JSS Academy of Higher Education and Research

# JSS College of Pharmacy

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***An ISO 9001:2015 Certified Institution***

JSS ACADEMY OF HIGHER EDUCATION & RESEARCH
(DEEMED TO BE UNIVERSITY) MYSURU

# B. Pharm – I Semester
# Course Handout
# 2020-21

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|---|---|---|---|---|
| **Accredited 'A+' Grade by NAAC** | **1st in Karnataka & 3rd in INDIA to be rated with 4 stars** | **Ranked 1st among the YOUNG UNIVERSITIES in Karnataka** | **JSS College of Pharmacy, Mysuru – 10th Rank in INDIA 2020** | INTERNATIONAL CERTIFICATION Pharm D Program is Certified by Accreditation Council for Pharmacy Education (ACPE), USA |

ARIIA
ATAL RANKING OF INSTITUTIONS ON INNOVATION ACHIEVEMENTS

Ranked 4th in India for 2019

# Academic Calendar 2020-21
# (B.Pharm - I Semester)

### Teacher's Incharge

| Class | Class Teacher | Batch No. | Batch Teacher |
|---|---|---|---|
| I B.Pharm I Semester | Dr. Sheshagiri Dixit | I | Dr. Sheshagiri Dixit |
| | | II | Dr. Durai Anand Kumar |
| | | III | Dr. B.M. Gurupadayya |
| | | IV | Mrs. A.M. Mahalakshmi |

## ACTIVITIES AND COORDINATORS 2020-21

### Curricular & Co curricular activities

| Sl. No | Activities | Coordinator/s |
|---|---|---|
| 1. | Induction, learning skills and personality development programs for fresher's | DHP/MPG |
| 2. | Selection of class representative in first week of commencement of each course | |
| 3. | Anti ragging cell | HP/ BM |
| 4. | Grievance and redressal cell | PKK |
| 5. | Industrial Visits, Training and placements | TS/ABP |
| 6. | Guest lectures & Seminars/ conferences/ training / workshop<br>• organized at college<br>• delivered/attended by staff | Respective department all HODs |
| 7. | Internal Assessment Committee<br>Chairperson<br>Members | <br>GVP<br>RSS/SNM/DAT/BMV |
| 8. | • Academic Council Board<br>• Identification of Advanced/ Medium/ Slow learners | Class Teachers<br>Subject Teachers |
| 9. | Ethics committee Meeting<br>• Animal<br>• Human | <br>KLK<br>MR |
| 10. | Time table | DHP<br>TS/ URR/ VR/AMM/HYK |
| 11. | Internal Quality Assurance Cell<br>Chairperson<br>Members | <br>PKK/<br>AMM/AKT/HVG/SP |

| | | |
|---|---|---|
| **12.** | Women's cell (Prevention of Sexual Harassment Cell) | SNM |
| **13.** | Scholarship Bureau | RSC |
| **14.** | Compilation of publications (Research papers/books/chapters) | BMG |
| **15.** | Research Coordination Committee<br>-Compilation of Ph.D details and funded projects<br>- Plagiarism<br>- Review of publications | Chairperson – DVG<br>Members – BRP/SB/JS |
| **16.** | Pharmacy Education Unit (CCLPE) | PKK/KU/RSS |
| **17.** | Annual result analysis<br>List of merit students | UG – Subject Teacher, Class teacher<br>&<br>Program committee<br>PG – Course Coordinator<br>& Abhishek (Office) |
| **18.** | GPAT and other competitive exams (TOEFL, GRE etc.) | BM/ CSH/MPG |
| **19.** | Library orientation | Librarian |
| **20.** | Soft Skills Training | ABP |

**Extracurricular activities**

| Sl. No. | Activities | Coordinator/s |
|---|---|---|
| **21.** | • Selection of Class Representatives, Pharmaceutical society members<br>• Annual planning and execution of Student centered and professional activities including inauguration of IPS | MSS/ SRD |
| **22.** | JASPHARM | BS/ SM / CSH |
| **23.** | STUMAG | HYK |
| **24.** | Sports coordinators | MPV/HKS |
| **25.** | NSS coordinators | MPG / UM/ SND |
| **26.** | Cultural & Literary coordinators | KNS/CI |

**Other Institutional activities**

| Sl. No. | Activities | Coordinator/s |
|---|---|---|
| **27.** | Annual Day celebration / Graduation day | DAT/SM |
| **28.** | Course handouts/ Teachers diary/<br>Student handbook/Faculty handbook | HYK/PS |
| **29.** | National Pharmacy Week (NPW) & Pharmacists Day | VJ/ UM + IPA team |
| **30.** | Alumni association | HVG/ AKT/SM/BS |

| | | |
|---|---|---|
| **31.** | Herbal and College Garden | JS/ NPK/VR |
| **32.** | ISO | DHP/SNM |
| **33.** | Press and publicity | KLK /BMV/OFFICE |
| **34.** | Foreign students cell | MPV |
| **35.** | Governing council meeting | JUS/ Office |
| **36.** | Monthly/Annual report of college activities to JSS AHER and other agencies | HoDs/JUS/ST/AKT/AM/KU/NPK Asha (office) |
| **37.** | College website | HKS/KU |
| **38.** | Research & Consultancy Co-ordinator<br>• Collaboration with Industries/organizations<br>• Interdepartment/Interdisciplinary research | DVG/ SB/ KM |
| **39.** | Coordinator - JSSUonline.com | ABP/TS |
| **40.** | JSSU Newsletter | KLK<br>SRD/ KNS |
| **41.** | Annual group photo session | MSS/ SRD |
| **42.** | Lab coat and Blazers | JS / Ningaraju |
| **43.** | Notice Board (SNB, LNB and IIPC), Departmental staff list | Nagaraju |
| **44.** | Stock verification | Office staff /Librarian |
| **45.** | Student Liaison | Divya S |
| **46.** | Student ID Cards /Attendance entry | Shivanna / Manjunath |
| **47.** | Retreat for Pharmacy Students | AKT/ HKS/BRJ |
| **48.** | Feedback | VJ |
| **49.** | Institute Innovation Cell | HVG/PKK |
| **50.** | Practice School | MPG/VJ |

**Program Committee**

| Sl. No. | Program committees | Chairperson | Member Secretary |
|---|---|---|---|
| **51.** | D.Pharm | PKK | BMV |
| **52.** | B.Pharm | PKK | DAT |
| **53.** | Pharm.D | MR | RSS |
| **54.** | M.Pharm | PKK | SNM |
| **55.** | B.Pharm – Practice | MR | BRJ |
| **56.** | PG Diploma | PKK | JS |

**M.Pharm Program Coordinators**

| Sl. No. | M.Pharm Program | Coordinator |
|---|---|---|
| **57.** | Pharmaceutics | VJ |

| | | |
|---|---|---|
| **58.** | Industrial Pharmacy | ABP |
| **59.** | Pharmaceutical Regualatory Affairs | MPV |
| **60.** | Pharmaceutical Quality Assurance | HVG |
| **61.** | Pharmaceutical Chemistry | BRP |
| **62.** | Pharmaceutical Analysis | BMG |
| **63.** | Pharmacology | KLK |
| **64.** | Pharmacognosy | NPK |
| **65.** | Pharmacy Practice | SP |

**PG Diploma Program Coordinators**

| Sl. No. | PG Diploma Program | Coordinator |
|---|---|---|
| **66.** | Pharmacovigilance | CSH |
| **67.** | Medicine & Poison Information | RSS |
| **68.** | Clinical Research | JUS |
| **69.** | Nanotechnology | VJ |
| **70.** | Pharmaceutical Quality Assurance | HVG |
| **71.** | Pharmaceutical Regulatory Affairs | MPV |
| **72.** | Medical Devices | BMV |
| **73.** | Intellectual Property Rights | BMV |
| **74.** | Computer Aided Drug Design | DAT |
| **75.** | Food and Drug Analysis | RSC |
| **76.** | Regulatory Toxicology | SB |
| **77.** | Phytopharmaceutical and Industrial Applications | JS |

