

# Bachelor of Pharmacy and Pharmaceutical Industry

## Duration of study

Five years (10 Semesters)

## Credit Hours

(176CH= 15CH, university courses+153CII, faculty courses+8CH, elective faculty courses)

## Academic Departments

- 1) Pharmacognosy
- 2) Pharmaceutical Chemistry
- 3) Pharmaceutics and Pharmaceutical Technology
- 4) Pharmacology and Toxicology
- 5) Biochemistry and Molecular Biology
- 6) Clinical Pharmacy
- 7) Microbiology and Immunology

## Bachelor's Degree

The Bachelor of Pharmacy consists of the following required courses based on NARS;

### **1. University Requirements (15 credits)**

| Course code | Course Title                      | Credit hours |
|-------------|-----------------------------------|--------------|
| DReng1      | English Language (I)              | 3            |
| DReng2      | English Language (2)              | 3            |
| DRara       | Arabic literature                 | 3            |
| DRint       | Introduction to Computer Sciences | 3            |
| DRhis       | History of Ancient Egypt          | 3            |
| Total       |                                   | 15           |

## **2. Faculty requirements (161 credits):**

### **Semester (1)**

| Code No. | Course title                         | Prerequisite | Th/Tu |   | CH | Marks |
|----------|--------------------------------------|--------------|-------|---|----|-------|
| PHR1021  | Physical Chemistry                   | None         | 2     | 1 | 3  | 100   |
| PHR1022  | Organic Chemistry I                  | None         | 2     | 1 | 3  | 100   |
| PHRphi   | Philosophic Thinking                 | None         | 3     |   | 3  | 100   |
| PHR1031  | Pharmacy Orientation                 | None         | 3     |   | 3  | 100   |
| DRint    | Introduction to Computer Science     | None         | 2     | 1 | 3  | 100   |
| PHRept   | English and Professional Terminology | None         | 3     |   | 3  | 100   |
| Total    |                                      |              | 15    | 3 | 18 | 600   |

### **Semester (2)**

| Code No. | Course title             | Prerequisite | Th/Tu |   | CH | Marks |
|----------|--------------------------|--------------|-------|---|----|-------|
| PHRI 111 | Pharmacognosy I          | None         | 2     | 1 | 3  | 100   |
| PHR1131  | Physical Pharmacy        | None         | 2     | 1 | 3  | 100   |
| PHRI 123 | Analytical Chemistry I   | PHR1021      | 2     | 1 | 3  | 100   |
| PHRsci   | Scientific Thinking      | None         | 3     |   | 3  | 100   |
| DRengl   | English Language I       | None         | 2     | 1 | 3  | 100   |
| DRhis    | History of Ancient Egypt | None         | 3     |   | 3  | 100   |
| Total    |                          |              |       | 4 | 18 | 600   |

### Semester (3)

| Code No. | Course title           | Prerequisite | Th/Tu |   | CH | Marks |
|----------|------------------------|--------------|-------|---|----|-------|
| PHR2024  | Analytical Chemistry 2 | PHRI 123     | 2     |   | 3  | 100   |
| PHR2025  | Organic Chemistry 2    | PHR1022      | 2     |   | 3  | 100   |
| PHR2033  | Pharmaceutics I        | PHR1 131     | 2     |   | 3  | 100   |
| PHR2012  | Pharmacognosy 2        |              | 2     |   | 3  | 100   |
| PHR2061  | Anatomy and Histology  | None         | 2     | 1 | 3  | 100   |
| DReng2   | English Language2      | DReng1       | 3     |   | 3  | 100   |
| Total    |                        |              | 13    | 5 | 18 | 600   |

### Semester (4)

| Code No. | Course title                | Prerequisite | Th/Tu |   | CH | Marks |
|----------|-----------------------------|--------------|-------|---|----|-------|
| PHR2126  | Instrumental Analysis       | PHR2024      | 2     |   | 3  | 100   |
| PHR2171  | Pathology & Parasitology    | None         | 2     | 1 | 3  | 100   |
| DR ara   | Arabic Language             | None         | 3     |   | 3  | 100   |
| PHR2134  | Pharmaceutics 2             | PHR2033      | 2     | 1 | 3  | 100   |
| PHRmat   | Mathematics & Biostatistics | None         | 3     |   | 3  | 100   |
| PHR2162  | Physiology                  | None         | 2     | 1 | 3  | 100   |
| Total    |                             |              | 14    | 4 | 18 | 600   |

### Semester (5)

| Code No. | Course title                   | Prerequisite | Th/Tu |   |    | Marks |
|----------|--------------------------------|--------------|-------|---|----|-------|
| PHR3041  | Pharmacology I                 | PHR2061      | 2     |   | 3  | 100   |
| PHR3051  | Biochemistry I                 | PHR2025      | 2     | 1 | 3  | 100   |
| PHR3035  | Pharmaceutics 3                | PHR2134      | 2     |   | 3  | 100   |
| PHR3072  | General & Medical Microbiology | PHR2171      | 2     |   | 3  | 100   |
| PHRpsy   | Psychology and Sociology       | None         | 3     |   | 3  | 100   |
| PHR3013  | Phytochemistry I               | PHR2012      | 2     | 1 | 3  | 100   |
| Total    |                                |              | 14    | 4 | 18 | 600   |

