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Minutes of the 2nd meeting for preparation of Syllabus of the course work for Ph.D. in Medical Science Programme of Aryabhatta Knowledge University (AKU), Patna held on 28.01.2017 at 01.00 p.m. in the Conference Hall of Aryabhatta Knowledge University, Patna.

Following members were present in the meeting:-

1. Dr. (Prof.) S.N. Sinha, Dean-Health & Medicine, AKU, Patna & Principal, PMCH, Patna.
2. Dr.(Prof) Arun Kumar Agarwal, Dean Student's Welfare, AKU, Patna
3. Dr.(Prof) Bikash Kumar, Principal, SKMCH, Muzaffarpur
4. Dr.(Prof) Rajiv Ranjan, Prasad Principal, Govt, Medical College, Bettiah
5. Er. Rajeev Ranjan, Controller of Examination, AKU, Patna

Er. Rajeev Ranjan, Controller of Examinations, AKU, Patna extended warm welcome and provided brief introduction about the agenda and thereafter, the agenda was taken up for discussion.

Agenda No. 01/02

Subject: Discussion on Preparation of Syllabus for course work of Ph.D. in Medical Sciences programme.

Resolution: The committee discussed the matter for finalization of the syllabus of course work for Ph.D. in Medical Sciences programme in light of the "**Ordinance for Degree of Doctor of Philosophy (Ph.D.) in Medical Science**" approved by the Academic Council in its 11th meeting held on 22.8.2016.

After threadbare discussion it was resolved that the syllabus of course work for Ph.D. in Medical Sciences programme shall be adopted from the syllabus given in "**Post M.D. - Ph. D. A Super-Specialty Program**" of King George's Medical University (KGMV), Uttar Pradesh, Lucknow, India. The place of course work should be left open to the candidate for self- study mode or in case AKU has to do it then it was resolved that AKU shall conduct the course work in its Centre/Colleges/Institutes or contact KGMV, Lucknow, Banaras Hindu University, Varanasi or any other Govt./Private Institutions, which can impart the training for the course work on honorary basis.

As far as examination in paper I & II are concerned, it was also resolved that the syllabus mentioned in the KGMV, Lucknow shall be divided into Paper I & Paper II (marked and attached as Annexure – I) and in earlier paper II mentioning "Specialization Background to the topics of study (topics related to the specialized subject) under which the topics / area of research is undertaken" should be deleted, because it shall become very cumbersome and unnecessarily tedious to set question papers individually for all specialty in Medical Sciences. This will become equal to setting question papers as it is done in Post-Graduation MD/MS subjects, hence the deletion.

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Syllabus for Post MD –Ph.D. Essential Courses

Paper – I

Clinical Research Methodology

1. Development of a Research Question
2. Sharpening objectives - Identifying a problem
3. Evidence based medicine: the gap between evidence and practice
4. Research designs and Method Evaluation
5. Tools for data Collection and Questionnaire designing
6. Case studies and practical
7. Outcome measurements
8. Confounding and Bias
9. Molecular and Genetic Epidemiology
10. Survey Methods
11. Translational Research
12. Ethical Issues
13. Critical Review of published literature
14. Principles of Evidence Based Medicine
15. Essentials of Clinical Economics
16. Types of clinical economic analysis
17. Medical Decision Analysis

Bio-statistics (Preliminary)

1. Introduction & overview. Statistical pattern recognition
2. Descriptive statistics - Summarizing and displaying data
 - (i) Basic concepts and jargon used to denote various features of a set of observations
 - (ii) Distributions - Population Vs. Sample Random Vs. Selected Shapes
 - (iii) Common summary statistics used to describe a single distribution
 - (a) location: mean, median, mode
 - (b) Variation: variance, standard deviation, range, interquartile range
 - (iv) Methods of data display which preserve the raw numbers
 - (v) Methods of data display which utilize summary statistics
3. Probability: The binomial and normal distributions