**Certificate Course Coordinators**

| Sl. No. | Certificate Course | Coordinator |
|---|---|---|
| **78.** | Pharmaceutical Quality Assurance | HVG |
| **79.** | Herbal Drug Standardization | JS |
| **80.** | Medicine Information | RSS |

## TEACHING STAFF LIST

| Sl. No | NAME | QUALIFICATION | DESIGNATION | Department |
|---|---|---|---|---|
| 1 | Dr. T.M. Pramod Kumar (TMP) | M.Pharm., Ph.D. | Professor & Principal | Pharmaceutics |
| 2 | Dr. P.K. Kulkarni (PKK) | M.Pharm., Ph.D. | Professor & Vice Principal | Pharmaceutics |
| 3 | Dr. D. Vishakante Gowda (DVG) | M.Pharm., Ph.D. | Professor & Head | Pharmaceutics |
| 4 | Dr. Balamuralidhara V. (BMV) | M.Pharm., Ph.D. | Asst. Professor | Pharmaceutics |
| 5 | Dr. Gangadharappa H.V.(HVG) | M.Pharm., Ph.D. | Asst. Professor | Pharmaceutics |
| 6 | Dr. M.P. Venkatesh (MPV) | M.Pharm., Ph.D. | Asst. Professor | Pharmaceutics |
| 7 | Dr. Vikas Jain (VJ) | M.Pharm., Ph.D. | Asst. Professor | Pharmaceutics |
| 8 | Dr. Amit B Patil (ABP) | M.Pharm., Ph.D. | Asst. Professor | Pharmaceutics |
| 9 | Dr. Gowrav M P (MPG) | M.Pharm., Ph.D. | Lecturer | Pharmaceutics |
| 10 | Mr. Hemanth Kumar S (HKS) | M.Pharm | Lecturer | Pharmaceutics |
| 11 | Mrs. Asha Spandana K M (ASP) | M.Pharm | Lecturer | Pharmaceutics |
| 12 | Mr B Mahendran (BM) | M.Pharm | Lecturer | Pharmaceutics |
| 13 | Dr Shailesh T (TS) | M.Pharm., Ph.D. | Lecturer | Pharmaceutics |
| 14 | Smt Preethi S (PS) | M.Pharm | Lecturer | Pharmaceutics |
| 15 | Dr. M. Ramesh (MR) | M.Pharm., Ph.D. | Professor & Head | Pharmacy Practice |
| 16 | Mr. D.H. P. Gowda (DHP) | M.Sc., PGDCA. | Asst. Professor | Pharmacy Practice |
| 17 | Mrs. Shilpa Palaksha (SP) | M.Pharm. | Asst. Professor | Pharmacy Practice |
| 18 | Mrs. Savitha R S (RSS) | M.Pharm. | Asst. Professor | Pharmacy Practice |
| 19 | Mr. Jaidev Kumar B R (BRJ) | M.Pharm. | Lecturer | Pharmacy Practice |
| 20 | Dr. M Umesh (UM) | Pharm D. | Lecturer | Pharmacy Practice |
| 21 | Dr. Juny Sebstian (JUS) | M.Pharm., Ph.D. | Lecturer | Pharmacy Practice |
| 22 | Dr Sri Harsha Chalasani (CSH) | M.Pharm., Ph.D. | Lecturer | Pharmacy Practice |
| 23 | Dr. Krishna Undela (KU) | M.Pharm., Ph.D. | Lecturer | Pharmacy Practice |
| 24 | Dr Srikanth M S (MSS) | M.Pharm., Ph.D. | Lecturer | Pharmacy Practice |
| 25 | Mr Balaji S (BS) | M.Pharm | Lecturer | Pharmacy Practice |
| 26 | Dr U R Rakshith (URR) | Pharm D | Lecturer | Pharmacy Practice |
| 27 | Dr. B.M. Gurupadayya (BMG) | M.Pharm., Ph.D. | Professor | Pharma. Chemistry |
| 28 | Dr. Gurubasavaraj V Pujar (GVP) | M.Pharm., Ph.D. | Professor & Head | Pharma. Chemistry |
| 29 | Dr. Prashantha Kumar B R (BRP) | M.Pharm., Ph.D. | Asst. Professor | Pharma. Chemistry |
| 30 | Dr. R. S. Chandan (RSC) | M.Pharm., Ph.D. | Asst. Professor | Pharma. Chemistry |
| 31 | Dr. Anand Kumar Tengli (AKT) | M.Pharm., Ph.D. | Asst. Professor | Pharma. Chemistry |
| 32 | Dr. Durai Ananda Kumar (DAT) | M.Pharm., Ph.D. | Asst. Professor | Pharma. Chemistry |
| 33 | Dr. Jaishree V (JV) | M.Pharm., Ph.D. | Asst. Professor | Pharma. Chemistry |
| 34 | Dr. H. Yogish Kumar (HYK) | M.Pharm., Ph.D. | Lecturer | Pharma. Chemistry |

| | | | | |
|---|---|---|---|---|
| 35 | Dr. Sheshagiri Dixit (SRD) | M.Pharm., Ph.D. | Lecturer | Pharma. Chemistry |
| 36 | Mr. Chetan.I.A | M.Pharm | Lecturer | Pharma. Chemistry |
| 37 | Dr. K Mruthunjaya (KM) | M.Pharm., Ph.D. | Professor & Head | Pharmacognosy |
| 38 | Dr. J. Suresh (JS) | M.Pharm., Ph.D. | Professor | Pharmacognosy |
| 39 | Dr. N Paramakrishnan (NPK) | M.Pharm., Ph.D. | Lecturer | Pharmacognosy |
| 40 | Mr. Vageesh Revadigar (VR) | M.Pharm | Lecturer | Pharmacognosy |
| 41 | Ms. Haripriya G | M Pharm | Lecturer | Pharmacognosy |
| 42 | Dr. S. N. Manjula (SNM) | M.Pharm., Ph.D. | Professor & Head | Pharmacology |
| 43 | Dr. Saravana Babu C (SB) | M.Pharm., Ph.D. | Asso.Professor | Pharmacology |
| 44 | Dr. K L Krishna (KLK) | M.Pharm., Ph.D. | Asst. Professor | Pharmacology |
| 45 | Mrs. A M Mahalakshmi (AMM) | M.Pharm. | Lecturer | Pharmacology |
| 46 | Mrs. Seema Mehdi (SM) | M.Pharm | Lecturer | Pharmacology |
| 47 | Dr. Nagashree K S (KNS) | M.Pharm., Ph.D | Lecturer | Pharmacology |

**B.PHARM**

## Program Educational Objectives (PEOs):

PEO 1: To acquire the theoretical knowledge of pharmaceutical sciences

PEO 2: To acquire practical skills in

- isolation of medicinal compounds from natural sources
- synthesis and analysis of medicinal compounds
- screening medicinal compounds for pharmacological activities
- formulation of pharmaceutical dosage forms and their evaluation

PEO 3: To develop competent Pharmacists with ethical attitude, research intuition, leadership qualities, to participate in public health programs and engage in life-long learning

## Program Outcomes (POs):

1. Ability to acquire knowledge of pharmaceutical sciences
2. Ability to design and conduct experiments, to analyze and interpret data
3. Ability to demonstrate effective planning, develop and implement plans within time frame.
4. Ability to function effectively individually and on teams, including diverse and multidisciplinary, to accomplish a task.
5. Ability to understand and appreciate the role of pharmacist in healthcare services.
6. Understanding of professional, ethical, legal, security and social issues and responsibilities.
7. Ability to understand contemporary issues relating to pharmacy profession and challenges ahead.
8. Awareness of ethical and professional responsibilities.
9. Possess the necessary interpersonal and communication skills to be a productive member of the team in work environment.
10. Ability to use current techniques, skills, and modern tools.
11. A strong background and motivation to pursue life-long learning