### Semester (6)

| Code No. | Course title                    | Prerequisite | Th/Tu |   |    | Marks |
|----------|---------------------------------|--------------|-------|---|----|-------|
| PHR3173  | Microbiology and Immunology     | PHR3072      | 2     | 1 | 3  | 100   |
| PHR3142  | Pharmacology 2                  | PHR3041      | 2     | 1 | 3  | 100   |
| PHR3114  | Phytochemistry 2                | PHR3013      | 2     | 1 | 3  | 100   |
| PHRcom   | Communication Skills            | DReng2       | 3     |   | 3  | 100   |
| PHR3163  | Pharmacy Legislation and Ethics | None         | 3     |   | 3  | 100   |
| PHRint   | Intercultural Seminar           | None         | 3     |   | 3  | 100   |
| Total    |                                 |              | 15    | 3 | 18 | 600   |

### Semester (7)

| Code No. | Course title                                     | Prerequisite |    |   | CH | Marks |
|----------|--|--------------|----|---|----|-------|
| PHR4036  | Biopharmaceutics and Pharmacokinetics            | PHR2134      | 2  |   | 3  | 100   |
| PHR4074  | Public Health                                    | PHR3072      | 2  |   | 3  | 100   |
| PHR4043  | Clinical Pharmacology                            | PHR3142      | 2  |   | 3  | 100   |
| PHR4015  | Phytotherapy and Manufacture of Natural Products | PHR31 14     | 2  |   | 3  | 100   |
| PHR4027  | Pharmaceutical Chemistry I                       | PHR3142      |    |   |    | 100   |
| PHRELE 1 | Faculty Elective I                               | None         | 2  |   | 2  | 100   |
| Total    |  |              | 12 | 5 | 17 | 600   |

### Semester (8)

| Code No. | Course title                   | Prerequisite | Th/Pr |   | CH | Marks |
|----------|--------------------------------|--------------|-------|---|----|-------|
| PHR4144  | Toxicology & Forensic Medicine | PHR3142      | 2     | 1 | 3  | 100   |
| PHR4128  | Pharmaceutical Chemistry 2     | PHR4027      | 2     | 1 | 3  | 100   |

|          |  |                  |    |   |    |     |
|----------|--|------------------|----|---|----|-----|
| PHR4137  | Industrial Pharmacy I                    | PHR3035          | 2  | 1 | 3  | 100 |
| PHR4152  | Biochemistry 2                           | PHR3051          | 2  | 1 | 3  | 100 |
| PHR4164  | Community Pharmacy and Pharmacy Practice | PHR3163 & PHReng | 2  | 1 | 3  | 100 |
| PHRELE 2 | Faculty Elective 2                       | None             | 2  |   | 2  | 100 |
| Total    |  |                  | 12 | 5 | 17 | 600 |

### Semester (9)

| Code No. | Course title                               | Prerequisite | Th/Pr |   | CH | Marks |
|----------|--|--------------|-------|---|----|-------|
| PHR5029  | Drug quality Assurance and Quality Control | PHR2126      | 2     |   | 3  | 100   |
| PHR5065  | Drug Information                           | PHR4043      | 2     |   | 3  | 100   |
| PHR5038  | Industrial Pharmacy 2                      | PHR4137      | 2     |   | 3  | 100   |
| PHR5075  | Pharmaceutical Biotechnology               | PHR4152      | 2     |   | 3  | 100   |
| PHR4066  | First Aid and Emergencies                  | PHR2164      | 2     | 1 | 3  | 100   |
| PHRELE 3 | Faculty Elective 3                         | None         | 2     |   | 2  | 100   |
| Total    |  |              | 12    | 5 | 17 | 600   |

### Semester (10)

| Code No.    | Course title                             | Prerequisite | Th/Pr |   | CH | Marks |
|-------------|--|--------------|-------|---|----|-------|
| PHR5153     | Clinical Chemistry and Molecular Biology | PHR4152      | 2     | 1 | 3  | 100   |
| PHR5145     | Bioassay & Biostatistics                 | PHRmat       | 2     | 1 | 3  | 100   |
| PHR51210    | Drug Design                              | PHR4128      | 2     | 1 | 3  | 100   |
| PHR5167     | Hospital Pharmacy                        | PHR5065      | 2     | 1 | 3  | 100   |
| PHRacc 5176 | Accounting and Business Administration   | None         | 3     |   | 3  | 100   |

|           |                     |  |    |   |    |     |
|-----------|---------------------|--|----|---|----|-----|
| PHRELE(4) | Faculty Elective(4) |  | 2  |   | 2  | 100 |
| Total     |                     |  | 13 | 4 | 17 | 600 |