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28/1/17

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4. Sampling distribution: basic concepts and understanding the concept of a statistical test of significance including:
 - the null and alternative hypothesis
 - type I (alpha) and Type II (beta) errors
 - one and two sided tests
 - Confidence intervals
5. Sampling distributions - Computer simulation of clinical trial scenarios
6. Inference on means - Single sample
7. Inference on means - Comparing two groups.
8. Inference on Proportions - Binomial and normal approximation
9. Proportions - Diagnostic test risk, odds ratio and Kappa
10. Introduction to Linear Regressions:
11. Introduction to Multiple Regressions and Logistic Regression:
 - Non-parametric tests:

Diagnostic research methodology

1. DNA structure and function
2. Basic lab techniques
3. Transformation
4. Electrophoresis
5. Restriction analysis
6. PCR and sequencing
7. Cultures
8. Cell Lines
9. Applications of molecular diagnostics
10. Principles of Pharmaco-dynamics
11. Basic Radio-imaging techniques
12. Bioinformatics
13. Bioethics
14. Virtual laboratories
15. Optional labs and activities

Bio-Computing (Preliminary)

1. Introduction to Personal Computer

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2. Introduction to DOS
3. MS Office and Typing exercises
4. Questionnaire design
5. Data base
6. Computer graphics - charts, diagrams
7. Net surfing and literature search
8. Epi Info 2002, SAS and SPSS usage
9. Collection, storage, organization (documents - classification, cataloguing and indexing) and dissemination of information.
10. Informatics
11. Practical Exercises

Medical Communication (Verbal and written)

1. Principles of effective communication
2. Verbal and non-verbal communication
3. Analyzing communication
4. Principles of Communication: doctor-patient, doctor-staff and staff-patient relationships
5. Technical communication problems in the medical field
6. General overview of medical writing
7. Different medical writing environments
8. How to get started in medical writing
9. Good writing style
10. Presentations

Paper - II

Qualitative Research Methodology

1. Understand the nature of qualitative research procedures and how they compare to more traditional quantitative procedures (i.e., relative advantages/disadvantages of each approach);
2. Identify a number of different ways to collect qualitative data (i.e., individual/group interviewing; participant-observer journaling) and compare the relative tradeoffs of each approach;
3. Interviewing in Qualitative Research

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4. Understand how to summarize, compile and report qualitative data, in both narrative and visual matrix or other graphic/tabular display formats;
5. Strategies for Qualitative Research
6. The quantification of qualitative research
7. Ethnographic experience
 - Philosophical traditions
 - Application of qualitative methods to evidence based health care

Using qualitative methods within evaluation research, action research, and case studies Methods

- Common data collection methods by methodology
- Approaches to data collection
- Data collection tools

Ethics in qualitative research

Qualitative data analysis

- Common approaches for different types of methodologies
- Strategies for presenting and describing data

Medical Education Research

1. Theory and practice of learning and teaching,
2. Curriculum Foundations
3. Principles and Practice of curriculum development (Example MCI)
4. Educational leadership: information management, Knowledge management
5. Program development and evaluation
6. Techniques of student and self-assessment
7. Techniques of Feedbacks
8. Principles of Counseling
9. Distance learning
10. Self directed learning
11. Group Teaching
12. Mentorship
13. Role Modeling
14. Peer Group activities
15. Peer support and assessment
16. Administrative and support services

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Essentials of Management

1. Introduction to Managing and Management
2. The External Environment
3. Managerial Decision Making
4. Planning and Strategic Management
5. Ethics and Corporate Responsibility
6. International Management
7. New Ventures
8. Organization Structure
9. The Responsive Organization
10. Human Resource Management
11. Managing the Diverse Workforce
12. Leadership
13. Motivating for Performance
14. Managing Teams
15. Communicating
16. Managerial Control
17. Managing Technology and Innovation
18. Creating and Managing Change

Medical Ethics (Basic)

1. Introduction to Professional Ethics & Introduction to Medical Ethics
2. History and Development of Medical Ethics
3. Informed Consent
4. Good Clinical Practices
5. Good Laboratory Practices
6. The Role of Ethics in Clinical Medicine
7. The Clinical Importance of Patients' Rights
8. Ethical Issues in Human Reproduction, Stem Cell and Genetic Research
9. Issues in Professional Ethics:
Physician-Assisted Dying; Managing Medical Mistakes

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