



**Department of Panchakarma**

**Suggestions for "Ph.D. Course Work" for research scholars 6 months Duration**

**A. Course Work**

1. Every student admitted in a discipline for Ph.D. program in the Faculty of Ayurveda Panchakarma will be required to pass a 'course work' of 50 credits.
2. The candidate can submit his/her thesis only after passing the course work.
3. Each Department/discipline will announce the courses to be offered in a given semester prior to beginning of the semester and the research scholars will register themselves, in consultation with their DRC (Departmental research committee), for different courses.
4. Ph.D. scholars in one discipline may register themselves for courses offered by other disciplines if this is mutually permitted.
5. The 20 -credit course will normally be spread over two semesters. These 20 credits will be distributed as follows:

**Semester 1 (3 months)**

**(i) Faculty level Compulsory Courses: 3 credits**

These core courses are compulsory for all research scholars of Faculty of Ayurveda. The contents of these courses will be taught in the form of common classes to all the scholars registered in the Faculty of Ayurveda, by the teachers of different departments according to the need, expertise and relevance, as nominated by the Dean.

- |    |   |   |          |
|----|---|---|----------|
| a) | Research Methodology and Biostatistics                                | : | 1 credit |
| b) | Research Ethics, Scientific writing and communication                 | : | 1 credit |
| c) | Essentials of computer applications, Literature and Databases search: | : | 1 credit |

**(ii) Department/Discipline Specific Courses 7 credits**

The Departmental Courses comprise of a course of 4 credits (theory and/or laboratory based, 100 marks) for all students (from main or allied disciplines) OR Department may offer

separate courses of 4 credits (theory and/or laboratory based, 100 marks each) for students of different disciplines. All students will take a course of 3 credits in which student has to review the literature related to his research topic and present a seminar. Thus, these department/discipline specific 7 credits may consist of Core and Elective courses as prescribed by the concerned department.

- Review of literature and presentation of a seminar on a research theme related topic: **3 credits**
- b) Theory/Laboratory based/Current Advances/tools and techniques/Current methods in the concerned subject/discipline (Theory and/or practical course):  
**4 credits**

## **Semester 2**

### **Research Theme Specific Courses 10 credits**

Each department will offer several courses (theory/laboratory based) of 4 credits each. A research scholar shall will take 2 courses of 4 credits each (theory and/or laboratory based, 100 marks each) out of the available courses offered by the department and as suggested by the concerned RPC. Preparation and presentation of the Research Plan Proposal (2 credits) is compulsory for all students.

- Preparation and presentation of the Research Plan Proposal 2 credits
- Course A (Research theme specific theory and/or practical course) 4 credits
- Course B (Research theme specific theory and/or practical course) 4 credits

### **A. Examination and Evaluation –**

1. Only end-semester examinations will be held for the Ph.D. courses offered in a given semester. Normally examinations will be held two times in a year and will be notified by the Controller of Examinations. Every student will be required to fill up the examination form within the stipulated time notified by the Controller of Examinations. A candidate will be eligible for appearing in the examination, if he/she fulfills the minimum attendance requirement and submits the examination form within the stipulated time. Attendance

requirement will be the same as provided in Ph.D. ordinances. A candidate, who does not fulfill the above requirements, will not be allowed to appear in the concerned examination.

2. There will be no evaluation/examination for the Faculty level common courses: all research scholars will attend these courses and secure the minimal attendance requirement to qualify.

3. Preparation and presentation of seminar on research plan proposal and the review of literature and presentation of seminar will be evaluated by the concerned RPC and DRC. Department/Discipline Specific and Research Theme Specific theory and/or practical courses will be evaluated by the examiners appointed by the 'Board of Examiners'.

4. Based on performance in the examination and other assessments, the candidate will be declared pass or fail. A candidate will be declared pass in a Department/Discipline Specific and Research Theme Specific theory and/or practical courses if he/she secures at least 40% marks in each courses (each course will be of 100 marks). For other items viz., literature review and seminar presentation/field work course etc., the candidate will be declared only passed or failed based on the assessment by the concerned RPC/DRC without any marks being assigned. The preparation and presentation of research plan proposal, as required under the Ph.D. Ordinances, will be evaluated by RPC as well as DRC and the candidate will be declared as pass or fail.