# COURSE HAND OUT 2020-21 Class: B. Pharm - I Semester

## 1. Course Details

| Course code | Name of the course | No. of hours | Tutorial | Credit points |
|---|---|---|---|---|
| BP101T | Human Anatomy and Physiology I– Theory | 3 | 1 | 4 |
| BP102T | Pharmaceutical Analysis – Theory | 3 | 1 | 4 |
| BP103T | Pharmaceutics I – Theory | 3 | 1 | 4 |
| BP104T | Pharmaceutical Inorganic Chemistry – Theory | 3 | 1 | 4 |
| BP105T | Communication skills – Theory * | 2 | - | 2 |
| BP106RBT<br>BP106RMT | Remedial Biology/<br>Mathematics – Theory* | 2 | - | 2 |
| BP107P | Human Anatomy and Physiology I– Practical | 4 | - | 2 |
| BP108P | Pharmaceutical Analysis I – Practical | 4 | - | 2 |
| BP109P | Pharmaceutics I – Practical | 4 | - | 2 |
| BP110P | Pharmaceutical Inorganic Chemistry – Practical | 4 | - | 2 |
| BP111P | Communication skills – Practical* | 2 | - | 1 |
| BP112RBP | Remedial Biology – Practical* | 2 | - | 1 |
| | **Total** | **32/34$/36#** | **4** | **27/29$/30#** |

$Applicable ONLY for the students studied Physics / Chemistry / Botany / Zoology at HSC and appearing for Remedial Mathematics course

# Applicable ONLY for the students appearing for Remedial Biology / Mathematics

* Non University Examination (NUE)

## 2. Evaluation:

### a. Internal assessment: Continuous mode

The marks allocated for Continuous mode of Internal Assessment, as per the scheme given below.

***Table 1: Scheme for awarding internal assessment: Continuous mode***

| **THEORY** | | |
|---|---|---|
| **Criteria** | **Maximum Marks** | |
| Attendance | 4 | 2 |
| Academic activities (Average of any 3 activities e.g. quiz, assignment, open book test, field work, group discussion and seminar) | 3 | 1.5 |
| Student – Teacher interaction | 3 | 1.5 |
| ***Total*** | **10** | **5** |
| **PRACTICALS** | | |
| Attendance | 2 | |
| Based on Practical Records, Regular viva voce, etc. | 3 | |
| ***Total*** | **5** | |

***Table 2: Guidelines for the allotment of marks for attendance***

| Percentage of Attendance | Theory | Practical |
|---|---|---|
| 95 – 100 | 4 | 2 |
| 90 – 94 | 3 | 1.5 |
| 85 – 89 | 2 | 1 |
| 80 – 84 | 1 | 0.5 |
| Less than 80 | 0 | 0 |

**b. Sessional Exams**

Two Sessional exams shall be conducted for each theory / practical course as per the schedule fixed by the college(s). The scheme of question paper for theory and practical Sessional examinations is given below. The average marks of two Sessional exams shall be computed for internal assessment as per the requirements.

Sessional exam shall be conducted for 30 marks for theory and shall be computed for 15 marks. Similarly Sessional exam for practical shall be conducted for 40 marks and shall be computed for 10 marks.

**Question paper pattern for theory Sessional examinations**

**For subjects having University examination**

I. Multiple Choice Questions (MCQs)
(Answer all the questions) = 10 x 1 = 10
I. Long Answers (Answer 1 out of 2) = 1 x 10 = 10
II. Short Answers (Answer 2 out of 3) = 2 x 5 = 10

Total = 30 marks

**For subjects having Non University Examination**

I. Long Answers (Answer 1 out of 2) = 1 x 10 = 10
II. Short Answers (Answer 4 out of 6) = 4 x 5 = 20

Total = 30 marks

**Question paper pattern for practical sessional examinations**

I. Synopsis = 10
II. Experiments = 25
III. Viva voce = 05

Total = 40 marks

### 3. End semester examinations

The End Semester Examinations for each theory and practical course through semesters I to VIII shall be conducted by the university except for the subjects notified as non-university examinations

***Table 3: Scheme for internal assessments and university examination - Semester-I***

| Course code | Name of the course | Internal Assessment | | | | University Exam | | Total Marks |
|---|---|---|---|---|---|---|---|---|
| | | Continuous Mode | Sessional Exams | | Total | Marks | Duration | |
| | | | Marks | Duration | | | | |
| BP101T | Human Anatomy and Physiology I– Theory | 10 | 15 | 1 Hr | 25 | 75 | 3 Hrs | 100 |
| BP102T | Pharmaceutical Analysis I – Theory | 10 | 15 | 1 Hr | 25 | 75 | 3 Hrs | 100 |
| BP103T | Pharmaceutics I – Theory | 10 | 15 | 1 Hr | 25 | 75 | 3 Hrs | 100 |
| BP104T | Pharmaceutical Inorganic Chemistry – Theory | 10 | 15 | 1 Hr | 25 | 75 | 3 Hrs | 100 |
| BP105T | Communication skills – Theory * | 5 | 10 | 1 Hr | 15 | 35 | 1.5 Hrs | 50 |
| BP106RBT BP106RMT | Remedial Biology/Mathematics – Theory* | 5 | 10 | 1 Hr | 15 | 35 | 1.5 Hrs | 50 |
| BP107P | Human Anatomy and Physiology – Practicals | 5 | 10 | 4 Hrs | 15 | 35 | 4 Hrs | 50 |
| BP108P | Pharmaceutical Analysis I – Practicals | 5 | 10 | 4 Hrs | 15 | 35 | 4 Hrs | 50 |
| BP109P | Pharmaceutics I – Practicals | 5 | 10 | 4 Hrs | 15 | 35 | 4 Hrs | 50 |
| BP110P | Pharmaceutical Inorganic Chemistry – Practicals | 5 | 10 | 4 Hrs | 15 | 35 | 4 Hrs | 50 |
| BP111P | Communication skills – Practicals* | 5 | 5 | 2 Hrs | 10 | 15 | 2 Hrs | 25 |
| BP112RBP | Remedial Biology – Practicals* | 5 | 5 | 2 Hrs | 10 | 15 | 2 Hrs | 25 |
| **Total** | | **70/75$/80#** | **115/125$/130#** | **23/24$/26# Hrs** | **185/200$/210#** | **490/525$/540#** | **31.5/33$/35# Hrs** | **675/725$/750#** |

# Applicable ONLY for the students studied Mathematics / Physics / Chemistry at HSC and appearing for Remedial Biology (RB) course

$ Applicable ONLY for the students studied Physics / Chemistry / Botany / Zoology at HSC and appearing for Remedial Mathematics (RM) course

***** Examinations shall be conducted by the subject experts at college level

### 4. Promotion and award of grades

A student shall be declared PASS and eligible for getting grade in a course of B.Pharm. programme if he/she secures at least 50% marks in that particular course including internal assessment. For example, to be declared as PASS and to get grade, the student has to secure a minimum of 50 marks for the total of 100 including continuous mode of assessment and end

semester theory examination and has to secure a minimum of 25 marks for the total 50 including internal assessment and end semester practical examination.

**5. Carry forward of marks**

In case a student fails to secure the minimum 50% in any Theory or Practical course as specified (in promotion and award of grades), then he/she shall reappear for the university examination of that course. However his/her marks of the Internal Assessment shall be carried over and he/she shall be entitled for grade obtained by him/her on passing.

**6. Improvement of internal assessment**

A student shall have the opportunity to improve his/her performance only once in the sessional exam component of the Internal assessment. The re-conduct of the sessional exam should be completed before the commencement of next semester theory examinations.

**7. Re-examination of end semester examinations**

Reexamination of end semester examination shall be conducted as per the schedule given in table 3. The exact dates of examinations will be notified from time to time.

***Table 4: Tentative schedule of university examinations and supplementary examinations***

| Semester | Regular examinations | Supplementary examinations |
|---|---|---|
| I, III, V and VII | November / December | May / June |
| II, IV, VI and VIII | May / June | November / December |

***Question pattern for university theory examinations for 75 marks paper***

I. Multiple Choice Questions (MCQs)
(Answer all the questions) = 20 x 1 = 20
I. Long Answers (2 out of 3) = 2 x 10 = 20
II. Short Answers (7 out of 9) = 7 x 5 = 35

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Total = 75 marks

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***Question pattern for university theory examinations for 50 marks paper***

I. Long Answers (2 out of 3) = 2 x 10 = 20
II. Short Answers (6 out of 8) = 6 x 5 = 30

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Total = 50 marks

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**8. Grading of performances**

**Letter grades and grade points allocations**

Based on the performances, each student shall be awarded a final letter grade at the end of the semester for each course.

