLLABUS OF COURSEWORK

A. COURSEWORK PATTERN 400 M

Sl. No.	Subjects	Exam (Hours)	Credits	Internal Marks	External Marks	Marks
1	Qualitative & Quantitative Research Methods in Business Management / Commerce	2	4	50	50	100
2	Advanced Topics in Business Management / Commerce	2	4	50	50	100
3	Publication and Presentation of Industry and Company Analysis	2	4	50	50	100
4	Research and Publication Ethics and Review of Literature	2	4 (1+3)	50	50	100
Total			**16**	**200**	**200**	**400**

B. COURSEWORK SYLLABUS

1. Qualitative & Quantitative Research Methods in Business Management & Commerce 100 M

Internal Marks : 50 University Examination Marks : 50

Unit 1:Various Research methods & Methodologies & Their Applications.
Unit 2:Empirical Research, Hypothesis Testing, Data Collection, Analysis & Interpretation.
Unit 3:Focus Group Interactions & Model Building.
Unit 4.:Data Analysis using MS Excel.
Unit 5:Online course Certification on Research Methodology or Research Techniques from,SWAYAM /SWAYAM ARPIT.

Note: Submit Hand written Assignment for Unit 1 to Unit 4 (4 Assignments).
Submit Online Certificate obtained SWAYAM/SWAYAM ARPIT Refresher Programme in Research Methodology.
Examination Pattern: Answer any 5 questions from 6, each carries 10 Marks. These questions should cover all four units.

2. Subject Paper :Advanced Topics in Business Management / Commerce 100 M

Internal Marks : 50 University Examination Marks : 50

Unit 1. People, Management, and Policy.
Unit 2.Money : Economics, Finance, and Accounting .
Unit 3. Markets & Strategy.
Unit 4. Systems & Processes .
Unit 5.Organizational Behaviour.

Note : Prepare and submit 250 MCQs Questions with answer in electronic format (From each unit 50 Questions).
Examination Pattern: Answer all 50 questions, each carries 1 mark.

3. Publication and Presentation of Industry and Company Analysis **100 M**

Internal Marks : 50 University Examination Marks : 50

Case Study on a Company/Organisation/Industry – 1 - 25 M
Case Study on a Company/ Organisation/Industry – 2 - 25 M

Examination pattern: Answer any 5 Questions from 6, each carries 10 marks (3 Questions from Industry Analysis Paper and 3 Questions from Company Analysis Paper)

4. Research and Publication Ethics and Review of Literature **100 M**

Internal Marks : 50 University Examination Marks : 50

Research and Publication Ethics Workshop Syllabus (As per latest UGC norms)Theory:
RPE 01: Philosophy and Ethics: Introduction to philosophy: definition, nature and scope, concept branches, Ethics: definition, moral philosophy, nature of moral judgements and reactions.
RPE 02: Scientific Conduct: Ethics with respect to science and research, intellectual honesty, and research integrity, Scientific misconducts: Falsification, Fabrication, and Plagiarism (PFP), Redundant *Publications:* duplicating and overlap publications, salami slicing, Selective reporting and misrepresentation of data
RPE 03: Publication Ethics: Publication ethics definition, introduction and importance, Best Practices and standard setting initiatives and guidelines,: COPE, WAME etc., conflicts of interest, Publication misconduct: definition, concept, problems that lead to uetical behavior and vice versa, types, Violationof publication ethics, authorship and contributorship, Identification of publication misconduct, complaints and appeals, Predator Publishers and journals.
Practice:
RPE 04: Open Access Publishing: Open access publication and initiatives, Software tool to identify predatory publication developed by SPPU, Journal finder and journal suggestion tools,
RPE 05: Publication Misconduct: Group Discussion on Subject specific ethical issues, FFP authorship, Conflict of interest, Complaints and appeals: examples and fraud from India and abroad. Use of plagiarism software like urkund, Turnitin, Drillbit and other open source software tools.
RPE 06: Database and Research Metrics: Indexing databases, citation databases: Web of science, Scopus etc. Research Metrics: Impact factor of Journal Citation Report, SNIP, SJR, IPP, Cite Score, Metrics: h-index, g index, i10 index, altmetrics.

Review of Literature on Research Topic

Topic Identification, preparing a Review Article on the identified topic with minimum 10 book reference, 75 research article reference, & 10 website reference, PPT Presentation & Publication of Review Article

Examination pattern: Answer any 5 Questions from 6, each carries 10 marks (Guide will prepare 2 Questions from Research and Publication Ethics and 4 Questions from Literature Review Article).

Minimum for Pass Required: 50% Marks in each Individual Subject.

Detailed Syllabus for Qualitative & Quantitative Research Methods in Business Management & Commerce

Unit 1: Various Research methods,Methodologies,Their Applications.
Research Methodology: Introduction to Scientific Research, Meaning, Objectives and Significance of Research Motivation in Research, Types of research approaches, Quantitative research methods, Research methods versus methodology, Research process, Criteria of good research, Research problems, Necessity of defining the problem, Technique involved in defining the problem, Design and Development Research Methods, Meaning of research design, Need for research design, Features of a good design, Different research designs, Basic principles of experimental designs, Ethics in research, Building expertise in the areas of interest, generating the base content in the selected area, literature survey for research work, arriving at directions of research, Formulation of research title, development of criteria based research proposal.

Unit 2: Empirical Research, Hypothesis Testing, Data Collection, Analysis &Interpretation.
Sampling Fundamentals,Basic Concepts Concerning Testing of Hypotheses, Collection of Primary Data ,Collection of Secondary Data , Selection of Appropriate Method for Data Collection. Measurement in Research,Measurement Scales, Processing Operations,Some Problems in Processing Elements/Types of Analysis ,Statistics in Research,Report Writing.

Unit 3:Focus Group Interactions & Model Building
Focus Group Interaction,Types,Guidelines for focus group interaction,Advantages and criticism,Data analysis of Focus Group.The need for Model Building, Modelling Exercise Types of Models, Probability Models Models Based on Differential Equations, The ANOVA Model, Regression Models, Structural Equation Modelling, Glimpses of Some Other Models.

Unit 4 : Data Analysis using MS Excel
Introduction to Spreadsheets Spreadsheet Functions to Organize Data, Introduction to Filtering, Pivot Tables, and Charts, Advanced Graphing and Charting.

Unit 5:
Online Certification Course based on Research Methodology from SWAYAM/SWAYAM ARPIT Refresher Programme.

References
1.C. R. Kothari, Research Methodology Methods & Techniques, 2nd Edition, Wishwa Pakashan Publishers.
2.Misra R.P, Research Methodology – A Hand Book, Concept publishing Company, New Delhi 1988
3.Grey Harvey,*Excel for Dummies*,Wiley Publising Inc
4.Yogesh Kumar Singh,*Fundamentals of Research Methodology* and Statistics,New AGE International Publishers

COURSE WORK SYLLABUS FOR ALLIED HEALTH SCIENCE

(Subject code: 18SPHDAH01)

RESEARCH METHODOLOGY

(COMMON TO ALL STUDENTS)

MODULE 1 - Introduction to research methodology

Types of research; Descriptive vs. Analytical, Applied vs. Fundamental, Quantitative vs. Qualitative, Conceptual vs. Empirical, Some Other Types of Research

MODULE 2 – Study Designs-Observational Studies

Epidemiological study designs; Observational studies, Descriptive studies; Case reports, Case series, Analytical studies; Case control studies, Cohort studies, Cross sectional

MODULE 3- Experimental Studies

Experimental studies (Intervention studies); Randomized control trials (Clinical trials), Field trials, CommMODULEy trials.

MODULE 4- Uses of Epidemiology

MODULE 5- Application of study Designs in Medical Research

REFERENCES

1. K.R.Sundaram, S.N.Dwivedi and V Sreenivas (2010): Medical statistics, principles and methods, BI Publications Pvt Ltd, New Delhi
2. NSN Rao and NS Murthy (2008): Applied Statistics in Health Sciences, Second Edition, Jaypee Brothers Medical Publishers (P) Ltd.
3. J.V.Dixit and L.B.Suryavanshi (1996): Principles and practice of biostatistics, First Edition, M/S Banarsidas Bhanot Publishers.
4. GetuDegu and Fasil Tessema (2005): Biostatistics, Ethiopia Public Health Training Initiative.
5. Essentials of CommMODULEy Medicine for Allied Health Sciences, JSS University Publications, 20

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6. Park K. Park's Textbook of Preventive and Social Medicine. 23rd ed. Jabalpur: Banarsidas Bhanot Publishers; 2015. p.135-141

7. Suryakantha. Textbook of CommMODULEy medicine with recent advances. 3rd edition.

8. Bhalwar R. Textbook of Public Health and CommMODULEy Medicine.2nd Edition. Pune: Department of CommMODULEy Medicine AFMC; 2012

9. Leon Gordis. Epidemiology Fourth Edition – Elsevier Saunders Publication

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(Subject code: 18SPHDAH02)

Common Subject 2- HEALTH CARE

MODULE 1 - Introduction to Health

Definition of Health, Determinants of Health, Health Indicators of India, Health Team Concept. National Health Policy National Health Programmes (Briefly Objectives and scope) Population of India and Family welfare programme in India

MODULE 2 -Introduction to Nursing

What is Nursing ? Nursing principles. Inter-Personnel relationships. Bandaging : Basic turns; Bandaging extremities; Triangular Bandages and their application.

Nursing Position, Bed making, prone, lateral, dorsal, dorsal re-cumbent, Fowler's positions, comfort measures, Aids and rest and sleep.

MODULE 3 -Lifting And Transporting Patients: Lifting patients up in the bed. Transferring from bed to wheel chair. Transferring from bed to stretcher.

Bed Side Management: Giving and taking Bed pan, Urinal : Observation of stools, urine. Observation of sputum, Understand use and care of catheters, enema giving.

MODULE 4 -Methods Of Giving Nourishment: Feeding, Tube feeding, drips, transfusion

Care of Rubber Goods , Recording of body temperature, respiration and pulse,

Simple aseptic technique, sterlization and disinfection.

MODULE 5 - Surgical Dressing: Observation of dressing procedures

First Aid : Syllabus as for Certificate Course of Red Cross Society of St. John's Ambulance Brigade.

(Subject code: 18SPHDAH03)

Common Subject 3 - MICROBIOLOGY

MODULE 1 - Morphology Classification of microorgaisms, size, shape and structure of bacteria. Use of microscope in the study of bacteria.

Growth and nutrition Nutrition, growth and multiplications of bacteria, use of culture media in diagnostic bacteriology.

MODULE 2 - Sterilisation and Disinfection 4 hours Principles and use of equipments of sterlization namely Hot Air oven, Autoclave and seruminspissrator. Pasteurization, Anti septic and disinfectants. Antimicrobial sensitivity test

Immunology ImmMODULEy Vaccines, Types of Vaccine and immunization schedule Principles and interpretation of commonly done serological tests namely Widal, VDRL, ASLO, CRP, RF & ELISA. Rapid tests for HIV and HbsAg(Technical details to be avoided)

MODULE 3 - Systematic Bacteriology Morphology, cultivation, diseases caused ,laboratory diagnosis including specimen collection of the following bacteria(the classification, antigenic structure and pathogenicity are not to be taught) Staphyloccci, Streptococci, Pneumococci, Gonococci, Menigococci, C diphtheriae, Mycobacteria, Clostridia, Bacillus, Shigella, Salmonella, Esch coli, Klebsiella, Proteus,vibriocholerae, Pseudomonas & Spirochetes

Parasitology morphology, life cycle, laboratory diagnosis of following parasites E. histolytica, Plasmodium, Tape worms, Intestinal nematodes

MODULE 4 - Mycology Morphology, diseases caused and lab diagnosis of following fungi. Candida, Cryptococcus, Dermatophytes ,opportunistic fungi.

Virology General properties of viruses, diseases caused, lab diagnosis and prevention of following viruses, Herpes, Hepatitis, HIV, Rabies and Poliomyelitis.

MODULE 5 - Hospital infection Causative agents, transmission methods, investigation, prevention and control Hospital infection.

Principles and practice Biomedical waste management

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(Subject code: 18SPHDAH04)

MLT Subject- BIOCHEMISTRY

MODULE 1 - Fundamental Chemistry

- Valency, Molecular weight & Equivalent weight of elements and compounds. Normality,Molarity, Molality

MODULE 2 - Acids, Bases, Salts and Indicators

- Basic concepts. Determination of pH – Henderson Hasselbalch's equation.Buffer solutions. pH determination of buffers. Blood pH.Fluid buffers.