5. The candidate will be considered to have passed the course work of the Ph.D. programme only when he/she has passed all the items of the Ph.D. course.

6. A candidate has to clear the course work in a maximum of the first four available semester of the residency period from the date of registration. A candidate can take a maximum of two attempts for passing a course/item. If he/she does not pass within the period, his/her Ph.D. registration shall stand cancelled. There will be no provision of supplementary examination.

#### **Outline of Ph.D. Course work (Department of Panchakarma)**

##### **1<sup>st</sup> semester**

**Faculty level common course (3 Credits); Coordinator- Dean, Ayurveda**

<b>Course</b>	<b>Course Title</b>	<b>Nature</b>	<b>Credits</b>	<b>Examination</b>	<b>Max</b>
---------------	---------------------	---------------	----------------	--------------------	------------

Code				Procedure	Marks
S1 A01	Research methodology and Biostatistics	Compulsory	1	Attendance as per PhD ordinance (No Exam)	Nil
S1 A02	Research Ethics, Scientific writing and communication	Compulsory	1	Attendance as per PhD ordinance (No Exam)	Nil
S1 A03	Essentials of computer applications, Literature and data search	Compulsory	1	Attendance as per PhD ordinance (No Exam)	Nil

**Department/Discipline Specific Course (7 Credits)**

**Coordinator- HOD**

Course Code	Course Title	Nature	Credits	Examination Procedure	Max Marks
S1 PK01	Review of literature and presentation of a seminar on a research theme related topic	Compulsory	3	Evaluation by RPC and DRC	Nil
S1 PK02	Current methods, tools and techniques in Panchakarma Research	Compulsory <sup>#</sup>	4	Theory/practical (Examiners appointed by 'Board of Examiners')	100

<sup>#</sup>Department may offer separate courses for students of main and other disciplines.

**2<sup>nd</sup> semester**

**Research Theme Specific Course (10 Credits)**

**Coordinator- Supervisor**

Course Code	Course Title	Nature	Credits	Examination Procedure	Max Marks
S2PK 03	Preparation and presentation of the research plan proposal	Compulsory	2	Evaluation by RPC and DRC	Nil
S2PK 04	Standardization of methods and techniques relevant to the research topic	Compulsory	4	Practical/Viva Voce (Examiner-Supervisor of the student)	100
S2PK 05	Standardization and preparation of standard operating protocols for different interventions used in panchakarma	Elective*	4	Theory (Examiner-Supervisor of student)	100
S2PK 06	Recent advances in Research Methods in	Elective*	4	Theory (Examiner-	100

	Panchakarma			Supervisor of student)	
S2PK 07	Research related equipment/scales	Elective*	4	Theory (Examiner-Supervisor of student)	100
S2PK 08	Research issues & Broader area of research of concerned department	Elective*	4	Theory (Examiner-Supervisor of student)	100
S2PK 09	Ethical issues in research involving panchakarma	Elective*	4	Theory (Examiner-Supervisor of student)	100

\*A student has to select any one elective course out of the elective course listed above.

**CURRICULUM FOR FACULTY OF AYURVEDA COMMON COURSES(S1A01-A03)  
(SEMESTER-1)**

**S1 A01 - Research methodology and Biostatistics (1 Credit)**

- Different study designs which are useful in research. Sampling Techniques, Data tabulation and graphical presentation
- Statistical analysis: Mean, Median, Mode, Standard Deviation, (Z score), Tests of statistical significance, t-value, p-value, inter and intra-group correlation, ANOVA, Chi-squared test, and other parameters which are helpful in interpretation of research data. Knowledge about statistical software such as Epi-Info, Graphpad, SPSS etc.