***Table 5: Letter grades and grade points equivalent to percentage of marks and performances***

| Percentage of Marks Obtained | Letter Grade | Grade Point | Performance |
|---|---|---|---|
| 90.00 – 100 | A+ | 10 | Outstanding |
| 80.00 – 89.99 | A | 9 | Excellent |
| 70.00 – 79.99 | B | 8 | Good |
| 60.00 – 69.99 | C | 7 | Fair |
| 50.00 – 59.99 | D | 6 | Average |
| Less than 50 | F | 0 | Fail |
| Absent | AB | 0 | Fail |

A learner who remains absent in any form of evaluation/examination, letter grade allocated to him/her should be assigned a letter grade of AB and a corresponding grade point of zero. He/she should reappear for the said evaluation/examination in due course.

**9. Declaration of class**

The class shall be awarded on the basis of CGPA as follows:

First Class with Distinction = CGPA of. 7.50 and above
First Class = CGPA of 6.00 to 7.49
Second Class = CGPA of 5.00 to 5.99

**10. Attendance:** The marks is allotted based on the attendance percentage (Table 2)

**11. Chamber consultation hours:** Any time during college hours.

**12. Tutorial Class:** Objective of the tutorial is to enhance the learning ability and help students in better understanding of the subject. This provides a best opportunity for the students to clarify their subject doubts. This involves discussions, presentations on specified topics, assignments and evaluation.

# BP101T- HUMAN ANATOMY AND PHYSIOLOGY-I (THEORY)

**Teacher/s: Mrs. A.M. Mahalakshmi (AMM)** **45 Hours (3 Hrs/ week)**

**Scope:** This subject is designed to impart fundamental knowledge on the structure and functions of the various systems of the human body. It also helps in understanding both homeostatic mechanisms. The subject provides the basic knowledge required to understand the various disciplines of pharmacy.

**Objectives**: Upon completion of this course the student should be able to

- Explain the gross morphology, structure and functions of various organs of the human body.
- Describe the various homeostatic mechanisms and their imbalances.
- Identify the various tissues and organs of different systems of human body.
- Perform the various experiments related to special senses and nervous system.
- Appreciate coordinated working pattern of different organs of each system

**Lecture wise programme:**

| | Topic | Hrs |
|---|---|---|
| 1. | **Introduction to human body**<br>Definition and scope of anatomy and physiology, levels of structural organization and body systems, basic life processes, homeostasis, basic anatomical terminology. | **03** |
| 2. | **Cellular level of organization**<br>Structure and functions of cell, transport across cell membrane, cell division, cell junctions. General principles of cell communication, intracellular signaling pathway activation by extracellular signal molecule, Forms of intracellular signaling: a) Contact-dependent b) Paracrine c) Synaptic d) Endocrine | **04** |
| 3. | **Tissue level of organization**<br>Classification of tissues, structure, location and functions of epithelial, muscular and nervous and connective tissue | **03** |
| 4. | **Integumentary system**<br>Structure and functions of skin | **02** |
| 5. | **Skeletal system**<br>Divisions of skeletal system, types of bone, salient features and functions of bones of axial and appendicular skeletal system<br>Organization of skeletal muscle, physiology of muscle contraction, neuromuscular junction | **06** |

6. **Joints** **02**
   Structural and functional classification, types of movements

7. **Body fluids and blood** **05**
   Body fluids, composition and functions of blood, hemopoeisis, formation of hemoglobin, anemia, mechanisms of coagulation, blood grouping, Rh factors, transfusion, its significance and disorders of blood, Reticulo endothelial system

8. **Lymphatic system** **05**
   Lymphatic organs and tissues, lymphatic vessels, lymph circulation and functions of lymphatic system

9. **Peripheral nervous system** **04**
   Classification of peripheral nervous system: Structure and functions of sympathetic and parasympathetic nervous system.
   Origin and functions of spinal and cranial nerves.

10. **Special senses** **04**
    Structure and function of eye, ear, nose and tongue and their disorders

11. **Cardiovascular system** **07**
    Heart – anatomy of heart, blood circulation, blood vessels, structure and functions of artery, vein and capillaries, elements of conduction system of heart and heart beat, its regulation by autonomic nervous system, cardiac output, cardiac cycle. Regulation of blood pressure, pulse, electrocardiogram and disorders of heart.

**Theory Sessional examination syllabus**

| Sessional No. | Syllabus Chapters no. |
|---|---|
| I | 1 to7 |
| II | 8 to 11 |

# BP107P-HUMAN ANATOMY AND PHYSIOLOGY-I (PRACTICALS)

**Teacher: Mrs. A.M. Mahalakshmi (AMM)** **60 Hours (4 Hrs/week)**

**Title of Experiments**

1. Study of compound microscope.
2. Microscopic study of epithelial and connective tissue
3. Microscopic study of muscular and nervous tissue
4. Identification of axial bones
5. Identification of appendicular bones
6. Introduction to hemocytometry.
7. Enumeration of white blood cell (WBC) count
8. Enumeration of total red blood corpuscles (RBC) count
9. Determination of bleeding time
10. Determination of clotting time
11. Estimation of hemoglobin content
12. Determination of blood group.
13. Determination of erythrocyte sedimentation rate (ESR).
14. Determination of heart rate and pulse rate.
15. Recording of blood pressure.

**Recommended Books (Latest Editions)**

1. Essentials of Medical Physiology by K. Sembulingam and P. Sembulingam. Jaypee
2. brothers medical publishers, New Delhi.
3. Anatomy and Physiology in Health and Illness by Kathleen J.W. Wilson, Churchill
4. Livingstone, New York
5. Physiological basis of Medical Practice-Best and Tailor. Williams & Wilkins
6. Co,Riverview,MI USA
7. Text book of Medical Physiology- Arthur C,Guyton andJohn.E. Hall. Miamisburg, OH,
8. U.S.A.
9. Principles of Anatomy and Physiology by Tortora Grabowski. Palmetto, GA, U.S.A.
10. Textbook of Human Histology by Inderbir Singh, Jaypee brother's medical publishers,
11. New Delhi.
12. Textbook of Practical Physiology by C.L. Ghai, Jaypee brother's medical publishers,
13. New Delhi.

14. Practical workbook of Human Physiology by K. Srinageswari and Rajeev Sharma,

15. Jaypee brother's medical publishers, New Delhi.

**Reference Books (Latest Editions)**

1. Physiological basis of Medical Practice-Best and Tailor. Williams & Wilkins Co, Riverview, MI USA
2. Text book of Medical Physiology- Arthur C, Guyton and John. E. Hall. Miamisburg, OH, U.S.A.
3. Human Physiology (vol 1 and 2) by Dr. C.C. Chatterrje ,Academic Publishers Kolkata

# BP102T- PHARMACEUTICAL ANALYSIS (THEORY)

**Teacher/s: Dr. Sheshagiri Dixit (SRD)** **45 Hours (3 Hrs/ week)**

**Scope:** This course deals with the fundamentals of analytical chemistry and principles of electrochemical analysis of drugs

**Objectives:** Upon completion of the course student shall be able to

- understand the principles of volumetric and electro chemical analysis
- carryout various volumetric and electrochemical titrations
- develop analytical skills

**Course Materials**

1. A.H. Beckett & J.B. Stenlake's, Practical Pharmaceutical Chemistry Vol I & II, Stahlone Press of University of London, 4th edition.
2. A.I. Vogel, Text Book of Quantitative Inorganic analysis
3. P. Gundu Rao, Inorganic Pharmaceutical Chemistry, 3rd Edition
4. Bentley and Driver's Textbook of Pharmaceutical Chemistry
5. John H. Kennedy, Analytical chemistry principles
6. Indian Pharmacopoeia.