MODULE 3 - Introduction to General Bio-molecules:

- Chemistry of carbohydrates: Classification, Functions ofcarbohydrates
- Chemistry of amino acids: Classification–based on structure and nutritional requirement,
  Occurrence.Functions of amino acids.
- Chemistry of lipids: Classification of lipids and fatty acids. Functions of lipids
- Chemistry of nucleotides: Purine and Pyrimidine bases. Composition of nucleosides and
  Nucleotides.Occurrence of bases.

MODULE 4 - MODULEs of measurement

• Metric system. Common laboratory measurements, Prefixes in metric system

•International system of MODULEs- SI MODULEs- definition, classification, Conversion of conventional and SI MODULEs.

MODULE 5 - Solutions: Definition, use, classification where appropriate, preparation and storage

• Stock and working solutions.

• Molar and Normal solutions of compounds and acids. (NaCl, NaOH, HCl, H_2SO_4, H_3PO_4, CH_3COOH etc.,)

• Preparation of percent solutions – w/w, v/v w/v (solids, liquids and acids), Conversion of a

percent solution into a molar solution

• Saturated and supersaturated solutions

• Standard solutions - Technique for preparation of standard solutions and Storage. E.g: glucose,albumin etc.

• Dilutions - Diluting Normal , Molar and Percent solutions. Preparing working standard from stock standard.

Part dilutions: Specimen dilutions. Serial dilutions, Reagent dilution,. Dilution factors

5.Ranjit Kumar,*Research Methodology ..a step by step guide for beginners*,Sage Publications
6.Shyama Prasad Mukerjee,*A Guide to research Methodology*,Taylor and Francis .
7.Donald R.Cooper,*Business Research Methods*, McGraw-Hill

Detailed Syllabus for Advanced Topics in Business Management / Commerce

Unit 1. People, Management, and Policy
Human resourse Management,Strategic Management, Leadership and team building, Ethics and Negotiation.

Unit 2. Money : Economics, Finance, and Accounting
Accounting , Finnace, International National and Local Economics.

Unit 3. Markets & Strategy
Marketing, Strategy,Competive Analysis, Advertising and Promotion,Communication and Presentations

Unit 4. Systems & Processes
Project Management, Management Information systems,E-Commerce,Quality Management Systems.

Unit 5. Organizational Behaviour
Overview, Individual and group Process, Enhancing individual and interpersonal process goal setting and reward, Integrating individual, Groups and Organisaton, Personality and Attitudes.

(1) Steven Stralser,*MBA in a Day*,John Wiley and Sons
(2) P.S.Aithal, *Organizational Behaviour*
(3) Stephen p. Robbins. *Fundamentals of Management,*Pearson Publishers
(4) Garry Desseler *Human Resource Management*,Pearson Publishers
(5) Prassana Chandra,*Financial Management,Theory and Practice,*McGraw-Hill
(6) Jay Heizer,*Operations Management* Pearson Publishers
(7) Fred R. David, *Strategic Management Concepts and Cases*,Prentice Hall

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Effective from 2017

REVISED COURSE WORK SYLLABUS OF M . P H I L / PH. D. PROGRAMME IN COMPUTER SCIENCE / COMPUTER SCIENCE & ENGINEERING- FROM JANUARY 2020

COLLEGE OF COMPUTER SCIENCE & INFORMATION SCIENCE

City Campus, Pandeshwar,
Mangaluru – 575 001.

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COLLEGE OF COMPUTER SCIENCE & INFORMATION SCIENCE

PH.D. PROGRAMME – JANUARY-2020

SYLLABUS OF COURSE WORK

A. COURSE WORK PATTERN

400 M

Sl. No.	Subjects	Exam (Hours)	Credits	Internal Marks	External Marks	Marks
1	Qualitative & Quantitative Research in CS & IS	2	4	50	50	100
2	Advanced Topics in CS & IS	2	4	50	50	100
3	Publication and Presentation of Industry Analysis (1 paper) Publication and Presentation of Company Analysis (1 paper)	2	4	50	50	100
4	Research and Publication Ethics and Research topic, Review of Literature (1 paper)	2	4 (2+2)	50	50	100
Total			**16**	**200**	**200**	**400**

B. COURSE WORK SYLLABUS

1. Qualitative & Quantitative Research Methods

100 M

Internal Marks: 50 **University Examination Marks: 50**

Unit 1: Research Methodology
Unit 2: Probability and Statistics
Unit 3: Scripting Languages
Unit 4: Technical writing using LaTeX
Unit 5: Research Methods & Techniques Online Certification:

Note : Submit hand written Assignment for Unit 1 to Unit 4 (4 Assignments). Submit Online Certificate obtained from NPTEL or Swayam.

Examination Pattern: Answer any 5 questions from 6, each carries 10 Marks. These questions should cover all four units.

2. Subject Paper: Advanced Topics in Computer Science and Information Science 100 M

Internal Marks : 50 **University Examination Marks : 50**

Unit 1: NoSQL Databases
Unit 2: Artificial Neural Networks
Unit 3: Cloud Computing
Unit 4: Data Science
Unit 5: Blockchain

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Note : Prepare and submit Assignment in electronic format and also submit 250 MCQs Questions and answers (From each unit 50 Questions).

Examination Pattern: Answer all 50 questions, each carries 1 mark.

3. IT Case Studies **100 Marks**

Internal Marks: 50 **University Examination Marks: 50**

Publication and Presentation of Industry Analysis (1 paper) Publication and Presentation of Company Analysis (1 paper)

(1) Industry Analysis, Publication and Presentation - 1

(2) Company Analysis, Publication and Presentation – 2

Examination pattern: Answer any 5 Questions from 6, each carries 10 marks (3 Questions from Research and Publication Ethics and 3 Questions from Literature Review Article)

4. Research and Publication Ethics and Literature Review on Research Topic 100 Marks

Internal Marks: 50 **University Examination Marks: 50**

Research and Publication Ethics Syllabus (As per latest UGC norms)

Theory:

RPE 01: Philosophy and Ethics: Introduction to philosophy: definition, nature and scope, concept branches, Ethics: definition, moral philosophy, nature of moral judgements and reactions.

RPE 02: Scientific Conduct: Ethics with respect to science and research, intellectual honesty, and research integrity, Scientific misconducts: Falsification, Fabrication, and Plagiarism (PFP), Redundant Publications: duplicating and overlap publications, salami slicing, Selective reporting and misrepresentation of data

RPE 03: Publication Ethics: Publication ethics: definition, introduction and importance, Best Practices and standard setting initiatives and guidelines,: COPE, WAME etc., conflicts of interest, Publication misconduct: definition, concept, problems that lead to uetical behavior and vice versa, types, Violation of publication ethics, authorship and contributorship, Identification of publication misconduct, complaints and appeals, Predator Publishers and journals.

Practice:

RPE 04: Open Access Publishing: Open access publication and initiatives, Software tool to identify predatory publication developed by SPPU, Journal finder and journal suggestion tools,

RPE 05: Publication Misconduct: Group Discussion on Subject specific ethical issues, FFP authorship, Conflict of interest, Complaints and appeals: examples and fraud from India and abroad. Use of plagiarism software like urkund, Turnitin, Drillbit and other open source software tools.

RPE 06: Database and Research Metrics: Indexing databases, citation databases: Web of science, Scopus etc. Research Metrics: Impact factor of Journal Citation Report, SNIP, SJR, IPP, Cite Score, Metrics: h-index, g index, i10 index, altmetrics.

Literature Review on Research Topic

Topic Identification, preparing a Review Article on the identified topic with minimum 10 book reference, 50 research article reference, & 10 website reference. PPT Presentation & Publication of Review Article with research gap, and research agenda.

Examination pattern: Answer any 5 Questions from 6, each carries 10 marks (Guide will prepare 3 Questions from Research and Publication Ethics any 6 RPE sections without any conditions like it should cover all 6 RPE sections and 3 Questions from Literature Review Article).

Minimum for Pass required: 50% Marks in each individual subject.

Detailed Syllabus of Qualitative & Quantitative Research in CS & IS

UNIT I

Research Methodology: Introduction to Scientific Research, Meaning, Objectives and Significance of Research Motivation in Research, Types of research approaches, Quantitative research methods, Research methods versus methodology, Research process, Criteria of good research, Research problems, Necessity of defining the problem, Technique involved in defining the problem, Design and Development Research Methods, Meaning of research design, Need for

research design, Features of a good design, Different research designs, Basic principles of experimental designs, Ethics in research, Building expertise in the areas of interest, generating the base content in the selected area, literature survey for research work, arriving at directions of research, Formulation of research title, development of criteria based research proposal.

UNIT II

Probability and Statistics: Probability as a measure of uncertainty, probabilities for events, axioms, probability rules, Fail time data analysis, Hazard models, conditional probability, Bayes' rule, random variables, probability distributions, discrete and continuous distributions, univariate and multivariate distributions, joint, marginal, conditional distributions, expected values (mean, variance, covariance), sampling/simulation, study of a population or distribution, System reliability, Stochastic process, Software tools for Mathematical and statistical analysis, Scilab/SPSS.

UNIT III

Scripting Languages: Overview: The nature of scripting languages, scripting v/s programming, Python Programming. Regular expressions, Network programming, Internet client programming, Multithreaded programming, GUI programming, Database programming, Web clients and servers, Web programming: CGI and WSGI, Web frameworks : Django, web services.

UNIT IV

Technical writing using LaTeX: Scientific Writing : Significance of report writing, Structure and Components of Research Report, Types of Report: research papers, thesis, Research Project Reports, Precautions for writing research reports, Pictures and Graphs, Citation Styles, Oral presentation, Exposure to LaTeX, Installation, MikTeX, TeXnicCenter, Creating reports and articles, Text environment, Math environment, Figures, Tables, BibTeX - reference manager, Camera Ready Preparation. Statistics. Interpretation – Meaning, Technique, Precaution. Report Writing – Significance, Different Steps. Layout of the Research Report, Types of Reports, Oral Presentation, Research Report Writing – Mechanics, Precautions.

UNIT V

Online Certification Course based on research methodology from NPTEL, Swayam or any other online course providers.

REFECENCES:

1. C. R. Kothari, *Research Methodology Methods & Techniques*, 2nd Edition, Wishwa Pakashan Publishers.
2. Misra R.P, *Research Methodology – A Hand Book*, Concept publishing Company, New Delhi 1988
3. Kai Lai Chung, *A Course in Probability Theory*, Third Edition, Academic Press.
4. Gilbert Strang, *Introduction to Linear Algebra*, 3rd edition, Wellesley-Cambridge Press and SIAM
5. David Barron, *The World of Scripting Languages*, Wiley Publications.
6. *Core Python application programming*, Third edition Wesley J Chun, PEARSON.
7. Leslie Lamport, *LaTeX: A Document Preparation System*, Second Edition.

Detailed Syllabus of Advanced Topics in Computer Science and Information Science

Unit 1: NoSQL Databases: Storage architecture, CRUD operations, Querying NoSQL stores, Modifying stores, Managing evolution, Indexing & Ordering data sets, Managing transactions, Choosing among NoSQL flavors, Coexistence, Performance tuning, Tools and utilities.

Unit 2: Artificial Neural Networks: Introduction, Fundamental concepts, Basic models of artificial neural network, Important terminologies of ANN, Perceptron networks, Back-Propagation network, Kohonen Self-Organizing feature maps, Learning vector quantization, Convolutional neural networks.

Unit 3: Cloud Computing: Fundamentals, Deployment models, Service models, Cloud platforms, Challenges, Security issues, Business value of cloud computing.

Unit 4: Data Science: Introduction, Terminologies, Basic framework and architecture, difference between data science and business analytics, importance of data science in today's business world, primary components of data science, Overview of different data science techniques, Industrial applications.

Unit 5: Blockchain: Overview of block chain, Block in a block chain, Public ledgers, Cryptocurrency, Bitcoin, Smart contracts, Transactions, Distributed consensus, Public vs Private block chain, Understanding crypto currency to Block chain, Overview of security aspects of block chain, Cryptographic hash Function, Properties of a hash function, Hash pointer and Merkle tree, Digital signature, Public key cryptography.

Reference Books:

1. Shashank Tiwari, Professional NoSQL, Wiley, 2011.
2. Gaurav Vaish, Getting Started with NoSQL, Packt Publishing, 2013.
3. Sivanandam SN, Deepa SN, Principles of Soft Computing, Wiley, 2018.
4. Simon Haykin, Neural Networks & Learning Machines, Pearson, 2016.
5. Thomas Erl, Cloud Computing: Concepts, Technology & Architecture, Pearson Education, 2014.
6. Srinivasan, Cloud Computing: A Practical Approach for Learning and Implementation Pearson Education, 2014.
7. Foster Provost, Tom Fawcett, Data Science for Business: What You Need to Know about Data Mining and Data-Analytic Thinking, O'Reilly Media, 2013.
8. John W. Foreman, Data Smart: Using Data Science to Transform Information into Insight, Wiley Publication, 2015.
9. Melanie Swan, Block Chain: Blueprint for a New Economy, O'Reilly, 2015.
10. Anshul Kaushik, Block Chain and Crypto Currencies, Khanna Publishing House, 2019.