**S1 A02 - Research Ethics, Scientific writing (paper/project) and communication (1 Credit)**

- Bioethical considerations in research, ethical principles and guidelines which are essential to plan experimental / clinical studies
- Types of scientific communication: General Reviews, Original Research, Meta-analyses, Systematic Reviews, Short communications, Case reports, Case series, Clinical Trials, In- vitro and in-vivo studies, etc.
- IMRAD structure of a research paper (Introduction, Methods, Results and Discussion)
- Different reference styles and introduction to reference management software

such as Mendeley

**S1 A03 Essentials of computer applications, Literature and data search (1 Credit)**

- Computer application: practical knowledge about the word-processing software such as MS Word, knowledge about the presentation-applications such as MS Power Point, using the spreadsheets such as MS Excel, and knowledge of other basic computer applications which are helpful in preparation, and presentation of research papers and theses
- Methods of literature and data search: AYUSH Research Portal, DHARA, PubMed, SCOPUS, Web of Science, Science Direct, Google Scholar, etc

**CURRICULUM FOR DEPARTMENT/DISCIPLINE SPECIFIC COURSE WORK (S1 PK 01-02)**

**SEMESTER 1**

**S1 PK 01: Review of literature and presentation of a seminar on a research theme related to selected theses topic (3 Credit)**

- Submission of the write up for evaluation by the DRC(Departmental research committee). The DRC will evaluate and approve the seminar topic.
- Oral presentation before the DRC.
- Student will be declared pass or fail based on the assessment by the concerned DRC without any marks being assigned.

**S1 PK 02: Current methods, tools and techniques in Panchakarma Research (4 Credit)**

- Principles and applications of Ayurvedic and Contemporary tools and techniques applicable in Kayachikitsa
- Basic Tenets of Ayurveda & Panchakarma
- Different methods of drug standardization using modern techniques such as AAS, ICP-MS, ICP-OES, HPLC, HPTLC, GC-MS etc.
- Comprehensive knowledge of Panchakarma procedures, Satvavajaya Chikitsa, Daiva Vyapashraya Chikitsa and Marma Chikitsa alongwith their scientific analysis.
- Different methods to assess the biological activity of drugs (*in vivo* and *in vitro*) in order to develop an insight into their mechanism of action.

## **CURRICULUM FOR RESEARCH THEME SPECIFIC COURSE WORK (S2PK 03-09)**

### **SEMESTER 2 (3 months)**

#### **S2PK 03: Preparation and presentation of the research plan proposal (2 Credit)**

- Submission of the write up for evaluation by the DRC. The DRC will evaluate and approve the plan proposal.
- Oral presentation before the DRC.
- Student will be declared pass or fail based on the assessment by the concerned DRC without any marks being assigned.

#### **S2PK 04: Standardization of methods and techniques relevant to the research topic (4 Credit)**

- Practical Standardization of methods and techniques based on the course selected by student and as suggested by DRC.
- Examination by Practical/Viva voce

#### **S2PK 05: Standardization and preparation of standard operating protocols for different interventions used in panchakarma (4 Credit)**

- Preparation of standard operating protocol of Vamana therapy, factors affecting therapeutic response and its scientific analysis.
- Preparation of standard operating protocol of Virechana therapy, factors affecting therapeutic response and its scientific analysis.
- Preparation of standard operating protocol of Basti therapy, factors affecting therapeutic response and its scientific analysis.
- Preparation of standard operating protocol of Nasya / Shiro Virechana therapy ,factors affecting therapeutic response and its scientific analysis.
- Preparation of standard operating protocol of Shirodhara, Shirovasti & various other Sthanika Basties, factors affecting their therapeutic response.
- Preparation of standard operating protocol of different modes of Sattvavajaya therapy ,factors affecting therapeutic response and their scientific evaluation.
- Preparation of standard operating protocol of Jalaukavacharana , factors affecting its therapeutic response.
- Preparation of standard operating protocol of Marma & Yogic Chikitsa , factors affecting its therapeutic response.
- NABH Standards of Panchakarma Accreditation