**Lecture wise Programme**

| TOPICS | |
|---|---|
| **1.** Pharmaceutical analysis: Definition and scope | |
| i. Different techniques of analysis | 02 |
| ii. Methods of expressing concentration | 02 |
| iii. Primary and secondary standards | 02 |
| iv. Preparation and standardization of various molar and normal solutions- Oxalic acid, sodium hydroxide, hydrochloric acid, sodium thiosulphate, sulphuric acid, potassium permanganate and ceric ammonium sulphate | 02 |
| **2.** Errors: Sources of errors, types of errors, methods of minimizing errors, accuracy, precision and significant figures | 02 |
| **3.** Acid base titration: Theories of acid base indicators, classification of acid base titrations and theory involved in titrations of strong, weak, and very | 06 |

| | |
|---|---|
| weak acids and bases, neutralization curves<br>**4.** Non aqueous titration: Solvents, acidimetry and alkalimetry titration and estimation of Sodium benzoate and Ephedrine HCl | 04 |
| **5.** Precipitation titrations: Mohrs method, Volhard's, Modified Volhard's, Fajans method, estimation of sodium chloride.<br>**6.** Complexometric titration: Classification, metal ion indicators, masking and demasking reagents, estimation of Magnesium sulphate, and calcium gluconate<br>**7.** Gravimetry: Principle and steps involved in gravimetric analysis. Purity of the precipitate: co-precipitation and post precipitation, Estimation of barium sulphate.<br>Basic Principles, methods and application of diazotisation titration. | 04<br>03<br>03 |
| Redox titrations<br>**8.** Concepts of oxidation and reduction<br>**9.** Types of redox titrations (Principles and applications)<br>Cerimetry, Iodimetry, Iodometry, Bromatometry, Dichrometry, Titration with potassium iodate | <br>03<br>05 |
| Electrochemical methods of analysis<br>**10.** Conductometry - Introduction, Conductivity cell, Conductometric titrations, applications.<br>**11.** Potentiometry - Electrochemical cell, construction and working of reference (Standard hydrogen, silver chloride electrode and calomel electrode) and indicator electrodes (metal electrodes and glass electrode), methods to determine end point of potentiometric titration and applications.<br>**12.** Polarography - Principle, Ilkovic equation, construction and working of dropping mercury electrode and rotating platinum electrode, applications | <br>02<br>03<br>02 |

**Theory Internal assessment syllabus**

| Internal assessment No. | Syllabus Chapters no. |
|---|---|
| I | 1 – 4, 6 |
| II | 5, 7 - 12 |

# BP108P - PHARMACEUTICAL ANALYSIS (PRACTICALS)

**Teacher/s: Dr. Sheshagiri Dixit (SRD)** **60 Hours (4 Hrs/ week)**

**General Requirements:** Graph paper, pencil, Scale, Scissors, Butter Paper,
Observation Book-75 pages (plain)
Gum Tube or stick, Matchbox, Laboratory Napkin

**List of Experiments:**

**I Limit Test of the following**

(1) Chloride

(2) Sulphate

(3) Iron

(4) Arsenic

**II Preparation and standardization of**

(1) Sodium hydroxide

(2) Sulphuric acid

(3) Sodium thiosulfate

(4) Potassium permanganate

(5) Ceric ammonium sulphate

**III Assay of the following compounds along with Standardization of Titrant**

(1) Ammonium chloride by acid base titration

(2) Ferrous sulphate by Cerimetry

(3) Copper sulphate by Iodometry

(4) Calcium gluconate by complexometry

(5) Hydrogen peroxide by Permanganometry

(6) Sodium benzoate by non-aqueous titration

(7) Sodium Chloride by precipitation titration

**IV Determination of Normality by electro-analytical methods**

(1) Conductometric titration of strong acid against strong base

(2) Conductometric titration of strong acid and weak acid against strong base

(3) Potentiometric titration of strong acid against strong base

**Recommended Books: (Latest Editions)**

1. A.H. Beckett & J.B. Stenlake's, Practical Pharmaceutical Chemistry Vol I & II, Stahlone Press of University of London

2. A.I. Vogel, Text Book of Quantitative Inorganic analysis

3. P. Gundu Rao, Inorganic Pharmaceutical Chemistry

4. Bentley and Driver's Textbook of Pharmaceutical Chemistry

5. John H. Kennedy, Analytical chemistry principles

6. Indian Pharmacopoeia

# BP103T – PHARMACEUTICS -I (THEORY)

**Teacher/s: Dr. Shailesh T (TS) & Mr. B. Mahendran (MB)**

**45 Hours (3 Hrs/ week)**

**Scope:** This course is designed to impart a fundamental knowledge on the preparatory pharmacy with art and science of preparing the different conventional dosage forms.

**Objectives:** Upon completion of this course the student should be able to:

- Know the history of profession of pharmacy
- Understand the basics of different dosage forms, pharmaceutical incompatibilities and pharmaceutical calculations
- Understand the professional way of handling the prescription
- Preparation of various conventional dosage forms

**Course Content:**

1. **Historical background and development of profession of pharmacy**: **04 Hours**
History of profession of Pharmacy in India in relation to pharmacy education, industry and organization, Pharmacy as a career, Pharmacopoeias: Introduction to IP, BP, USP and Extra Pharmacopoeia.

**2. Dosage forms:** Introduction to dosage forms, classification and definitions **02 Hours**

**3. Prescription:** Definition, Parts of prescription, handling of Prescription and Errors in prescription.
**Posology:** Definition, Factors affecting posology. Pediatric dose calculations based on age, body weight and body surface area. **04 Hours**

**4. Pharmaceutical calculations**: Weights and measures – Imperial & Metric system, Calculations involving percentage solutions, alligation, proof spirit and isotonic solutions based on freezing point and molecular weight. **04 Hours**

**5. Powders:** Definition, classification, advantages and disadvantages, Simple & compound powders – official preparations, dusting powders, effervescent, efflorescent and hygroscopic powders, eutectic mixtures. Geometric dilutions **04 Hours**

**6. Liquid dosage forms:** Advantages & Disadvantages of liquid dosage forms. Excipients used in formulation of liquid dosage forms. Solubility enhancement techniques

**02 Hours**

***a. Monophasic liquids:*** Definitions and preparations of Gargles, Mouthwashes, Throat Paint, Eardrops, Nasal drops, Enemas, Syrups, Elixirs, Liniments and Lotions. **02 Hours**

***b. Biphasic liquids:***

***Suspensions:*** Definition, advantages and disadvantages, classifications.

Preparation of suspensions; Flocculated and Deflocculated suspension, stability problems and methods to overcome. **04 Hours**

***Emulsions:*** Definition, classification, emulsifying agent, test for the identification of type ofEmulsion, Methods of preparation & stability problems and methods to overcome.

**04 Hours**

**7. Semisolid dosage forms:** Definitions, classification, mechanisms and factors influencing dermal penetration of drugs. Preparation of ointments, pastes, creams and gels. Excipients used in semi solid dosage forms. Evaluation of semi solid dosages forms **07 Hours**

**Recommended Books: (Latest Editions)**


1. H.C. Ansel et al., Pharmaceutical Dosage Form and Drug Delivery System, Lippincott Williams andWalkins, New Delhi.
2. Carter S.J., Cooper and Gunn's-Dispensing for Pharmaceutical Students, CBS publishers, New Delhi.
3. M.E. Aulton, Pharmaceutics, The Science& Dosage Form Design, Churchill Livingstone, Edinburgh.
4. Indian pharmacopoeia.
5. British pharmacopoeia.
6. Lachmann. Theory and Practice of Industrial Pharmacy,Lea& Febiger Publisher, The University of Michigan.
7. Alfonso R. Gennaro Remington. The Science and Practice of Pharmacy, Lippincott Williams, New Delhi.
8. Carter S.J., Cooper and Gunn's. Tutorial Pharmacy, CBS Publications, New Delhi.
9. E.A. Rawlins, Bentley's Text Book of Pharmaceutics, English Language Book Society, Elsevier Health Sciences, USA.
10. Isaac Ghebre Sellassie: Pharmaceutical Pelletization Technology, Marcel Dekker, INC, New York.
11. Dilip M. Parikh: Handbook of Pharmaceutical Granulation Technology, Marcel Dekker, INC, New York.
12. Francoise Nieloud and Gilberte Marti-Mestres: Pharmaceutical Emulsions and Suspensions, Marcel Dekker, INC, New York.