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(State Private University Established by Karnataka Govt. ACT No.42 of 2013 empowered to award degrees under Section 22 of UGC Act of UGC, New Delhi, & Member of Association of Indian Universities, New Delhi)
Web :www.srinivasuniversity.ac.in, Email: info@srinivasuniversity.edu.in

ACADEMIC SYLLABUS PERTAINING TO PH.D. COURSEWORK

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PH.D. COURSEWORK

CONTENTS

SRINIVAS UNIVERSITY
COLLEGE OF SOCIAL SCIENCE AND HUMANITIES
PH.D. PROGRAMME – 2021

SOCIAL WORK

COURSEWORK SYLLABUS

COURSEWORK PATTERN:

SL. No.	Subjects	Exam (Hours)	Credits	Internal Marks	External Marks	Marks
1.	**SUPHDSW 01**- Qualitative and Quantitative Research & SWAYAM Online Certificate on Research Methodology	2	4	50	50	100
2	**SUPHDSW 02-** Development of Social Work Profession	2	4	50	50	100
3.	**SUPHDSW 03**- Two Case Studies on NGO's Intervention. (Two research Publications)	2	4	50	50	100
4.	**SUPHDSW 04**- Research and Publication Ethics & Literature Review on the Research Topic selected- (One Research Publication)	2	4	50	50	100
Total			16	200	200	400

Note: Total Three Research Publications

Paper 1 **Qualitative and Quantitative Research: Internal Marks: 50, University Examination Marks:50 Total :100 Marks**

Unit 1. Social Work Research: Definition, Meaning, Scope, Uses of social work research
Unit 2. Sampling Meaning of 'Population', Sampling, Need, Sampling methods and Techniques.
Unit 3. Data Processing and Research Reporting: Methods and techniques of data processing.
Unit 4. Social statistics: Mean, Median, and Mode
Unit 5. SWAYAM Online Certificate on Research Methodology
(Unit 1 to Unit 4 – Handwritten Assignment Based)

SRINIVAS UNIVERSITY MANGALORE

Paper 2 **Development of Social Work Profession: Internal Marks: 50, University Examination Marks:50 Total :100 Marks**

Unit 1. Evolution of Social Work
Unit 2. Social Work Methods
Unit 3. Labour Welfare and Human Research Management
Unit 4 Medical and Psychiatric Social Work
Unit 5 Community Development
Book References:
(1) Popular Master Guide UGC NET/SET Social Work: R. Guptha
(2) Research Methodology: Methods and Techniques: C. R. Kothari
Note: (Prepare 250 MCQ with Answers & submit as Assignment).

Paper 3 **Case Studies on NGO's intervention: Internal Marks: 50, University Examination Marks:50 Total :100 Marks**

Case Study 1: on a NGO in Community Development -1 - 25 M
Case Study 2: on a Social Problem –2 - 25M
(Convert in to Two Publishable papers related to your respective Subjects)

Paper 4 **Research and Publication Ethics & Literature Review on the Research Topic selected: Internal = 50 Marks, University Examination Marks:50 Total :100 Marks**

Research Publication Ethics &Literature Review on the Research Topic selected. Topic Identification, preparing a Review Article on the identified topic with minimum 10 book reference, 50 research article reference, & 20 website reference. PPT Presentation & Publication of Review Article: 50 M

Paper 1: Qualitative and Quantitative Research

Unit I

Social Work Research: Definition, Meaning, Scope, Uses of social work researcRole and responsibilities: Social welfare agencies, social workers in conducting and using social work research. An overview of Research process: Identification and formulation of research problem, Definition of problem, Concepts, Variables, Measurement of variable properties. Preparation of research Proposal.

UNIT II

Sampling: Meaning of 'Population', Sampling, Need for sampling, Sampling methods and techniques. Probability Methods: Simple Random, Systematic Random, Stratified Random, Clustered Random. Non – Probability method: Accidental, Quota sampling, Purposive sampling, Snow ball sampling.

Data Collection: Primary, Secondary. Tools of Data Collection: Observation, Participant Observation, Non – Participant Observation, Interview Techniques and uses

UNIT – III

Data Processing and Research Reporting: Methods and techniques of data processing Manual and Mechanical Procedure, Editing, Classification, Coding, Tabulation,
Data Analysis: Organizing data for analysis: Graphs, Charts, Frequency tables
Data analysis, uni – variate, bi- variate, Multi – variate, Qualitative Analysis
Research Reporting: Purpose of research report, Principles, Procedure to be followed in writing a report, Research abstracts

UNIT IV

Social Statistics: Meaning of Statistics
Definitions of Statistics, Characteristics of Statistics, Functions of Statistics, Limitations of statistics, Application of social statistics, Social statistics for social workers. Measures of central tendency or Averages: The Arithmetic Mean, The Median, The Mode.

UNIT V

Correlation: Meaning of Correlation, Types of correlation, Measures of simple correlation, Karl Pearson's coefficient of correlation. Role of computers in research, use of computers in data processing, important characteristics, Limitations of computer based analysis

REFERENCE:

1. Bogdan R &Maylor S J 1975: Introduction to qualitative research methods, New York, John Wiley and Sons, Inc.
2. Filstead W J (Edn.) 1975: Qualitative Methodology, first hand involvement with the Social Work, Chicago Markam publishers.
3. Gupta S.P 1985: Statistical Methods, New Delhi Sultan Chand & Co.
4. Kothari C.R. 1986: Research Methodology Methods and Techniques, Wiley Eastern Limited, New Delhi.
5. Pattern Shetty C.C 1986: An Introduction to research methods in Social Sciences. Coimbatore.
6. Saravanvel P 1989: Research Methodology, Kitab Mahal. Allahabad.
7. Ramachandran P. 1993, Survey Research for Social Work, A. Primer Bombay.

Paper II: Subject Title- Development of Social Work Profession

UNIT I: Introduction to Social Work: Meaning and Definition of Social work
Social work Profession: Attributes of a profession, Social work as a profession and social worker as a professional, Emergence of Social Work Profession in India. Evolution of Social Work from charity to profession, Challenges of Social Work profession in India

UNIT II: Ideology and practice models of Social work: Contribution of religion and religious ideologies, Gandhian philosophy of Social work, Current Ideologies: Relief model, Welfare model, Clinical model, Radical model.

UNIT III: Fields of Social Work: Application of social work in different settings: Industrial settings, Correctional settings, Medical and Psychiatric settings, Rural and urban development settings, Family and Child welfare, Youth welfare, Women welfare and Welfare of the Persons with Disabilities.

UNIT IV – Social work Values and Ethics: Functions: Restoration, provision of resources, prevention. Values of Social work: Relating to individual, problem, relationship, agency, practice. Need and importance of Code of Ethics for Social workers. National and International

Code of Ethics. Field work and importance of Field work supervision. Voluntary Social work: Role of government and voluntary organizations in promoting social welfare Training in Social work education, Uses of supervision, meaning and importance. Role of faculty and agency supervisor

REFERENCE:

1. Bradford S W & Others (1988): Techniques and Guidelines for social work practice. Allyn and Bacon Inc,, Massachusetts.
2. Briscoe C and Thomas D.N (1977) community work: Learning and Supervision, George Allen and Unwin Ltd,, London.
3. Butrym Z T (1979) The Nature of Social work. The MacMillan Press Ltd,, London.
4. Gangrade K D (1986) Social Work and Development, Northern Book Centre, New Delhi2.
5. Goel and Jain (1988) Social Welfare Administration, Northern Book center, New Delhi.
6. Gore M S (1965) Social Work and Social Work Education, National Printing House, New Delhi.
7. Jacob K K (1994) Social Work Education in India, Himanshu Publications, Delhi.
8. Johnson L C (1986) Social Work Practice Generalist Approach, Allen and Bacon Inc., London.

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PSYCHOLOGY

COURSEWORK SYLLABUS

COURSEWORK PATTERN:

SL. No.	Subjects	Exam (Hours)	Credits	Internal Marks	External Marks	Marks
1.	**SUPHDP 01**- Qualitative and Quantitative Research & SWAYAM Online Certificate on Research Methodology	2	4	50	50	100
2	**SUPHDP 02** : Psychology and Counseling	2	4	50	50	100
3.	**SUPHDP 03**: Two Case Studies on NGO's Intervention. (Two Research Publications)	2	4	50	50	100
4.	**SUPHDP 04**- Research and Publication Ethics & Literature Review on the Research Topic selected (One Research Publication)	2	4	50	50	100
Total			16	200	200	400

Note: Total Three Research Publications

DETAIL SYLLABUS

Paper 1 **Qualitative and Quantitative Research: Internal Marks: 50, University Examination Marks:50 Total :100 Marks**

Unit 1.: Definition, Meaning, Scope, Uses of social work research
Unit 2. Sampling Meaning of 'Population', Sampling, Need, Sampling methods and Techniques.
Unit 3. Data Processing and Research Reporting: Methods and techniques of data processing.
Unit 4. Social statistics: Mean, Median, and Mode
Unit 5. SWAYAM Online Certificate on Research Methodology

(Unit 1 to Unit 4 – Handwritten Assignment Based)

Paper 2 **Psychology and Counseling: Internal Marks: 50, University Examination Marks:50 Total :100 Marks**

Fundamentals of Human Behavior

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Unit 2. Social Psychology
Unit 3. Family Counseling Skills
Unit 4. Positive Psychology
Unit 5. Child Psychology
Book References: (1) Popular Master Guide UGC NET/SET Social Work: R. Guptha
(2) Research Methodology: Methods and Techniques: C. R. Kothari
Note: (Prepare 250 MCQ with Answers & submit as Assignment).

Paper 3 **Case Studies on NGO's intervention: Internal Marks: 50, University Examination Marks:50 Total :100 Marks**

Case Study 1: on a Psychological Disorders -1 - 25 M
Case Study 2: on a Psychological Assessment Scales –2 - 25 M
(Convert in to Two Publishable papers related to your respective Subjects)

Paper 4 **Research and Publication Ethics & Literature Review on the Research Topic selected: Internal = 50 Marks, University Examination Marks:50 Total :100 Marks**

Research Publication Ethics &Literature Review on the Research Topic selected. Topic Identification, preparing a Review Article on the identified topic with minimum 10 book reference, 50 research article reference, & 20 website reference. PPT Presentation & Publication of Review Article: 50 M

REFERENCES:

1. Bogdan R &Maylor S J 1975: Introduction to qualitative research methods, New York, John Wiley and Sons, Inc.
2. Filstead W J (Edn.) 1975: Qualitative Methodology, first hand involvement with the Social Work, Chicago Markam publishers.
3. Gupta S.P 1985: Statistical Methods, New Delhi Sultan Chand & Co.
4. Kothari C.R. 1986: Research Methodology Methods and Techniques, Wiley Eastern Limited, New Delhi.
5. Pattern Shetty C.C 1986: An Introduction to research methods in Social Sciences. Coimbatore.
6. Saravanvel P 1989: Research Methodology, KitabMahal. Allahabad.
7. Ramachandran P. 1993, Survey Research for Social Work, A. Primer Bombay.
8. Robert S Feldman (2004). 'Understanding Psychology', Tata McGraw Hill Publishing Company Limited, New Delhi, Sixth Edition.
9. Robert A Baron (2003). 'Psychology', Prentice Hall of India Private Limited, New Delhi, Fifth Edition.
10. Benjamin B (2003). 'Psychology an Introduction", Tata McGraw Hill Publishing Company Limited, New Delhi, Sixth Edition

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ENGLISH

COURSEWORK SYLLABUS

COURSEWORK PATTERN:

SL. No.	Subjects	Exam (Hours)	Credits	Internal Marks	External Marks	Marks
1.	**SUPHDE 01**- Qualitative and Quantitative Research & SWAYAM Online Certificate on Research Methodology	2	4	50	50	100
2	**SUPHDE 02** : Literature and Related Theories	2	4	50	50	100
3.	**SUPHDE 03**: Literature/Book Review and Publication (Two Research Publications)	2	4	50	50	100
4.	**SUPHDE 04**- Research and Publication Ethics & Literature Review on the Research Topic selected (One Research Publication)	2	4	50	50	100
Total			16	200	200	400

Note: Total Three Research Publications

DETAIL SYLLABUS:

Paper 1 **Qualitative and Quantitative Research: Internal Marks: 50, University Examination Marks:50 Total :100 Marks**

Unit 1. Meaning of Research Choosing a topic, Research proposal and Defining dissertation
Unit 2. Thesis, hypothesis, anti-thesis, thesis statement and types of paragraphs
Unit 3. Structure of a Ph.D. dissertation
Unit 4. Various types of style sheets and their use, Use of online sources, library sources,
plagiarism and academic Integrity intellectual copy rights
Unit 5. SWAYAM Online Certificate on Research Methodology
(Unit 1 to Unit 4 – Handwritten Assignment Based)

Paper 2 **Literature and Related theories: Internal Marks: 50, University Examination Marks:50 Total :100 Marks**

Unit 1. Indian Writing in English
Unit 2. Comparative literature
Unit 3. Cultural Studies
Unit 4. Translation studies
Unit 5. Introduction to Literary theories
(MCQ 250 Questions (50 MCQ/Unit) with Answer in Softcopy form)

Paper 3 **Literature/Book Review and Publication: Internal Marks: 50, University Examination Marks:50 Total :100 Marks**

The Candidate is expected to systematically review two books/ Literatures and publish them in the form of Articles - 25 M each.
(Convert in to Two Publishable papers related to your respective Subjects)

Paper 4 **Publication Ethics Literature Internal = 50 Marks, University Examination Marks:50 Total :100 Marks**

UGC Curriculum on Publication Ethics (20 M)
Literature Review on Research Topic Selected with research gap and research agenda. (80 M)
The details of this paper are to be worked out between the research supervisor and the candidate.