### 3. Elective courses (8 credits):

| No. | Course code | Course title   | Credit |
|-----|-------------|--|--------|
| 1   | PHREltcu    | Tissue culture   | 2      |
| 2   | PHRElqhm    | Quality assurance of herbal medicine                       | 2      |
| 3   | PHRE2bcm    | Basics of chemical measurement                             | 2      |
| 4   | PHRE2qlp    | Quality of laboratory practice                             | 2      |
| 5   | PHRE2ama    | Advanced methods for instrumental analysis                 | 2      |
| 6   | PHRE2qca    | Quality control in industry                                | 2      |
| 7   | PHRE2cse    | The relation between compound structure and its efficiency | 2      |
| 8   | PHRE2ddc    | Computer Aided Drug Design                                 | 2      |
| 9   | PHRE3cos    | Cosmetics  | 2      |
| 10  | PHRE3vep    | Veterinary pharmacy  | 2      |
| 11  | PHRE3rem    | Research methodology                                       | 2      |
| 12  | PHRE4dab    | Drug abuse   | 2      |
| 13  | PHRE4clt    | Clinical toxicology  | 2      |
| 14  | PHRE4fum    | Fundamental of management                                  | 2      |
| 15  | PHRE5bmd    | Biochemical Methods of Diagnosis                           | 2      |
| 16  | PHRE5fan    | Food analysis  | 2      |
| 17  | PHRE5cos    | Community services   | 2      |
| 18  | PHRE6drg    | Drugs registration   | 2      |
| 19  | PHRE6dre    | Drugs economics  | 2      |
| 20  | PHRE7dmd    | Diagnostic microbiology and infectious diseases            | 2      |
| 21  | PHRE7inm    | Industrial microbiology                                    | 2      |
| 22  | PHRE7ens    | Environmental science                                      | 2      |

## Pharmacy Undergraduate Program Core Curriculum

(176CH= 15CH, University courses+ 153CH, faculty courses+8CH, elective courses)

| NARS                                     | SUBJECTS   | *CH | FARS |
|--|--|-----|------|
| <p>BASIC<br/>10-15%</p>                  | <p>Physical Chemistry, organic chemistry 1&amp; 2 and analytical chemistry I &amp;2; English 1&amp;2, mathematics and statistics, Introduction to computer science;</p>  | 27  | 16.1 |
| <p>PHARMACEUTICAL SCIENCE<br/>35-40%</p> | <p>physical pharmacy; pharmaceutics 1,2,3; Biopharmaceutics &amp; pharmacokinetics; pharmaceutical chemistry I &amp;II; Chemical drug design; pharmacognosy 1&amp; 2; Phytochemistry I &amp; II; microbiology and immunology; pharmaceutical biotechnology, Quality Assurance &amp; quality control of drugs, industrial pharmacy 1&amp;2; Bioassay &amp; Biostatistics; Instrumental analysis, English and professional terminology</p> | 60  | 35.9 |
| <p>MEDICAL<br/>20-25%</p>                | <p>Anatomy &amp; histology; physiology, biochemistry I &amp; 2; pharmacology I &amp; 2; clinical pharmacology; General &amp; medical Microbiology; Public health; English and medical terminology ; clinical biochemistry and molecular biology</p>  | 33  | 19.7 |

|                                 |  |                                 |                                |
|---------------------------------|--|---------------------------------|--------------------------------|
| PHARMACY<br>PRACTICE<br>10-15 % | *Hospital Pharmacy; community pharmacy<br>and pharmacy practice, phytotherapy<br>& manufacturer of natural products;<br>*300 hours training , drug<br>information;<br>Intercultural seminar, | 15+<br>300<br>hours<br>training | 8.9 +<br>300 hours<br>training |
| HEALTH AND                      | Toxicology and forensic medicine; Pathology  | 9                               | 5.1 1                          |

|                                |  |     |     |
|--------------------------------|--|-----|-----|
| ENVIRONMENTAL<br>5-10 %        | &Parasitology; first aids& emergency,  |     |     |
| BEHAVIORAL AND<br>SOCIAL 2-4%  | Psychology and sociology; Philosophic thinking,<br>scientific thinking, History of ancient Egypt;<br>Arabic language;; | 15  | 8.9 |
| PHARMACY<br>MANAGEMENT<br>2-4% | Accounting & business administration;<br>Principles and practice of ethics;<br>Communication skills                    | 9   | 5.3 |
| DISCRETIONARY<br>UP TO         | Elective courses I, II, III, IV  | 8   | 4.8 |
| TOTAL                          |  | 167 |     |

CH= credit hour; NARS= national academic reference standards; FARS= faculty academic reference standards.

Each student should spend at least 300 hours as summer training in pharmaceutical areas.