**Theory Internal assessment syllabus**

| Internal assessment No. | Syllabus Chapters no. |
|---|---|
| I | 1 – 6a |
| II | 6b - 9 |

# BP109P - PHARMACEUTICS I (PRACTICALS)

**Teacher/s: Dr. Shailesh T (ST) & Mr. Mahendran B (MB)**

**60 Hours (4 Hrs/week)**

**1. Syrups**

a) Syrup IP'66

b) Compound syrup of Ferrous Phosphate BPC'68

**2. Elixirs**

a) Piperazine Citrate elixir

b) Paracetamol pediatric elixir

**3. Linctus**

a) Terpin Hydrate Linctus IP'66

b) Iodine Throat Paint (Mandles Paint)

**4. Solutions**

a) Strong solution of ammonium acetate

b) Cresol with soap solution

c) Lugol's solution

**5. Suspensions**

a) Calamine lotion

b) Magnesium Hydroxide mixture

c) Aluminimum Hydroxide gel

**6. Emulsions** a) Turpentine Liniment

b) Liquid paraffin emulsion

**7. Powders and Granules**

a) ORS powder (WHO)

b) Effervescent granules

c) Dusting powder

d) Divded powders

**8. Suppositories**

a) Glycero gelatin suppository

b) Coca butter suppository

c) Zinc Oxide suppository

**8. Semisolids**

a) Sulphur ointment

b) Non staining-iodine ointment with methyl salicylate

c) Carbopal gel

**9. Gargles and Mouthwashes**

a) Iodine gargle

b) Chlorhexidine mouthwash

# BP104T - PHARMACEUTICAL INORGANIC CHEMISTRY (THEORY)

**Teacher/s: Dr. T. Durai Anand Kumar (DAK) 45 Hrs (3 Hrs/week)**

**Scope**: This subject deals with the monographs of inorganic drugs and pharmaceuticals.

**Objectives:** Upon completion of course student shall be able to

- know the sources of impurities and methods to determine the impurities in inorganic drugs and pharmaceuticals
- understand the medicinal and pharmaceutical importance of inorganic compounds

**Lecture wise Programme:**

| | Topic | Hrs |
|---|---|---|
| 1. | **Impurities in pharmaceutical substances:** History of Pharmacopoeia, Sources and types of impurities, principle involved in the limit test for Chloride, Sulphate, Iron, Arsenic, Lead and Heavy metals, modified limit test for Chloride and Sulphate | 10 |
| | **General methods of preparation, assay for the compounds superscripted with asterisk (*), properties and medicinal uses of inorganic compounds belonging to the following classes** | |
| 2. | **Acids, Bases and Buffers:**<br>Buffer equations and buffer capacity in general, buffers in pharmaceutical systems, preparation, stability, buffered isotonic solutions, measurements of tonicity, calculations and methods of adjusting isotonicity.<br>**Major extra and intracellular electrolytes**:<br>Functions of major physiological ions, Electrolytes used in the replacement therapy: Sodium chloride*, Potassium chloride, Calcium gluconate* and Oral Rehydration Salt (ORS), Physiological acid base balance.<br>**Dental products**: Dentifrices, role of fluoride in the treatment of dental caries, Desensitizing agents, Calcium carbonate, Sodium fluoride, and Zinc eugenol cement. | 03<br>04<br>03 |
| 3. | **Gastrointestinal agents**<br>a. **Acidifies:** Ammonium chloride* and Dil. HCl<br>b. **Antacid:** Ideal properties of antacids, combinations of antacids, Sodium Bicarbonate*, Aluminum hydroxide gel, Magnesium hydroxide mixture<br>c. **Cathartics:** Magnesium sulphate, Sodium orthophosphate, Kaolin and Bentonite<br>d. **Antimicrobials**: Mechanism, classification. Potassium permanganate, Boric acid, Hydrogen peroxide*, Chlorinated lime*, Iodine and its preparations | 01<br>03<br>02<br>04 |

| | | |
|---|---|---|
| **4.** | **Miscellaneous compounds**<br>a. **Expectorants:** Potassium iodide, Ammonium chloride*.<br>b. **Emetics**: Copper sulphate*, Sodium potassium tartarate<br>c. **Haematinics:** Ferrous sulphate*, Ferrous gluconate<br>d. **Poison and Antidote:** Sodium thiosulphate*, Activated charcoal, Sodium nitrite<br>e. **Astringents**: Zinc Sulphate, Potash Alum | **02**<br>**02**<br>**01**<br>**02**<br>**01** |
| **5.** | **Radiopharmaceuticals**<br>Radio activity, Measurement of radioactivity, Properties of α, β, γ radiations, Half life, radio isotopes and study of radio isotopes - Sodium iodide $I^{121}$, Storage conditions, precautions & pharmaceutical application of radioactive substances. | **07** |

**Recommended Books (Latest Editions)**


1. A.H. Beckett & J.B. Stenlake's, Practical Pharmaceutical Chemistry Vol I & II, Stahlone Press of University of London, 4th edition.
2. A.I. Vogel, Text Book of Quantitative Inorganic analysis
3. P. Gundu Rao, Inorganic Pharmaceutical Chemistry, 3rd Edition
4. M.L Schroff, Inorganic Pharmaceutical Chemistry
5. Bentley and Driver's Textbook of Pharmaceutical Chemistry
6. Anand & Chatwal, Inorganic Pharmaceutical Chemistry
7. Indian Pharmacopoeia


**Theory Sessional examination syllabus**

| Sessional No. | Syllabus Chapter No. |
|---|---|
| I | 1 to 3c |
| II | 3d to 5 |

# BP110P - PHARMACEUTICAL INORGANIC CHEMISTRY (PRACTICAL)

**Teacher/s: Dr. T. Durai Anand Kumar (DAK)**

**60 Hours (4 Hrs / Week)**

I **Limit tests for following ions**

1. Limit test for Chlorides and Sulphates
2. Modified limit test for Chlorides and Sulphates
3. Limit test for Iron
4. Limit test for Heavy metals
5. Limit test for Lead
6. Limit test for Arsenic

II **Identification test**

1. Magnesium hydroxide
2. Ferrous sulphate
3. Sodium bicarbonate
4. Calcium gluconate
5. Copper sulphate

III **Test for purity**

1. Swelling power of Bentonite
2. Neutralizing capacity of aluminum hydroxide gel
3. Determination of potassium iodate and iodine in potassium Iodide

IV **Preparation of inorganic pharmaceuticals**

1. Boric acid
2. Potash alum
3. Ferrous sulphate

# BP105T - COMMUNICATION SKILLS (THEORY)

**Teacher/s: Arivu Team** **30 Hrs (2 Hrs/week)**

**Scope:** This course will prepare the young pharmacy student to interact effectively with doctors, nurses, dentists, physiotherapists and other health workers. At the end of this course the student will get the soft skills set to work cohesively with the team as a team player and will add value to the pharmaceutical business.