Details of paper SUPHDE 02: Subject Paper: Literature and Related theories.

1. Indian Writing in English
2. Comparative literature
3. Cultural Studies
4. Translation studies.
5. Introduction to Literary theories

Indian Writing in English

1. Who's Imagined Community? : Partha Chatterjee
2. Texts, Histories, Geographies: Reading Indian Literature: P Raveendran
3. Contemporary Indian Poetry in English: An Assessment and Selection: M K Naik
4. Critical Response to Indian Literature in English: Shyam Asnani M
5. A concise History of Indian Literature in English: A K Mehrotra.

Comparative Literature

1. Comparative Literature: A Critical Introduction: Susan Bassnett
2. Comparative Literature in the Age of Multiculturalism: Charles Bernheimer
3. Death of a Discipline: Gayathri Spivak
4. The Challenge of Comparative Literature: Claudio Guillen
5. Comparative Literature: Theory and Practice: Amiya Dev and Sisir Kumar Das

Cultural Studies

1. Culture and Society,1780-1950: Raymond Williams
2. The Dialogic Imagination: Bhaktin

3. The Fashion System: Roland Barthes.
4. The Location of Culture: Homi K Bhabha
5. Gender Trouble: Feminism and The Subversion of Identity: Judith Butler

Translation studies

1. Translation Studies: Susan Bassnett
2. On Linguistic Aspects of Translation: Roman Jackobson
3. The Translation Studies Reader: Laurence Venuti
4. Translation as Discourse: Sujith Mukherjee.
5. Linguistic Theory of Translation: J C Catford

Introduction to Literary theories

1. Gender Trouble: Judith Butler
2. The Commitment to Theory: Homi K Bhabha
3. Introduction to the Power of Forms in the English Renaissance: Stephen Greenblatt
4. Can The Subaltern Speak?GayathriSpivak
5. Of Grammatology: Jacques Derrida
6. An Image of Africa:Racism in Conrad's Heart of Darkness: Chinua Achebe
7. What is an author: Michael Foucault?

Reference:

1. Whose Imagined Community?: Partha Chatterjee
2. Texts, Histories, Geographies: Reading Indian Literature: P Raveendran
3. Contemporary Indian Poetry in English: An Assessment and Selection: M K Naik
4. Critical Response to Indian Literature in English: Shyam Asnani M
5. A concise History of Indian Literature in English: A K Mehrotra.

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JOURNALISM

COURSEWORK SYLLABUS

COURSEWORK PATTERN:

SL. No.	Subjects	Exam (Hours)	Credits	Internal Marks	External Marks	Marks
1.	**SUPHDJ 01**- Qualitative and Quantitative Research & SWAYAM Online Certificate on Research Methodology	2	4	50	50	100
2	**SUPHDJ 02** : Advance Media and Communication	2	4	50	50	100
3.	**SUPHDJ 03**: Case Studies on Media (Two Research Publications)	2	4	50	50	100
4.	**SUPHDJ 04**- Research and Publication Ethics & Literature Review on the Research Topic selected (One Research Publication)	2	4	50	50	100
Total			16	200	200	400

Note: Total Three Research Publications

Paper 1 **Qualitative and Quantitative Research: Internal Marks: 50, University Examination Marks:50 Total :100 Marks**

Unit 1. Definition, Meaning, Scope, Uses of social work research
Unit 2. Sampling Meaning of 'Population', Sampling, Need, Sampling methods and Techniques.
Unit 3. Data Processing and Research Reporting: Methods and techniques of data processing.
Unit 4. Social statistics: Mean, Median, and Mode
Unit 5. SWAYAM Online Certificate on Research Methodology

(Unit 1 to Unit 4 – Handwritten Assignment Based)

Paper 2 **Advance Media and Communication: Internal Marks: 50, University Examination Marks:50 Total :100 Marks**

Unit 1. Communication Theory
Unit 2. History, Practices, Values of Mass Media
Unit 3. Mass Communication and Society
Unit 4. Mass Media, Culture and Development
Unit 5. Information Technology, Telecommunication and Internet.
Book References: (1) Popular Master Guide UGC NET/SET Journalism: R. Guptha
(2) Research Methodology: Methods and Techniques: C. R. Kothari
Note: (Prepare 250 MCQ with Answers & submit as Assignment).

Paper 3 **Case Studies on Media: Internal Marks: 50, University Examination Marks:50 Total :100 Marks**

Case Studies on Media and Entertainment, Advertisement, Social Media, And Social Networking
(Two Research Publications)

Paper 4 **Research and Publication Ethics & Literature Review on the Research Topic selected: Internal = 50 Marks, University Examination Marks:50 Total :100 Marks**

Research Publication Ethics &Literature Review on the Research Topic selected. Topic Identification, preparing a Review Article on the identified topic with minimum 10 book reference, 50 research article reference, & 20 website reference. PPT Presentation & Publication of Review Article: 50 M

REFERENCES:

1. Bogdan R &Maylor S J 1975: Introduction to qualitative research methods, New York, John Wiley and Sons, Inc.
2. Filstead W J (Edn.) 1975: Qualitative Methodology, first hand involvement with the Social Work, Chicago Markam publishers.
3. Gupta S.P 1985: Statistical Methods, New Delhi Sultan Chand & Co.
4. Kothari C.R. 1986: Research Methodology Methods and Techniques, Wiley Eastern Limited, New Delhi.
5. Pattern Shetty C.C 1986: An Introduction to research methods in Social Sciences. Coimbatore.
6. Saravanvel P 1989: Research Methodology, KitabMahal. Allahabad.
7. Ramachandran P. 1993, Survey Research for Social Work, A. Primer Bombay.
8. News Reporting and Editing. K.M.Shrivastava Revised Edition 2003
9. Mass communication in India Keval.J. Kumar Fourth edition revised and updated
10. The Elements of Journalism. Bill Kovach and Tom Rosenstiel

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SOCIOLOGY

COURSEWORK SYLLABUS

COURSEWORK PATTERN:

SL. No.	Subjects	Exam (Hours)	Credits	Internal Marks	External Marks	Marks
1.	**SUPHDS 01**- Qualitative and Quantitative Research & SWAYAM Online Certificate on Research Methodology	2	4	50	50	100
2	**SUPHDS 02** : Emerging Sociology	2	4	50	50	100
3.	**SUPHDS 03**: Case Studies on Media (Two Research Publications)	2	4	50	50	100
4.	**SUPHDS 04**- Research and Publication Ethics & Literature Review on the Research Topic selected (One Research Publication)	2	4	50	50	100
Total			16	200	200	400

Note: Total Three Research Publications

Paper 1 **Qualitative and Quantitative Research: Internal Marks: 50, University Examination Marks:50 Total :100 Marks**

Unit 1. Definition, Meaning, Scope, Uses of social research
Unit 2. Sampling Meaning of 'Population', Sampling, Need, Sampling methods and Techniques.
Unit 3. Data Processing and Research Reporting: Methods and techniques of data processing.
Unit 4. Social statistics: Mean, Median, and Mode
Unit 5. SWAYAM Online Certificate on Research Methodology

(Unit 1 to Unit 4 – Handwritten Assignment Based)

Paper 2 **Emerging Sociology: Internal Marks: 50, University Examination Marks:50 Total :100 Marks**

Unit 1. Sociological Theory

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Unit 2. Basic Concepts and Social Institutions
Unit 3. Social Stratification and Social Change
Unit 4. Rural and Urban Transformation
Unit 5 Economy and Society
Book for References
(1) Popular Master Guide UGC NET/SET Sociology: R. Guptha
(2) Research Methodology: Methods and Techniques: C. R. Kothari
Note: Prepare 250 MCQ with Answers & submit as Assignment (2)

Paper 3 **Case Studies on Media: Internal Marks: 50, University Examination Marks:50 Total :100 Marks**

Case Studies on Media and Entertainment, Advertisement, Social Media, And Social Networking
(Two Research Publications)

Paper 4 **Research and Publication Ethics & Literature Review on the Research Topic selected: Internal = 50 Marks, University Examination Marks:50 Total :100 Marks**

Research Publication Ethics &Literature Review on the Research Topic selected. Topic Identification, preparing a Review Article on the identified topic with minimum 10 book reference, 50 research article reference, & 20 website reference. PPT Presentation & Publication of Review Article: 50 M

Detail syllabus for paper 2
Unit -1: Sociological Theory
Classical Sociological Traditions: Emile Durkheim, Max Weber, Karl Marx
Structure- Functionalism and Structuralism: Talcott Parsons, Robert K.Merton
Post Modernism, Post Structuralism and Post Colonialism: Michel Foucault, Jurgen Habermas
Indian Thinkers: M.K.Gandhi, B.R.Ambedkar

Unit -2: Basic Concepts and Institutions
Sociological Concepts: Social Structure, Culture, Status and Role, Identity, Values, Norms and Rules, Personhood, Bureaucracy, Power and Authority
Social Institutions: Marriage, Family and Kinship, Economy, Polity, Religion, Education, Law and Customs.

Unit 3: Social Stratification and Social Change
Social Difference, Hierarchy, Inequality and Marginalization, Caste and Class, Gender, Sexuality and Disability, Race, Tribe and Ethnicity
Social Change and Processes: Evolution and Diffusion, Modernization and Development
Social Transformations and Globalization

Unit – 4 :Rural and Urban Transformations
Rural and Peasant Society, Caste-Tribe Settlements, Agrarian Social Structure, Decline of Agrarian Economy, Migration, Agrarian Unrest and Peasant Movements, Changing Inter-Community Relations and Violence
Urban Society: Urbanism, Urbanity and Urbanization, Towns, Cities and Mega-Cities

Industry, Service and Business, Slums, Urban Movements.