#### **S2PK 06: Recent advances in Research Methods in Panchakarma (4 Credit)**

1. Integration of technology into the field of Panchakarma
2. Potential of Panchakarma in emergency medicine

- Cerebrovascular accidents
  - Burns, scalds, injuries, poisoning, Shock
  - Acute complications of chronic disorders – Diabetic ketoacidosis, etc.
3. Gut microbiome, Gut-brain axis, and Skin-gut axis
    - Impact of Panchakarma on restoration of healthy microbiota in the gut
    - Gut-based therapies and their impact on brain – Textual and contemporary understanding
    - Gut-based therapies and their impact on skin – Textual and contemporary understanding
  4. Role of panchakarma on biological parameters
    - Hematological and biochemical parameters and impact of Panchakarma on them
    - Radiological findings and impact of Panchakarma on them.
  5. Mental health and Panchakarma
    - Classification of current medical disorders according to Ayurveda and grouping of Panchakarmas according to them, incorporating current research.
  6. Role of Panchakarma in Sports medicine and rehabilitation
    - Knowledge about common sport injuries
    - Role of various internal and external procedures on them
  7. Panchakarma as prophylactic measure in context of epidemics
    - Immunity – Conventional and contemporary understanding
    - Role of Shodhana in increasing immunity and preventing diseases
    - Rasayana as a general and disease-specific prophylactic measure
  8. Physiotherapy, Yoga and other complementing techniques in Panchakarma
    - Role of physical activity as a supportive procedure to Panchakarma
    - Introduction to Physiotherapy and its role in facilitating recovery in indicated conditions
    - Introduction to Yoga and its role in facilitating recovery in indicated conditions
  9. Panchakarma in Public Health
    - Role of Panchakarma in preventive and curative aspects of non-communicable diseases, both degenerative and inflammatory conditions
    - Approach to communicable diseases and role of Panchakarma
  10. Panchakarma waste disposal and management
    - Classification of common wastes in Panchakarma according to the latest guidelines
    - Procedures in disposing and managing common biomedical wastes.

**S2PK 07: Research related equipment/scales (4 Credit)**

1. Panchakarma instrumentation in the classic Ayurvedic texts
2. Comparative analysis of conventional and contemporary forms of Panchakarma equipment
3. Quality control, standards, regulations of Panchakarma equipment: Current



perspectives

4. Safety and biohazard risks associated with usage of Panchakarma equipment
5. Scope of innovations in mechanizing Panchakarma
  - Modification of Sthanik Basti with thermoregulation or heating therapy
  - Standardization of dose of medicines for various procedures according to Prakriti
  - Development of medicated nanotechnology-based tampon with thermoregulation
  - Biodegradable patches
  - Liposomal drug delivery (Snehapana)
  - Automations in Dhara, Pinda Sveda, and other procedures
6. Understanding and application of various scales specific to Panchakarma
7. Development and validation of questionnaires and scales
8. Comparing various scales used to assess the baseline characteristics in Ayurveda like Agni, Koshta, Prakriti, etc. and therapeutic responses
9. Present and future of questionnaires and scales: Scope and limitations
10. Balancing between subjectivity and objectivity

**S2PK 08: Research issues & Broader area of research of concerned department**

**(4 Credit)**

1. Precision decision making algorithm in assessing the suitability of a procedure
  - Textual indications and contraindications
  - Updating the textual knowledge on the basis of current research
2. Disease specific formulations, procedures, and innovations
  - Repurposing specific Panchakarma procedures, the formulations used in them, and latest innovation in accordance with precise diagnoses of current diseases and pathogenesis.
3. Mode of action of various Panchakarma procedures: Contemporary and classical understanding
  - Textual descriptions regarding mode of action of each procedure
  - Contemporary research to establish the mode of action of Panchakarma procedures
4. Challenges & limitations current practice of Panchakarma
  - Economical, human resources, infrastructural and other resources posing challenge
  - Alternative and innovative solutions
5. Adverse events related to Panchakarma Therapies.
  - Pharmacovigilance and terminologies
  - Ayurveda Pharmacovigilance Programme and protocol for reporting adverse events

**S2PK 09: Ethical issues in research involving panchakarma (4 Credit)**

1. Ethical considerations in research involving human participants
  - Detailed understanding of National ethical guidelines for biomedical and health research including human participants
  - Rights of patients
2. Research in vulnerable populations
  - Specific considerations while conducting research in children, women, and other vulnerable populations.
3. Ethical considerations in animal research
  - Committee for the Purpose of Control and Supervision of Experiments on Animals (CPCSEA) guidelines
  - Institutional Animal Ethical Committee and its functions
4. Ethical review and Informed consent process with special reference to Panchakarma procedures
  - Institutional Ethical Committee and its functioning
  - Patient information and consent process
  - Waiver of consent
5. Data safety and monitoring
  - DS&M Board
  - Existing guidelines as per ethical guidelines for maintaining privacy and confidentiality