**Objectives:**

Upon completion of the course the student shall be able to

1. understand the behavioral needs for a Pharmacist to function effectively in the areas of pharmaceutical operation
2. communicate effectively ( Verbal and Non Verbal)
3. effectively manage the team as a team player
4. develop interview skills
5. develop Leadership qualities and essentials

**Lecture wise Programme:**

| | Topic | Hrs |
|---|---|---|
| **1.** | **Communication Skills**<br>Introduction, Definition, The Importance of Communication<br>The Communication Process – Source, Message, Encoding, Channel, Decoding, Receiver, Feedback, Context | **03** |
| **2.** | **Barriers to communication**<br>Physiological Barriers, Physical Barriers, Cultural Barriers, Language Barriers, Gender Barriers, Interpersonal Barriers, Psychological Barriers, Emotional barriers | **02** |
| **3.** | **Perspectives in Communication**<br>Introduction, Visual Perception, Language, Other factors affecting our perspective - Past Experiences, Prejudices, Feelings, Environment | **03** |
| **4.** | **Elements of Communication**<br>Introduction, Face to Face Communication - Tone of Voice, Body Language (Non-verbal communication), Verbal Communication, Physical Communication | **05** |
| **5.** | **Communication Styles**<br>Introduction, The Communication Styles Matrix with example for each -Direct Communication Style, Spirited Communication Style, Systematic Communication Style, Considerate Communication Style | **02** |
| **6.** | **Basic Listening Skills**<br>Introduction, Self-Awareness, Active Listening, Becoming an Active Listener, Listening in Difficult Situations | **03** |
| **7.** | **Effective Written Communication** | **04** |

| | | |
|---|---|---|
| | Introduction, When and When Not to Use Written Communication - Complexity of the Topic, Amount of Discussion' Required, Shades of Meaning, Formal Communication<br>**Writing Effectively:** Subject Lines, Put the Main Point First, Know Your audience, Organization of the Message | |
| **8.** | **Interview Skills**<br>Purpose of an interview, Do's and Dont's of an interview | **02** |
| **9.** | **Giving Presentations**<br>Dealing with Fears, Planning your Presentation, Structuring Your Presentation, Delivering Your Presentation, Techniques of Delivery | **03** |
| **10.** | **Group Discussion**<br>**Introduction, Communication skills in group discussion, Do's and Dont's of group discussion** | **03** |

## BP111P - COMMUNICATION SKILLS (PRACTICALS)

**Teacher/s: Arivu Team** **30 Hrs (2 Hrs/week)**

The following learning modules are to be conducted using wordsworth® english language lab software

**Basic communication covering the following topics**

1. Meeting People
2. Asking Questions
3. Making Friends
4. What did you do?
5. Do's and Dont's

**Pronunciations covering the following topics**

6. Pronunciation (Consonant Sounds)
7. Pronunciation and Nouns
8. Pronunciation (Vowel Sounds)

**Advanced Learning covering the following topics**

9. Listening Comprehension / Direct and Indirect Speech
10. Figures of Speech
11. Effective Communication
12. Writing Skills
13. Effective Writing
14. Interview Handling Skills

15. E-Mail etiquette
16. Presentation Skills

**Recommended Books**


1. Basic communication skills for Technology, Andreja. J. Ruther Ford, 2nd Edition, Pearson Education, 2011
2. Communication skills, Sanjay Kumar, Pushpalata, 1st Edition, Oxford Press, 2011
3. Organizational Behaviour, Stephen .P. Robbins, 1st Edition, Pearson, 2013
4. Brilliant- Communication skills, Gill Hasson, 1st Edition, Pearson Life, 2011
5. The Ace of Soft Skills: Attitude, Communication and Etiquette for success, Gopala Swamy Ramesh, 5th Edition, Pearson, 2013
6. Developing your influencing skills, Deborah Dalley, Lois Burton, Margaret, Green hall, 1st Edition Universe of Learning LTD, 2010
7. Communication skills for professionals, Konar nira, 2nd Edition, New arrivals – PHI, 2011
8. Personality development and soft skills, Barun K Mitra, 1st Edition, Oxford Press, 2011
9. Soft skill for everyone, Butter Field, 1st Edition, Cengage Learning india pvt.ltd, 2011
10. Soft skills and professional communication, Francis Peters SJ, 1st Edition, Mc Graw Hill Education, 2011
11. Effective communication, John Adair, 4th Edition, Pan Mac Millan,2009
12. Bringing out the best in people, Aubrey Daniels, 2nd Edition, Mc Graw Hill, 1999


**Theory Sessional examination syllabus**

| Sessional No. | Syllabus Chapter No. |
|---|---|
| I | 1 to 5 |
| II | 6 to 10 |

# BP106RM T - REMEDIAL MATHEMATICS (THEORY)

**Teacher/s: Mr. D.H.P. Gowda (DHP)** **30 Hours (2 Hrs/ week)**

**Scope:** This is an introductory course in mathematics. This subject deals with the introduction to Partial fraction, Logarithm, matrices and Determinant, Analytical geometry, Calculus, differential equation and Laplace transform.

**Objectives** Upon completion of the course the student shall be able to:

1. solve problems pertaining to Trigonometry, Analytical geometry, matrices, determinants, integration, differential equation, Laplace transform
2. explain importance of mathematics in pharmacy

**Course materials:**

**Recommended Books (Latest Edition)**

1. Differential Calculus by Shanthinarayan
2. Pharmaceutical Mathematics with application to Pharmacy by Panchaksharappa Gowda D.H.
3. Integral Calculus by Shanthinarayan
4. Higher Engineering Mathematics by Dr.B.S.Grewal

**Lecture wise programme:**

| | Topic | Hours |
|---|---|---|
| 1 | **Partial fraction**<br>Introduction, Polynomial, Rational fractions, Proper and Improper fractions, Partial fraction , Resolving into Partial fraction, Application of Partial Fraction in Chemical Kinetics and Pharmacokinetics | 02 |
| 2 | **Logarithms**<br>Introduction, Definition, Theorems/ properties of logarithms, Common logarithms, Characteristic and Mantissa, worked examples, application of logarithm to solve pharmaceutical problems. | 02 |
| 3 | **Matrices and Determinant**<br>Introduction to matrices, Types of matrices, Operation on matrices, Transpose of a matrix, Matrix Multiplication, Determinants, Properties of determinants , Product of determinants, Minors and co-Factors, Adjoint or adjugate of a square matrix , Singular and non-singular matrices, Inverse of a matrix, Solution of system of linear of equations using matrix method, Cramer's rule, Characteristic equation and roots of a square matrix, Cayley – Hamilton theorem, Application of Matrices in solving Pharmacokinetic equations | 07 |
| 4 | **Analytical Geometry**<br>**Introduction:** Signs of the Coordinates, Distance formula, | 04 |

| | | |
|---|---|---|
| | **Straight Line** : Slope or gradient of a straight line, Conditions for parallelism and perpendicularity of two lines, Slope of a line joining two points, Slope – intercept form of a straight line | |
| **5** | **Calculus**<br>**Differentiation** : Introductions, Derivative of a function, Derivative of a constant, Derivative of a product of a constant and a function , Derivative of the sum or difference of two functions, Derivative of the product of two functions (product formula), Derivative of the quotient of two functions (Quotient formula) – ***Without Proof***, Derivative of $x^n$ *w.r.t.* where *n* is any rational number , Derivative of $e^x$,, Derivative of $\log_e x$ , Derivative of $a^x$ , Derivative of trigonometric functions from first principles **(*without Proof*)**, Successive Differentiation, Conditions for a function to be a maximum or a minimum at a point. Applications<br>**Integration:**<br>Introduction, Definition, Standard formulae, Rules of integration , Method of substitution, Method of Partial fractions, Integration by parts, definite integrals, application | **10** |
| **6** | **Differential Equations** : Some basic definitions, Order and degree, Equations in separable form , Homogeneous equations, Linear Differential equations, Exact equations, Application in solving Pharmacokinetic equations | **03** |
| **7** | **Laplace Transform** : Introduction, Definition, Properties of Laplace transform, Laplace Transforms of elementary functions, Inverse Laplace transforms, Laplace transform of derivatives, Application to solve Linear differential equations, Application in solving Chemical kinetics and Pharmacokinetics equations | **02** |

**Theory Sessional examination syllabus**

| Sessional No. | Syllabus Chapter No. |
|---|---|
| I | 1 to 4 |
| II | 5 to 7 |

# BP106RBT - REMEDIAL BIOLOGY (THEORY)

**Teacher/s: Mr Vageesh Revadigar (VR)** **30 Hours (2 Hrs/ week)**

**Scope:** To learn and understand the components of living world, structure and functional system of plant and animal kingdom.