Unit – 5: Economy and Society

Exchange, Gift, Capital, Labour and Market, Mode of Production Debates
Property and Property Relations, State and Market: Welfarism and Neoliberalism
Models of Economic Development, Poverty and Exclusion, Factory and Industry Systems

REFERENCES:

1. Bogdan R &Maylor S J 1975: Introduction to qualitative research methods, New York, John Wiley and Sons, Inc.
2. Filstead W J (Edn.) 1975: Qualitative Methodology, first hand involvement with the Social Work, Chicago Markam publishers.
3. Gupta S.P 1985: Statistical Methods, New Delhi Sultan Chand & Co.
4. Kothari C.R. 1986: Research Methodology Methods and Techniques, Wiley Eastern Limited, New Delhi.
5. Pattern Shetty C.C 1986: An Introduction to research methods in Social Sciences. Coimbatore.
6. Saravanvel P 1989: Research Methodology, KitabMahal. Allahabad.
7. Ramachandran P. 1993, Survey Research for Social Work, A. Primer Bombay.
8. Sociological theory- George Ritzer
9. Sociology, Principles of sociology with an Introduction to Sociological thought. CN shankar Rao

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ECONOMICS

COURSEWORK SYLLABUS

COURSEWORK PATTERN:

SL. No.	Subjects	Exam (Hours)	Credits	Internal Marks	External Marks	Marks
1.	**SUPHDEC 01**- Qualitative and Quantitative Research & SWAYAM Online Certificate on Research Methodology	2	4	50	50	100
2	**SUPHDEC 02** : Advance Economics	2	4	50	50	100
3.	**SUPHDEC 03**: Case Studies on Media (Two Research Publications)	2	4	50	50	100
4.	**SUPHDEC 04**- Research and Publication Ethics & Literature Review on the Research Topic selected (One Research Publication)	2	4	50	50	100
Total			16	200	200	400

Note: Total Three Research Publications

Paper 1 **Qualitative and Quantitative Research: Internal Marks: 50, University Examination Marks:50 Total :100 Marks**

Unit 1. Definition, Meaning, Scope, Uses of social research
Unit 2. Sampling Meaning of 'Population', Sampling, Need, Sampling methods and Techniques.
Unit 3. Data Processing and Research Reporting: Methods and techniques of data processing.
Unit 4. Social statistics: Mean, Median, and Mode
Unit 5. SWAYAM Online Certificate on Research Methodology

(Unit 1 to Unit 4 – Handwritten Assignment Based)

Paper 2 **Advance Economics : Internal Marks: 50, University Examination Marks:50 Total :100 Marks**

Unit 1. Micro Economics

Unit 2. Macro Economics
Unit 3. Public Economics
Unit 4. Money and Banking
Unit 5. Growth and Development Economics

Book References:

1. Indian Economy by Ramesh Singh.
2. Popular Master Guide UGC NET/SET Economics: R. Guptha
3. Research Methodology: Methods and Techniques: C. R. Kothari

Note: Prepare 250 MCQ with Answers & submit as Assignment (2)

Paper 3 **Macro Economics : Internal Marks 50, University Examination Marks:50 Total :100 Marks**

Macro Economics- inflation, Rate of economic growth, Gross Domestic Product, Price Level, Unemployment, Savings, investment, International trade and International Finance.
(Two Research Publications)

Paper 4 **Research and Publication Ethics & Literature Review on the Research Topic selected: Internal = 50 Marks, University Examination Marks:50 Total :100 Marks**

Research Publication Ethics &Literature Review on the Research Topic selected. Topic Identification, preparing a Review Article on the identified topic with minimum 10 book reference, 50 research article reference, & 20 website reference. PPT Presentation & Publication of Review Article: 50 M
(One Publishable Paper)

Note: Total Three Research Publications

Economics Syllabus

Unit-1: Micro Economics

Theory of Consumer Behavior, Theory of Production and Costs, Decision making under uncertainty Attitude towards Risk, Game Theory – Non-Cooperative games, Market Structures, competitive and non-competitive equilibrium and their efficiency properties, Factor Pricing General Equilibrium Analysis, Efficiency Criteria: Pareto-Optimality, Kaldor – Hicks and Wealth Maximization, Welfare Economics: Fundamental Theorems, Social Welfare Function, Asymmetric Information: Adverse Selection and Moral Hazard

Unit-2 : Macro Economics

National Income: Concepts and Measurement, Determination of output and employment: Classical & Keynesian Approach, Consumption Function, Investment Function, Multiplier and Accelerator, Demand for Money, Supply of Money, IS – LM Model Approach Inflation and Phillips Curve Analysis, Business Cycles, Monetary and Fiscal Policy, Rational Expectation Hypothesis and its critique Tariff and Non-Tariff barriers to trade; Dumping GATT, WTO and Regional Trade Blocks; Trade Policy Issues, IMF & World Bank

Unit-3: Public Economics

Market Failure and Remedial Measures: Asymmetric Information, Public Goods, Externality Regulation of Market – Collusion and Consumers' Welfare Public Revenue: Tax & Non-Tax Revenue, Direct & Indirect Taxes, Progressive & non-Progressive, Incidence & Effects of Taxation, Public expenditure, Public Debt and its management, Public Budget and Budget Multiplier, Fiscal Policy and its implications.

Unit-4: Money, Banking and Development Economics

Components of Money Supply, Central Bank, Commercial Banking, Instruments and working of Monetary Policy, Non-banking Financial Institutions, Capital Market and its Regulation

Economic Growth and Economic Development, Theories of Economic Development: Adam Smith, Ricardo, Marx, Schumpeter, Balanced & Unbalanced growth. Models of Economic Growth: Harrod- Domar, Solow, Robinson, Kaldor Technical progress – Disembodied & embodied; endogenous growth Indicators of Economic Development: PQLI, HDI, SDGs

Poverty and Inequalities – Concepts and Measurement, Social Sector Development: Health, Education, Gender

REFERENCES:

Bogdan R &Maylor S J 1975: Introduction to qualitative research methods, New York, John Wiley and Sons, Inc.

Filstead W J (Edn.) 1975: Qualitative Methodology, first hand involvement with the Social Work, Chicago Markam publishers.

Gupta S.P 1985: Statistical Methods, New Delhi Sultan Chand & Co.

Kothari C.R. 1986: Research Methodology Methods and Techniques, Wiley Eastern Limited, New Delhi.

Pattern Shetty C.C 1986: An Introduction to research methods in Social Sciences. Coimbatore.

Saravanvel P 1989: Research Methodology, Kitab Mahal. Allahabad.

Ramachandran P. 1993, Survey Research for Social Work, A. Primer Bombay.

Micro Economic Theory Andrew Mas Colell

Principles of Economics- N. Gregeory Mankiw, 7th Edition

International Economics 11th edition Willey

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REGISTRAR
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Srinivas University

Course work syllabus for Nanotechnology

Nanomaterials Characterization techniques: 19SPHDNT01

Module 1

Introduction to characterization techniques: types of characterization techniques, Basics, Importance. Structural and compositional characterization tools, resolution, resolving power- abbe criterion, Rayleigh criterion. Different types of sources used, electron lenses, scan coils, lens aberrations. Electron diffraction-interference. Types of detectors.

Module 2

Basic characterization studies: Refractive index measurements. Photovoltaic cell - efficiency of a solar cell. Magnetic susceptibility studies. X-ray techniques: Laue, rotating crystal, Powder method. Density measurements, Viscosity measurements, Poiseullis equation. Laser diffraction analysis, Particle size analyzers, dynamic light scattering, CONTIN algorithm. Electro resistance particle size analyzers.

Module 3

Mechanical characterization techniques: micro and nanoindentation, Corrosion studies, tafel plots, cathodic and anodic polarization, corrosion rate, wear and friction studies, coefficient of friction (COF).

Module 4

Optical microscopy techniques: Optical microscopy, polarized light microscopy, Phase contrast microcopy, Interference Microscopy, hot stage microscopy, surface morphology, Etch pit density and hardness measurements

Module 5

Electron microscopic techniques: SEM - EDX, TEM, STEM, AFM. **Thermal analysis methods**: TGA, DTA, and DSC.

References:

1. D. John Thiruvadigal, S. Ponnusamy, C. Preferencial Kala, M. Krishna Mohan, "Material Science" Vibrant Publications, 2014.

2. Callister's "Materials Science and Engineering" Adapted by R, Balasubramaniam, Wiley India Pvt. Ltd, New Delhi, 2011.

3. Dr. M. K. Muralidhara, "Material Science and Metallurgy", Subhas Stores, 2011.

4. Edward L. Wolf, "Nanophysics and Nanotechnology - An Introduction to Modern Concepts in Nanoscience" Second Edition, John Wiley & Sons, 2006.

Applications of Nanoscience and Nanotechnology - 19SPHDNT02

Module 1

Photovoltaics: Ultrathin nanotechnology solar cells (plastic solar cells; Applications of CNTs in: photovoltaic diode, photo-active layer, transparent electrode, and dye-sensitized solar cells. Batteries, and Fuel cells: Nanobatteries; Applications of NT in Hydrogen fuel cells, DMFC, and SOFC. Energy transmissions: General energy applications: lighting, heating, transportation, capacitors, power chips; NT for energy transmission development, transformers, substations, and sensors.

Module 2

Water purification: Nanooligodynamic metallic particles; Photocatalysis; Desalination: nanofiltration, NT in membrane process. NT in Defense: Smart helmets; Smart suits; Smart equipments. NT in agriculture applications: Nanoscale carriers, Microfabricated xylem vessels, Nanolignocellulosic materials, Clay nanotubes, Nanobarcode technology, Quantum dots for staining bacteria, Biosensors.

Module 3

Nanotechnologies in animal production and health care: Improving feeding efficiency and nutrition, Zoonotic diseases, Animal reproduction and fertility.

Module 4

NT in food processing applications: Nanofood, nanoencapsulation, nanocomposites in food packaging, smart food packaging. NT in civil engineering applications: NT for green building; Coatings: self-cleaning coatings, anti-stain coatings, De-polluting surfaces, Scratch-resistant coatings, Anti-fogging and anti-icing coatings, Antimicrobial coatings, UV protection, Anti-corrosion coatings, and Moisture resistance. NT in automobile applications: Functionalities (mechanical, geometric effect, electronic/magnetic, optical, and chemical); Applications of NT towards: car body shell, car body, car interior, chasis and tyres, electrics and electronics, engine and drive train. NT in aerospace applications: Potential space benefits: resources in space, technical difficulties, Space elevator.

Module 5

NT in Electronics, Computer Engineering, & Photonics: MOSFET, CMOS, DRAM, SRAM, FIFO, EPROM, and PROM. SETs, Coulomb blockade, miniature flash memory, and Yano type memory. Quantum mechanical tunneling: RTDs and Esaki diodes. Introduction to spintronics, molecular nanoelectronics, fault tolerant designs, quantum cellular automata, and quantum computing, MEMS and MOEMS, Introduction to: nanotechnology in photonics, photonic crystals, plasmonics, and spray-on nanocomputers.

References

1. Nanotechnology – Basic Science & Emerging Technologies: 2002 by Michael Wilson, Kamali Kannangara, Geoff Smith, Michelle Simmons, and Burkhard Raguse.

2 Nanoparticles technology: Masuo Hosokawa, Kiyoshi Nogi, Makio Naito, Toyokazu Yokoyama, First edition, 2007, ISBN: 978-0-444-53122-3.

3 Nanotechnology, Importance & Applications, M.H. Fulekar, I.K. International Publishing House, New Delhi, 2011.

4. Nanotechnology Applications to Telecommunications and Networking, Daniel Minoli, Wiley Interscience, John Wiley & Sons, 2006, ISBN: 13-978-0-471-71-63-9-6.

5. Nanotechnology, Fundamentals and Applications, Manasi Karkare, I. K. International Publishing, New Delhi, 2008, ISBN: 978-81-89866-99-0.

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[In compliance of University Grants Commission (Minimum Standards and Procedures for Award of M.Phil./Ph.D. Degree) Regulations, 2016]
Effective from 2017

SYLLABUS & COURSE WORK OF M . P H I L / PH.D. PROGRAMME IN ELECTRONICS & ENGINNERING FROM JUNE 2019

COLLEGE OF COMPUTER SCIENCE & INFORMATION SCIENCE

City Campus, Pandeshwar,
Mangaluru – 575 001.

Nanotechnology – 19SUPHDNT03

Module -1

Introduction to Nano science: Introduction to Nano science; History and Scope, Interdisciplinary nature, Structure of nanomaterials, Quantum wells, quantum wires, quantum dots, fullerenes, graphite, carbon nanotubes, inorganic nanowires, nanoparticles. Nano-optoelectronic materials and devices, medicine and pharmacology applications, thin-films, One Dimensional Nanostructures, Nano wires and nano rods, Spontaneous growth: Evaporation and condensation growth, vapor-liquid-solid growth.

Module-2

Template based synthesis: Electrochemical deposition, Electro-phoretic deposition. Two dimensional nano-structures, Fundamentals of film growth. Physical vapour Deposition (PVD): Evaporation molecular beam epitaxy (MBE), Sputtering, Comparison of Evaporation and sputtering. Chemical Vapour Deposition (CVD). Wet chemical synthesis methods: sol-gel, hydrothermal, coprecipitation and solution combustion methods.

Module -3

Nanomaterials and composites: Introduction, Nylon 6-clay hybrid (NCH) - Synthesis, Characterization; Epoxy nanocomposites, Epoxy layered silicate nanocomposites, Epoxy-nanocomposites based on other Nano fillers, Biodegradable polymer/layered silicate nanocomposites, Polymer/layered silicate nanocomposites technology, structure-property relationships, polypropylene layered silicate nanocomposites, Nanotubes, nanoparticles and inorganic organic hybrid systems, Single-walled carbon nanotubes in epoxy, Fullerene/carbon nanotube (CNT) composites, Filled polymer nanocomposites containing functionalized nanoparticles, Magnetic polymer nanocomposites, Polymer/graphite nanocomposites.

Module -4

Nano magnetic Materials: Basics of ferromagnetism, Effect of bulk structuring of Magnetic properties, Dynamics of Nano magnets, Nano pore containment of magnetic properties, Nano carbon Ferro magnets, Giant Magneto resistance, Applications in data storage, Ferro fluids, Band structure in magnetic fields, Parallel and perpendicular field. Thin films, Atomic layer deposition (ALD), electrochemical deposition (ECD), Sol-Gel films.

Module -5

Characterization of Nano-structured materials: Principle, instrumentation and applications of Powder X-ray diffraction, Fourier transform infrared spectroscopy, Scanning electron microscopy(SEM), tunneling electron microscopy(TEM), atomic force microscopy(AFM), magnetic-force microscopy (MFM), scanning near-field optical microscopy (SNOM).

REFERENCES: 1) Nanomaterials – AK Bandyopadhyay, Newage International (p) limited publishers.

2) Nanomaterials- J Dutta and H Hofmann

3) Nanostructured materials processing, properties and applications- Carl C Koch, Jaicopublishing house.

4) Nanotechnology- William Illsey Atkinson, Jaico publishing house.

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COLLEGE OF COMPUTER SCIENCE & INFORMATION SCIENCE

PH.D. PROGRAMME – June-2019

SYLLABUS OF COURSE WORK

A. COURSE WORK PATTERN

400 M

Sl. No.	Subjects	Exam (Hours)	Credits	Internal Marks	External Marks	Marks
1	Qualitative & Quantitative Research in Electronics	2	4	50	50	100
2	Advanced Topics in Electronics	2	4	50	50	100
3	Publication and Presentation on Research topic, Review of Literature (1 paper)	2	4	50	50	100
4	Publication and Presentation of Industry Analysis (1 paper) Publication and Presentation of Company Analysis (1 paper)	2	4	50	50	100
Total			**16**	**200**	**200**	**400**

B. COURSE WORK SYLLABUS

1. Qualitative & Quantitative Research Methods **100 M**

Internal Marks: 50 **University Examination Marks: 50**

Unit 1: Research Methodology
Unit 2: Probability and Statistics.
Unit 3:Scripting Languages:
Unit 4: Technical writing using LaTeX:
Unit 5: Research Methods & Techniques Certification:

Note : Submit hand written Assignment for Unit 1 to Unit 4 (4 Assignments). Submit Online Certificate obtained from NPTEL or Swayam.

Examination Pattern: Answer any 5 questions from 6, each carries 10 Marks. These questions should cover all four units.

2. Subject Paper: Advanced Topics in Computer Science and Information Science 100 M

Internal Marks : 50 **University Examination Marks : 50**

Unit 1. Basics of Electronics
Unit 2. Amplifiers
Unit 3. Boolean Algebra and Logic Gates
Unit 4. Sequential Circuits and microprocessors
Unit 5. Introduction to Communication

Note : Prepare and submit Assignment in electronic format and also submit 250 MCQs Questions and answers (From each unit 50 Questions).

Examination Pattern: Answer all 50 questions, each carries 1 mark.

3. IT Case Studies **100 Marks**

Internal Marks: 50 **University Examination Marks: 50**

Publication and Presentation of Industry Analysis (1 paper) Publication and Presentation of Company Analysis (1 paper)

(1) Industry Analysis, Publication and Presentation - 1

(2) Company Analysis, Publication and Presentation – 2

Examination pattern: Answer any 5 Questions from 6, each carries 10 marks (Guide will prepare 3 Questions From Industry Analysis paper, and 3 Questions from Company Analysis paper)

4. Literature Review on Research Topic **100 M**

Internal Marks: 50 **University Examination Marks: 50**

Topic Identification, preparing a Review Article on the identified topic with minimum 10 book reference, 50 research article reference, & 10 website reference. PPT Presentation & Publication of Review Article with research gap, and research agenda.

Examination pattern: Answer any 5 Questions from 6, each carries 10 marks (Guide will prepare 6 questions from Literature Review Article)

Minimum for Pass required: 50% Marks in each individual subject.

Detailed Syllabus of Qualitative & Quantitative Research in CS & IS

UNIT I

Research Methodology: Introduction to Scientific Research, Meaning, Objectives and Significance of Research Motivation in Research, Types of research approaches, Quantitative research methods, Research methods versus methodology, Research process, Criteria of good research, Research problems, Necessity of defining the problem, Technique involved in defining the problem, Design and Development Research Methods, Meaning of research design, Need for research design, Features of a good design, Different research designs, Basic principles of experimental designs, Ethics in research, Building expertise in the areas of interest, generating the base content in the selected area, literature survey for research work, arriving at directions of research, Formulation of research title, development of criteria based research proposal.

UNIT II

Probability and Statistics: Probability as a measure of uncertainty, probabilities for events, axioms, probability rules, Fail time data analysis, Hazard models, conditional probability, Bayes' rule, random variables, probability distributions, discrete and continuous distributions, univariate and multivariate distributions, joint, marginal, conditional distributions, expected values (mean, variance, covariance), sampling/simulation, study of a population or distribution, System reliability, Stochastic process, Software tools for Mathematical and statistical analysis, Scilab/SPSS.

UNIT III

Scripting Languages: Overview: The nature of scripting languages, scripting v/s programming, Python Programming. Regular expressions, Network programming, Internet client programming, Multithreaded programming, GUI programming, Database programming, Web clients and servers, Web programming: CGI and WSGI, Web frameworks : Django, web services.

UNIT IV

Technical writing using LaTeX: Scientific Writing : Significance of report writing, Structure and Components of Research Report, Types of Report: research papers, thesis, Research Project Reports, Precautions for writing research reports, Pictures and Graphs, Citation Styles, Oral presentation, Exposure to LaTeX, Installation, MikTeX, TeXnicCenter, Creating reports and articles, Text environment, Math environment, Figures, Tables, BibTeX - reference manager, Camera Ready Preparation. Statistics. Interpretation – Meaning, Technique, Precaution. Report Writing – Significance, Different Steps. Layout of the Research Report, Types of Reports, Oral Presentation, Research Report Writing – Mechanics, Precautions.

UNIT V

Online Certification Course based on research methodology from NPTEL, Swayam or any other online course providers.

REFECENCES:

1. C. R. Kothari, *Research Methodology Methods & Techniques*, 2nd Edition, Wishwa Pakashan Publishers.
2. Misra R.P, *Research Methodology – A Hand Book*, Concept publishing Company, New Delhi 1988
3. Kai Lai Chung, *A Course in Probability Theory*, Third Edition, Academic Press.
4. Gilbert Strang, *Introduction to Linear Algebra*, 3rd edition, Wellesley-Cambridge Press and SIAM
5. David Barron, *The World of Scripting Languages*, Wiley Publications.
6. *Core Python application programming*, Third edition Wesley J Chun, PEARSON.
7. Leslie Lamport, *LaTeX: A Document Preparation System*, Second Edition.

Detailed Syllabus of Subject Paper in Advanced Topics in Electronics

Unit 1-Basics of Electronics Resistors, Inductors, Capacitors, PN Junction diode, biasing, characteristics, types of diodes, Transistors, characteristics, types of transistors, FETs, UJT

Unit II- Amplifiers: Theory of amplification, Basic CE amplifiers, Different types of Amplifiers, Operational Amplifiers, Inverting and Non Inverting Amplifiers, Differential Amplifiers, Adder, Differentiator, Voltage to current and current to voltage converter

Unit III-Boolean Algibra and Logic Gates: Number system, Conversion to different bases, binary algebra, Number representation (single precission, double precission), Basic Logic gates, Universal gates, Boolean Postulates, Simplification of SOP using Boolean Algibra, Design of Expressions using basic logic gates, K-Map 3 and 4 variables

Unit IV: Sequential Circuits and Microproocessors: Flip Flops, Various Types of Flip Flops, Assynchronous Counters, Synchronous counters, Design of Mod 10 counter, Ripple Counter, Registers, Different types of Registers, Comparators, Introduction to Microprocessor 8086, Architercture of 8086 Processors, Programming of 8086 Processors, Different types of Interrupts

Unit V: Introduction to Communication:

Basics of Communication, Basics of Modulation, Different types of Modulation, Frequency Modulation, Pulse Amplitude Modulation, Pulse Width Modulation, Pulse Position Modulation, Demodulation, Introduction to TV Communication, Composit TV signal Analysis, Antenna- Different btypes and Uses

Reference Books

(1) Basic Electronics: AP Godse, U A Bhakshi
(2) Basic Electronics Solid State
: B L Thereja
(3) Analog and Digital Electronics : U A Bhakshi and A P Ghodse
(4) Digital Logic and Computer Design: Moris M Mano
(5) Architecture, Programming and Interfacing: Lyla B Das
(6) Fundamentals of Electronic Communication System :Wayne Tomasi
(7) Television Engineerindg and Video Systems:R G Gupta

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PhD Coursework Courses (Basic Science Board)
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1. Advanced Fluid Mechanics and Magneto hydrodynamics (20SPHDMA01)	
Exam Hours: 2 hours	**Exam Marks(Maximum):50**
Module-1	
Real fluids and ideal fluids, velocity of fluid at a point, streamlines, pathlines, streamlines, velocity potential, vorticity vector, local and particle rate of change, equation of continuity, irrotational and rotational motion, acceleration of fluid, conditions at rigid boundary. Euler's equation of motion, Bernoulli's equation, axially symmetric flows, impulsive motion.	
Module-2	
Kelvin's Theorem of circulation, equation of vorticity. Three dimensional flows, sources, sinks and doublets, images in rigid planes, images in solid sphere. Stoke's stream function.	
Module-3	
Viscous Flows: Stress components, Stress and strain terror, Coefficient of viscosity and Laminar flow, Plane Poiseuille flows and Couette flow. Flow through tubes of uniform cross section in the form of circle, Ellipse, equilateral triangle, annulus, under constant pressure gradient, steady flow past a fixed sphere. Dimensional analysis, Reynolds numbers, Prandtl's boundary layer, Boundary layer	
Module-4	
Non-Newtonian fluids, rheological classification , time dependent, thyrotrophic, viscoelastic fluids, constitution of blood, viscosity of blood, steady non- Newtonian fluid flows in circular tubes, Fahraeus- Lindqvist effect, Pulsative flow in circular rigid tube, flow through artery with stenosis, Peristaltic flow in a tube, long wave lengthapproximation.	
Module-5	
Basic equations of MHD including Faraday's laws and constitutive laws. Magnetic induction equation – Lorentz force – MHD approximations. Non-dimensional numbers – velocity, temperature and magnetic field boundary conditions. Hartmann flow – isothermal boundary conditions – temperature distribution in Hartmann flow – Hartmann couette flow. Classical MHD and Alfven's wave, Alfven's theorem, Frozen – n – phenomenon and equipartition of energy by Alfven'swaves.	
Textbook/Reference Books	

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1	An Introduction to Fluid Mechanics	Batchelor, G. K.	Cambridge UniversityPres	Kindle Ed.,
2	Ideal and Incompressible Fluid Dynamics	M.E. O'Neill and F. Chorlton	Ellis Horwood	Digital Ed., 2007
3	Mathematical Models in Biology and Medicine	J.N.Kapur	Affiliated East-West	1st Ed., 1985
4	An Introduction to Magnetohydrodynamics	P.A.Davidson	Cambridge UniversityPres	2nd Ed.,
5	A Text Book of Fluid Mechanics	R.K.Bansal	Laxmi Publications	1st Ed., 2008

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2. Advanced Graph Theory (20SPHDMA02)

Exam Hours: 2 hours	**Exam Marks(Maximum):50**

Module-1

Varieties of graphs, walks and connectedness, degrees, intersection graphs, operations on graphs. Cut points, bridges and blocks, block graphs and cutpoint graphs.

Trees - characterization of trees, centers and centroids, block cutpoint trees, independent cycles and cocycles, Matroids.

Module-2

Connectivity and line connectivity, Graphical variations of Menger's theorem, Partitions Eulerian and Hamiltonian graphs, Line graphs, properties and characterizations of line graphs, line graphs and transversability, Total graphs.

Module-3

Coverings and independence, critical points and lines, Planes and planar graphs, outerplanar graphs, Kurtowski's theorem.

Module-4

Colorability, the chromatic number, Five color theorem, Four color conjencture,The Heawood map coloring theorem, Uniquely colorable graphs, critical graphs. The adjacency matrix, incidence matrix, cycle matrix.

Module-5

Digraphs – digraphs and connectedness, directional dualty and acyclic digraphs, digraphs and matrices.