**Objectives:** Upon completion of the course, the student shall be able to

- know the classification and salient features of five kingdoms of life
- understand the basic components of anatomy & physiology of plant
- know understand the basic components of anatomy & physiology animal with special reference to human

**Lecture wise programme:**

| | Topic | Hours |
|---|---|---|
| 1 | **Living World:**<br>• Definition and characters of living organisms<br>• Diversity in the living world<br>• Binomial nomenclature<br>• Five kingdoms classification. Salient features of Monera, Potista, Fungi, Animalia and Plantae, Virus,<br>**Morphology and Anatomy of Flowering plants**<br>• Morphology of different parts of flowering plants – Root, stem, leaf inflorescence, flower, fruit, seed.<br>• General Anatomy of Root, stem, leaf of monocotyledons & Dicotyledonous Plant. | **05** |
| 2 | **Plants and mineral nutrition:**<br>• Essential mineral, macro and micronutrients<br>• Nitrogen metabolism, Nitrogen cycle, biological nitrogen fixation<br>**Photosynthesis**<br>• Autotrophic nutrition, photosynthesis, Photosynthetic pigments, Factors affecting photosynthesis.<br>**Plant respiration:**<br>• Cellular respiration, glycolysis, fermentation (anaerobic) | **05** |
| 3 | **Plant growth and development**<br>• Phases and rate of plant growth, Condition of growth,<br>• Introduction to plant growth regulators<br>**Cell- The unit of life**<br>• Structure and functions of cell and cell organelles, cell division<br>**Tissues**<br>• Definition, types of tissues, location and functions. | **05** |

**4 Body fluids and circulation** **08**

- Composition of blood, blood groups, coagulation of blood
- Composition and functions of lymph
- Human circulatory system
- Structure of human heart and blood vessels
- Cardiac cycle, cardiac output and ECG

**Digestion and Absorption**

- Human alimentary canal and digestive glands
- Role of digestive enzymes
- Digestion, absorption and assimilation of digested food

**Breathing and respiration**

- Human respiratory system
- Mechanism of breathing and its regulation
- Exchange of gases, transport of gases and regulation of respiration
- Respiratory volumes

**5 Excretory products and their elimination** **07**

- Modes of excretion
- Human excretory system- structure and function
- Urine formation
- Renin angiotensin system

**Neural control and coordination**

- Definition and classification of nervous system
- Structure of a neuron
- Generation and conduction of nerve impulse
- Structure of brain and spinal cord
- Functions of cerebrum, cerebellum, hypothalamus and medulla oblongata

**Chemical coordination and regulation**

- Endocrine glands and their secretions
- Functions of hormones secreted by endocrine glands

**Human reproduction**

- Parts of female reproductive system
- Parts of male reproductive system
- Spermatogenesis and Oogenesis
- Menstrual cycle

**Text books**

a. Text book of Biology by S. B. Gokhale

b. A Text book of Biology by Dr. Thulajappa and Dr. Seetaram.

**Reference books**

a. A Text book of Biology by B.V. Sreenivasa Naidu

b. A Text book of Biology by Naidu and Murthy

c. Botany for Degree students By A.C.Dutta.

d. Outlines of Zoology by M. Ekambaranatha ayyer and T. N. Ananthakrishnan.

e. A manual for pharmaceutical biology practical by S. B. Gokhale and C. K. Kokate

**Theory Sessional examination syllabus**

| Sessional No. | Syllabus Chapter No. |
|---|---|
| I | 1, 2, 3 |
| II | 4 & 5 |

## BP112P – REMEDIAL BIOLOGY (PRACTICALS)

**Teacher/s: Mr Vageesh Revadigar (VR)** **30 Hours (2 Hrs/ week)**

1. Introduction to experiments in biology
   a) Study of Microscope
   b) Section cutting techniques
   c) Mounting and staining
   d) Permanent slide preparation
2. Study of cell and its inclusions
3. Study of Stem, Root, Leaf, seed, fruit, flower and their modifications
4. Detailed study of frog by using computer models
5. Microscopic study and identification of of tissues pertinent to Stem, Root, Leaf, seed, fruit and flower
6. Identification of bones
7. Determination of blood group
8. Determination of blood pressure
9. Determination of tidal volume

**Reference books**

1. Practical human anatomy and physiology. by S.R.Kale and R.R.Kale.
2. A Manual of pharmaceutical biology practical. By S.B.Gokhale .C.k.Kokate. S.P.Shriwastava.
3. Biology practical manual according to National core curriculum .Biology forum of Karnataka prof .M.J.H.Shafi

**JSS Academy of Higher Education & Research**
**JSS College of Pharmacy**
Sri Shivarathreeshwara Nagara, Mysore-570015
CLASSTIME TABLE – 2020-21

**Lunch Break: 1.00 to 2.00 PM**
**Tea Break: 10.40 to 11.10 AM**
**3.50 PM to 4.05 PM**

**Class: B. PHARM (Semester- I)**

| Time / Day | 9.00-9.50AM | 9.50-10.40AM | TEA BREAK | 11.10-12.05PM | 12.05–1.00PM | LUNCH BREAK | 2.00-2.55PM | 2.55-3.50PM | TEA BREAK | 4.05-5.00PM | 5.00-5.55PM |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Monday** | Communication Skills | Communication Skills | | Pharmaceutical Inorg. Chem. DAK | Pharmaceutical Analysis SRD | | Human Anatomy & Physiology AMM | Pharmaceutics ST | | Pharmaceutical Inorg. Chem. DAK | ---------- |
| **Tuesday** | Pharmaceutics MB | Human Anatomy & Physiology AMM | | Pharmaceutics ST(Tu) | Pharmaceutical Inorg. Chem. DAK | | ←- Human Anatomy & Physiology<br>←---Pharmaceutical Analysis----<br>←---Pharm. Inorganic Chemistry<br>←---- Pharmaceutics---------- | | | ----------Batch – I --AMM----------→<br>----------Batch – II -----SUB------→<br>----------Batch – III--DAK---------→<br>----------Batch – IV---MB---------→ | |
| **Wednesday** | Pharmaceutics MB | Pharmaceutical Analysis SRD | | Human Anatomy & Physiology AMM | Pharmaceutical Analysis (Tu) SRD | | ←- Human Anatomy & Physiology<br>←---Pharmaceutical Analysis------<br>←---Pharm. Inorganic Chemistry--<br>←---- Pharmaceutics---------- | | | ----------Batch – II --AMM------→<br>----------Batch – III-----SRD------→<br>----------Batch – IV----DAK------→<br>----------Batch – I -----ST---------→ | |
| **Thursday** | ←Remedial Biology--Batch –HP→<br>←Communication Skills---Batch I→ | | | Remedial Biology HP | Remedial Biology HP | | **←- Human Anatomy & Physiology<br>←---Pharmaceutical Analysis----<br>←---Pharm. Inorganic Chemistry<br>←---- Pharmaceutics----------** | | | **----------Batch – III----AMM-----→<br>----------Batch – IV----SRD------→<br>----------Batch – I -----DAK-------→<br>----------Batch – II ---ST------→** | |
| | ---------- | **Remedial Maths DHP** | | Remedial Maths DHP | ---------- | | | | | | |
| | | | | ←Communication Skills---Batch II→ | | | | | | | |
| **Friday** | ←Communication Skills --Batch-IV→ | | | ←Communication Skills - Batch- III→ | | | ←- Human Anatomy & Physiology<br>←---Pharmaceutical Analysis----<br>←---Pharm. Inorganic Chemistry<br>←---- Pharmaceutics---------- | | | ----------Batch – IV---AMM-----→<br>----------Batch – I---SUB-----→<br>----------Batch – II-----DAK-------→<br>----------Batch – III –BM-------→ | |
| **Saturday** | Pharmaceutical Analysis SRD | Human Anatomy & Physiology(Tu) AMM | | Pharmaceutical Inorg. Chem.(Tu) DAK | ---------- | | ---------- | | | | |

***Effective from: 8th July 2020**

**Note: 1. No tea break for practical's**

**Time table Coordinator**

**Principal**

**Copy: SNB/LNB/SCF/e-copy-Teachers/ Office in charge-Time table / Time table Coordinator**