Textbook/Reference Books

1	GraphTheory	Reinhard Deistel	Springer	5th Ed., 2017
2	GraphTheorywithApplicationstoEngineeringandComputerScience	N.Deo	PHI	1st Ed.,
3	GraphTheory	F.Harary	AdditionWesleyReadingMA	1st Ed., 1969
4	GraphTheory	J.A.Bondy & U.S.R.Murthy	North-Holland	1st Ed.,(5th Print), 1982
5	GraphTheory and Applications	G.Appasami	Sarumathi Publications	1st Ed., 2016

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Advanced numerical methods (20SPHDMA03)

3.

Exam Hours: 2 hours	**Exam Marks(Maximum):50**

Module-1

High Speed Computation

Introduction, Computer arithmetic, Errors and computation in numerical techniques, General error formula and error in series approximations. Machine computation and computer software.

Transcendental and Polynomial Equations

Introduction, Newton-Raphson method, Secant and Regula falsi method , rate of convergence, Newton-McAuleymethodformultipleroots.Birge–Vietamethod,Bairstowmethod,Graffe'srootsquaringmethod.

Module-2

System of Linear Algebraic Equations and Eigen valueProblems

Introduction. Consistency, Rank of a matrix, Gaussian elimination, LU decomposition, Gauss-Seidel and Successive Over Relaxation methods, Tri-diagonal system of equations

Module-3

Interpolation and Approximation

Introduction, Lagrange and Newton Interpolations, Interpolating polynomials - piecewise polynomial interpolation, Spline's interpolation formula, Hermite Interpolation, Bivariate Interpolation, least square approximations. **Numerical integration:**Newton's cotes formula, Simpson's rules, Weddle's rule, Gaussian

Module-4

Ordinary Differential Equations: Boundary Value Problems

Initial Value and boundary value problems, Runge – Kutta's Method of order IV for 1st and 2nd order ordinary differential equations. System of equations predictor – corrector formulae, Shooting method and

Module-5

Partial Differential Equations

Finitedifferenceapproximationtoderivatives.Laplaceequation–Jacobi,Gauss-SeidelandSORmethods,ADI

Textbook/Reference Books

1	NumericalMethodsforScientificandEng g.Computation	M.K.Jain,S.R.K.Iy engarand R.K. Jain	New Age International	6th Ed.,2012
2	Numerical Methods for Engineers	S. C. Chapra and	McGraw-Hill	7th Ed., 2015
3	Introductory Methods of Numerical Analysis	S. S. Sastry	PHI	4th Ed.,2011
4	Elements of Numerical Analysis	R.S.Gupta	Oxford Univ. Press	2nd Ed.,2015
5	Introduction to Numerical Analysis	F.B.Hilderbrand	Dover Publications	2nd Ed.,1987

COURSE WORK SYLLABUS FOR NURSING

(Subject code: 20SPHD NUR01)

SUBJECT 1: RESEARCH METHODOLOGY

(Common subject)

Unit 1: Introduction

- Research – definition types characteristics Terminology used in research, purpose, scope, and research.
- Types of research; Quantitative and Qualitative Descriptive vs. Analytical, Applied vs. Fundamental, Quantitative vs. Qualitative, Conceptual vs. Empirical, Some Other Types of Research

Unit 2: Research process Overview

- Statement of the problem and research objectives concepts and constructs, variables assumptions.
- Hypotheses formulation and types Delimitation.
- Literature Review

Unit 3: Research approach, design and sampling, and data collection

- Historical approaches
- Survey and experimental approaches,
- Qualitative research approaches, ethnography, and phenomenology.
- Longitudinal, cross-sectional, and cohort studies-advantages and disadvantages.
- Experimental designs-Purposes, characteristics, types of design, pre-experimental and quasi and true implemented design, steps of experimental research
- Sampling Methods-size, criteria's of Population, Techniques of sampling criteria, determination of sample size
- Method, techniques, and tools for data collection

Unit 4: Analysis and Interpretation of Data:

- Data Analysis- quantitative and qualitative
- Preparing data for computer analysis and presentation
- Statistical analysis
- Interpretation of data

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Unit 5: Report writing and utilizing research findings

- Communication of research results
- Writing research report, purpose, methods
- Writing a scientific article for publication
- Utilization of research findings

References:

1. Kothari CR. Research Methodology. 2nd edition. New Delhi: New age International publishers; 2004
2. Nancy Burns. Susan K George. Understanding Nursing research. 2nd edition. Philadelphia: Saunders publications; 2002
3. Suresh K Sharma. Nursing Research and statistics. 2nd edition. New Delhi: Reed Elsevier India Pvt Ltd; 2018
4. Kabir Singh Sindhu. The methodology of research in Education. 1st edition. New Delhi: Sterling publishers; 1990
5. Denise F Polit. Cherly tatano Beck. Nursing Research- Generating and Assessing evidence for Nursing practice. 9th edition. New Delhi; Wolter's Kluwer (India) Pvt Ltd: 2012
6. Basavanthappa BT. nursing research. 1st edition. Jaypee brothers medical publishers P ltd. 2005.
7. Holloway lmmy, wheeler Stephanie. Qualitative Research in Nursing. 2nd edition. Oxford: Blackwell Publishing Company; 2002

(Subject code: 20SPHD NUR02)

SUBJECT 2: NURSING CARE PRACTICE

(Common subject)

Unit 1: Introduction to Nursing and health

- Definition of Profession and Characteristics
- Definition, concepts, philosophy of Nursing
- Functions, qualities, categories of Nursing practice
- Ethics in Nursing
- Role of Regulatory bodies
- Quality Assurance in Nursing
- Definition of Health, determinants, Health care team, Health care services
- Hospital- types, service, function

Unit 2: Therapeutic communication and Nurse patient relationship (NPR)

- Communication- Levels, elements, types, process
- Communication skills- Dimensions and phases of helping relationship
- Nurse patient relationship- Dimensions and phases
- An effective way of communication with the patient, family, health team and vulnerable group
- Patient teaching- Its importance, purpose, process

Unit 3: Nursing Process Approach

- Critical thinking and nursing judgment
- Definition, Purpose, characteristics, and elements of the nursing process
- Health Assessment-Identification of health-illness problems by history collection, Physical examination, Nutritional assessment, related investigation, health behaviors
- Nursing diagnosis
- Planning
- Formulation of the Nursing care plan and implementation of care
- Evaluation of Nursing Care

Unit 4:Nursing care of Patient

- Basic needs- Safety devices, Hygiene, comfort, Nutrition, and elimination needs
- Care of wound
- Oxygen administration
- Administration of Medications

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Unit 5: Infection control

- Nature of Infection, defense mechanism
- Nosocomial infection
- Barrier techniques
- Biomedical waste management

References:

1. Rebbeca Nissanka. Comprehensive textbook of Foundation of nursing. 1st edition. New Delhi: The health science publishers; 2016
2. Lynda Jual carpenito. Nursing diagnosis application to clinical practice. 9th Edition : USA: Lippincott publishers; 2010
3. Sister cecy Correia. Principles and practice of Nursing- Art of Nursing procedures. 1st edition. New Delhi: Jaypee brothers medical publishers Pvt ltd; 2013
4. Sr. Nancy. Principles and practice of nursing- senior nursing procedures and nursing administration. 4t edition.Indore: NR publishing house; 2008
5. Lippincott Manual of Nursing Practice. 8th edition. USA: Lippincott Williams and Wilkins publications; 2006
6. Patrica A Potter. Fundamentals of Nursing. 6th edition, New Delhi: Reed Elsevier India Pvt ltd; 2006
7. Marilyan E Doenges. Mary Frances Noorhouse. Alice C Murr. Nursing care plan guidelines for individualizing client care- Across the life span. 7th edition. New Delhi: Jaypee brothers medical publishers Pvt Ltd; 2007

(Subject code: 20SPHD NUR03)

SUBJECT 3: NURSING LEADERSHIP IN HEALTH CARE

(Common to All)

Unit 1: Health program, policies, and issues

- National health policy
- Health care delivery" system in India
- Issues relevant to Nursing practice – Social system and health policy Politics and health policy, health economics and health policy, Health insurance, Law in health care delivery
  Advocacy and Lobbying

Unit 2: Nursing Leadership

- Concepts, types, and theories
- Leadership styles
- Characteristics and skills of an effective leader
- Group dynamics
- Stress management

Unit 3: Human Relation

- Human Relations
- Communication Skills

Unit 4: Quality Assurance and Audit

Quality Assurance in Nursing- Code of Ethics, Professional Conduct for Nurses, Nursing Standards Nursing Audit

Unit 5: Nursing informatics

- Nursing management information system-Clinical information systems, information technology for nursing
- Computers in Nursing -Computer Systems, Data processing, The internet as a nursing resource
- Utilization of Nursing informatics-Practice Application, Administrative application Educational applications, Research applications

References:

1. Sakharkar B.M. Principles of hospital administration and planning. 2nd edition. New Delhi: Jaypee brothers medical publishers (p) Ltd; 2009.
2. Park. K. Textbook of preventive and social medicine.20th edition. New Delhi: BB publishers
3. Basavanthappa B.T. Nursing administration. 1st edition. New Delhi: Jaypee brothers medical publishers; 2000
4. Dr. Rebecca Samson. Leadership and management in nursing practice and education. Bangalore: Jaypee brothers medical publishers (p) Ltd; 2009

5. Robbins P.S. Fundamentals of Management Essential Concepts and Applications. 5th edition. New Delhi: published by person education; 2005

6. Sridhar S. Quality assurance in nursing. Indian Journal of Nursing and Midwifery Vol. 2 Sept 1988.

7. Neeraja K P.Textbook of Nursing Education. 3rd edition. New Delhi: Jaypee Publications;2005

8. Marquis L. Bessie, Huston J. Carol. Leadership Roles and Management Functions in Nursing.3rd Edition. USA: Lippincott Publishers; 2000

9. Agarwal J C. Development of Planing and modern education. 8th revised edition. Bangalore: Vikas publishing house Pvt Ltd; 2008

(Subject code: 20SPHD NUR041)

SUBJECT 4: PAEDIATRIC NURSING

Unit 1: Philosophy of Nursing Science and Theoretical Perspectives

- Nursing ethics-Code of ethics, professional conduct for nurses in India, Professional standards and quality assurance
- Nursing theories: Historical overview, classification, Importance of theory in nursing, Domains of nursing, Paradigms of nursing, Issues in theory development in Nursing

Unit 2: Neonatal nursing

- Assessment
- Neonatal disorders
- Care of high-risk newborn
- Immunization

Unit 3 : Growth & development in children

- Principles, assessment & theories of growth & development
- Developmental milestones from infancy to adolescent
- Behavioral problems and their management
- Child guidance clinic
- Nutritional programs, nutritional requirements

Unit 4: Childhood Disorders

- Nutritional deficiency disorders
- Disorders of the GI system
- Disorders of the Respiratory system

Unit 5: Intensive care of pediatrics

- Care of the child in ventilator
- Nutritional needs of the critically ill child
- Resuscitation
- Legal & ethical issues
- Intensive care procedures & techniques
- Care of the challenged child
- Pediatric drugs
- Education & training in pediatric nursing

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References:

1. Marlow. D.R and Redding B.A. Text Book of Pediatric Nursing.6th edition.Philadelphia: Saunders;2006
2. Ghai.O.P. Gupta P and Paul V.K.Essential Pediatrics.6th edition.Delhi: Dr.O.P.Ghai.2005 pg
3. Gupta.S.The Short Text Book of Pediatrics. 10th edition. NewDelhi; Jaypee Brothers; 2004.
4. Singh Meharban.Care of the newborn.6th edition. New Delhi:Sagar publications;.2004
5. Wong DL and Hockenberry MJ. Wong's nursing care for infants and children.7th edition. Missouri: Mosby publications; 2006.
6. Ball. J. W, Bindler. R.C. Pediatric nursing caring for children. 4th edition. New Delhi: Pearson education; 2009

(Subject code: 20SPHD NUR042)

SUBJECT 4: COMMUNITY HEALTH NURSING

Unit 1: Philosophy of Nursing Science and Theoretical Perspectives

- Nursing ethics-Code of ethics, professional conduct for nurses in India, Professional standards and quality assurance
- Nursing theories: Historical overview, classification, Importance of theory in nursing, Domains of nursing, Paradigms of nursing, Issues in theory development in Nursing
- Regulatory bodies: INC, SNRC acts, constitution, functions
- Professional bodies
- Continuing nursing education

Unit 2: Introduction to Health Economics

- Concept of health economics
- The focus of health economics
- Areas of health economics
- The economics of health and health care services and economic development
- Causes of health problem in India

Unit 3: Population dynamics

- Demography
- National population programs
- Research census
- National / Family health survey
- National health and welfare programs
- Five-year plans

Unit 4:Health

- School health
- Occupational health
- Community rehabilitation
- Community mental health
- Epidemiological approach

Unit 5: Health care delivery system: Urban, Rural, tribal areas

- Health organization: National, district, state, CHC, PHC, sub-center, village-functions, staffing pattern
- The alternative system of medicine
- Health agencies
- Challenges of the health care delivery system

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References:

1. Basavanthappa BT. Community Health Nursing.1 st Ed. New Delhi: Jaypee publication;2003.

2. Park K. Preventive and Social Medicine. 19th edition. Jabalpur: M/s Banarsidas BhanotPublishers; 2007

3. Gulani kk. Community Health Nursing.1 st Ed. New Delhi: Kumar publishers; 2005.

4. Kamalamma S. Essentials in Community Health Nursing Practice.1 st Ed. New Delhi:

Jaypee publication; 2005.

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Web : www.srinivasuniversity.ac.in

COURSEWORK SYLLABUS OF Ph.D. PROGRAMME IN EDUCATION

COLLEGE OF EDUCATION

City Campus, Pandeshwar,
Mangaluru – 575 001.

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Ph.D Programme-2019

SYLLABUS OF COURSE WORK

A. COURSE WORK PATTERN

SL. NO.	Subject Code	Subjects	Exam (Hours)	Credits	Internal marks	Externa lmarks	Total marks
1.	PHDED01	Qualitative and Quantitative research methods in Education	2	4	50	50	100
2.	PHDED02	Educational Psychology	2	4	50	50	100
3.	PHDED03	Action Research in Education	2	4	50	50	100
4.	PHDED04	Research and Publication Ethics and Review of Literature	2	4 (1+3)	50	50	100
		Total		**16**	**200**	**200**	**400**

Minimum criteria to pass: 50% marks per subject in both internal & external.

B. COURSE WORK SYLLABUS

PHDED01: Qualitative and Quantitative research methods in Education **100 marks**

Internal marks: 50 **University Examination marks: 50**

Unit 1: Educational research- Meaning, characteristics, scope and importance

Unit 2: Educational research problems, statements, variables and hypotheses

Unit 3: Types of Educational research: Historic method, Descriptive Method (Surveys) & Experimental method.

Unit 4: Techniques and tools of research

Unit 5: Statistical data and Measurement scales

References:

- Educational Research – Introduction by Aggarwal J.C
- Fundamentals of Educational Research by Sharma. R.A
- Understanding Educational research by Willium. J Meyer
- Statistics in Psychology and Education by Henry E. Garrett

Distribution of Marks:

- 4 Assignments on 4 Chapters given in the Syllabus (10 -20pages each in handwritten format ina 100 Page Long Book . **- 40 marks**
- Online Course Certificate on Research Methodology or Research Techniques in your Subject from SWAYAM or Any other Authentic Agency with Online Exam. **– 10 marks**
- For Coursework Exam Descriptive Questions for 50M (5 Qs of 10 Marks will be asked withchoices) - 2 hour duration **- 50 marks**

PHDED02: Educational Psychology **100 marks**

Internal marks: 50 **University Examination marks: 50**

Unit 1: Teaching in the Real world: Development of Cognition, personal, social and emotional development

Unit 2: Behaviourism and Social cognitive theories: Classical and operant conditioning, Modeling theory, Piaget, Bruner and Vygotsky`s theories of learning.

Unit 3: Cognitive processes: Information Processing, Constructivism, Problem solving, Transfer of learning and strategic learner

Unit 4: Teachers and Learners: Learners differences, inclusive education, Gender sensitization

Unit 5: Guidance and Counselling in Education.

References:

- Educational Psychology by Paul Eggen & Don Kauchak
- Educational Psychology by S.K Mangal
- Psychology of Learning And Instruction by N.K. Arjunan
- Educational Psychology by Aggarwal J.C

Distribution of Marks:

- 4 Assignments on 4 Chapters given in the Syllabus (10 -20pages each in handwritten format ina 100 Page Long Book .

OR

Prepare 50 Multiple Choice Questions with Answers 10 from each Unit using Any Text Editor.

Total number of MCQs with Answers = 10 x 5 units = 50.

- 40 marks

- Online Course Certificate on Educational Psychology from SWAYAM or Any other AuthenticAgency with Online Exam. **– 10 marks**
- For Coursework Exam Descriptive Questions for 50M (5 Qs of 10 Marks will be asked with choices) - 2 hour Duration **- 50 marks**

PHDED03: Action research in Education **100 marks**

Distribution of Marks:

Analysis and Interpretation of Issues related to Education (Action research topics should be related to the research topic will be chosen by the candidate)

• Case Studies -2 **- 50 marks**

• Journal Publications : 02 with Copy write IPR in Your Name or 02 Conference Presentations + Publications in Proceedings (ISBN) **- 50 marks**

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PHDED04: Research and Publication Ethics and Review of Literature **100 marks**

Unit 1: Philosophy and ethics

Unit 2: Scientific Conduct

Unit 3: Publication Ethics

Unit 4: Open Access Publishing

Unit 5: Database and Research Metrics

Distribution of Marks:

For Coursework Exam Descriptive Questions (5 Qs of 10 Marks will be asked with choices) - 2 hour Duration **- 50 marks**

Review of literature on the search topic selected
(1) Gathering the Information on identified Research Topic,
(2) Systematic Review
(3) Identification of Research gap & Development of Research Agenda

Identification of the research topic with minimum 10 book references, 50 research article references & 20 website references. Publication of the article based on the references made with presentation & Bibliography. **– 50 marks**

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PART-- A

EXERCISE THERAPY

Exercise intervention for women's health

Over view of pregnancy labor and related condition, physiological effects of aerobic exercises during pregnancy, exercise of uncomplicated pregnancy and post partum, significance of physical therapist caesarean child birth and activities suggested for patients following caesarean section

Breathing exercise and chest wall mobility exercise

Types of breathing exercise- diaphragmatic breathing exercise , Apical breathing , costal breathing, posterior basal, glosso- pharyngeal breathing, pursed lip breathing , inspiratory hold

Hydrotherapy

principles of hydrotherapy – buoyancy, hydrostatic pressure, hydrodynamic pressure , turbulence, indication, precautions and contraindications physiological & Therapeutic effects

Methods of joint mobilisations & Manipulation

Introduction, definition, joint range- outer range , middle range, inner range, causes of joint range limitation, effect of prolonged immobilization , indication & contraindication . Principle

Muscle strength & endurance training & re-education of Muscle

Definition of strength , power & work, endurance , muscle actions. Physiology of muscle performance : structure of skeletal muscle, chemical & mechanical events during contraction & relaxation, Muscle fiber types, motor unit, force gradating, resistance training

Assessment of muscle shortness & stretching

Definition, Purpose of stretching, Physiological changes in muscle to stretch , Neurological changes in muscle to stretch , tissue response towards immobilization and elongation , determinants of stretching exercise, Inhibition and relaxation

Applied Bio- mechanics

Types of Kinematic chain – open and closed chain. Active and passive insufficiency. Parallelogram law of forces. Centre of gravity, line of gravity. Stable, Undtable, Neutral – Equilibrium . Fixed and Movable pulleys. Springs- series and parallel. Levers- 1 st order , 2nd order, and 3rd order

BIOMECHANICS

Gait

Determinants
Kinetics and kinematics
Analysis of common pathological gaits

Knee complex

Kinetics and kinematics of tibiofemoral & patellofemoral joint
Pathomechanics of common condition of knee complex.

Ankle & foot complex

Kinetics and kinematics of hind foot mid foot and fore foot joints
Arches of foot
Pathomechanics of common condition of ankle complex.

Hip complex

Stability of hip complex
Hip abduction mechanism
Pathomechanics of common condition of hip complex.

Vertebral Column

Arthrology of cervical, thoracic, lumbar and sacroiliac regions including kinetics, kinematics and their muscle actions.
Lumbo- pelvic, rhythm.
Rib cage mechanics during ventilation.
Spinal coupling of craniocervical, thoracic , lumber and sacroiliac regions.
Introduction of pathomechanics of common condition of vertebral column

Temporomandibular joint

Kinetics and kinematics of Mastication.
Introduction of pathomechanics of common condition of Temporomandibular joint.

Wrist and hand complex

Prehension and precision activities and Interaction of extrinsic and intrinsic muscles in various functions of hand.
Functional position of wrist and extensor mechanism of hand.
Architecture of hand
Introduction of pathomechanics of common condition of wrist and hand complex.

Shoulder complex

Stabilizers of shoulder
Force couples
Pathomechanics of common condition of shoulder complex

ELECTROTHERAPY

Basic electricity
TENS parameters
Principles of IFT
Parameters of ultrasound therapy
Electrodiagnosis
SD curve
NCV, EMG
Cryotherapy

EXERCISE PHYSIOLOGY

Hormonal and neural control during exercise
Energy expenditure and fatigue
Cardiovascular responses and adaptations to exercises
Exercise testing and training
Environmental influence on body and exercise performance

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PART--B

PHYSIOTHERAPY IN ORTHOPEDIC CONDITIONS

Manual therapy approaches
Differential diagnoses
Pain science
Physical fitness
ICF model and rehabilitation
Mechanics and pathomechanics of common musculosketal and sports injuries

PHYSIOTHERAPY IN NEUROLOGICAL CONDITIONS

Growth and development of nervous system
Motor control and learning
Neurophysiology of balance and coordination
Neuroimagings
Electrodiagnosis

PHYSIOTHERAPY IN CARDIOPULMONARY CONDITIONS

Anatomy, physiology, biomechanics, pathomechanics & applied anatomy related to Cardiovascular & Pulmonary System
Development of the Cardio Vascular, Pulmonary systems
Body positioning and various systemic changes respiratory muscle physiology, fatigue and training
Normal and abnormal responses of Cardiovascular & Pulmonary System during exercise
Breathing mechanism in normal and diseased individuals

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COMMON TO ALL ENGINEERING BRANCHES

Subject code: 18SPHDRM

RESEARCH METHODOLOGY

Module-1:

Meaning, Objectives and Characteristics of research - Research methods Vs Methodology - Types of research - Descriptive Vs. Analytical, Applied Vs. Fundamental, Quantitative Vs. Qualitative, Conceptual Vs. Empirical - Research process - Criteria of good research -Developing a research plan.

Defining the research problem - Selecting the problem - Necessity of defining the problem -Techniques involved in defining the problem - Importance of literature review in defining a problem - Survey of literature - Primary and secondary sources – Development of working hypothesis.

Module -2:

Research design and methods – Research design – Basic Principles- Need of research design — Features of good design – Important concepts relating to research design – Observation and Facts, Laws and Theories, Prediction and explanation, Induction, Deduction, Development of Models - Developing a research plan - Exploration, Description, Diagnosis, and Experimentation- Determining experimental and sample designs.

Module -3:

Sampling design - Steps in sampling design - Characteristics of a good sample design - Types of sample designs - Measurement and scaling techniques - Methods of data collection – Collection of primary data - Data collection instruments

Testing of hypotheses - Basic concepts - Procedure for hypotheses testing flow diagram for hypotheses testing - Data analysis with Statistical Packages – Correlation and Regression - Important parametric test - Chi-square test - Analysis of variance and Covariance

Module -4:

IPRs- Invention and Creativity- Intellectual Property-Importance and Protection of Intellectual Property Rights (IPRs) - A brief summary of: Patents, Copyrights, Trademarks, Industrial Designs- Integrated Circuits-Geographical Indications-Establishment of WIPO-Application and Procedures.

Module-5:

Interpretation and report writing - Techniques of interpretation - Structure and components of scientific reports - Different steps in the preparation - Layout, structure and language of the report - Illustrations and tables - Types of report - Technical reports and thesis

REFERENCES:

1. Garg, B.L., Karadia, R., Agarwal, F. and Agarwal, U.K., 2002. An introduction to Research Methodology, RBSA Publishers.
2. Kothari, C.R., 1990. Research Methodology: Methods and Techniques. New Age International. 418p.
3. Anderson, T. W., An Introduction to Multivariate Statistical Analysis, Wiley Eastern Pvt., Ltd., New Delhi
4. Sinha, S.C. and Dhiman, A.K., 2002. Research Methodology, EssEss Publications. 2 volumes.

5. Trochim, W.M.K., 2005. Research Methods: the concise knowledge base, Atomic Dog Publishing. 270p.
6. Fink, A., 2009. Conducting Research Literature Reviews: From the Internet to Paper. Sage Publications
7. Intellectual Property Rights in the Global Economy: Keith Eugene Maskus, Institute for International Economics, Washington, DC, 2000
8. Subbarau NR-Handbook on Intellectual Property Law and Practice-S ViswanathanPrinters and Publishing Private Limited.1998