



# MGM INSTITUTE OF HEALTH SCIENCES

(Deemed to be University u/s 3 of UGC Act, 1956)

**Grade 'A++' Accredited by NAAC**

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**CHOICE BASED CREDIT SYSTEM**

**(CBCS)**

**(For 2022-23 Batch)**

## **Curriculum for B.Sc. Physician Assistant In Emergency & Trauma Care**

Amended up to AC- 46/2023, Dated 28/04/2023

## **Amended History**

1. Approved as per AC-42/2022 [Resolution No.10.1], Dated 26/04/2022.
2. Amended as per AC-44/2022 [Resolution No.6.2], Dated 09/12/2022.
3. Amended as per AC-46/2023 [Resolution No.6.1], [Resolution No.6.7] Dated 28/04/2023.

**Resolution No. 6.2 of Academic Council (AC-44/2022):** Resolved to approve the syllabus from 1st to 4th Semester for Physician Assistant in Emergency & Trauma Care from Batch admitted in Academic Year 2022-23 onwards [ANNEXURE-60].



**MGM SCHOOL OF BIOMEDICAL SCIENCES**  
**(A constituent unit of MGM INSTITUTE OF HEALTH SCIENCES)**

(Deemed University u/s 3 of UGC Act 1956)

Grade “A” Accredited by NAAC

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**CHOICE BASED CREDIT SYSTEM(CBCS)**

**(Academic Year 2022 - 23)**

**Curriculum for**

**B.Sc. Allied Health Sciences**

**B.Sc. Physician Assistant In Emergency & Trauma Care**

## **B.Sc. Allied Health Sciences**

### **DIRECTOR'S DESK**

In 2007 the school of Biomedical Sciences was established with a mission of building up well qualified Allied Health Care professionals. The faculty set out to design an ideal biomedical graduate program which met the demands and expectations of the education system of our country. The college has been amending its perspective plan, which means extensive preparations for taking over the construction of the academic system including designing of courses, adopting the semester system over the existing pattern of annual system, continuous internal assessment and active industrial visits/Hospital Visits as the part of curriculum and implementing Credit base choice system to all the courses offered.

The School offers 7 UG Courses viz; B.Sc. Operation Theatre and Anaesthesia technology, Dialysis Technology, Medical Radiology & Imaging Technology, Medical Laboratory Technology, Perfusion Technology, Cardiac Care Technology and Optometry.

The college adopts the national qualification frame work for the degree programs in terms of duration and levels of studies. The curricula is updated to make our education comparable to and compatible and in accordance with those of others and also to facilitate the mobility of our graduates for further studies and for employment both within and outside the country. The programs designed are the perfect embodiment of the vision, mission and core values of the college and are designed in such a way that students are commensurate to face the global employment opportunities.

## **ABOUT MGM SCHOOL OF BIOMEDICAL SCIENCES**

### **Mission**

To improve the quality of life, both at individual and community levels by imparting quality medical education to tomorrow's doctors and medical scientists and by advancing knowledge in all fields of health sciences through meaningful and ethical research.

### **Vision**

By the year 2020, MGM Institute of Health Sciences aims to be top-ranking Centre of Excellence in Medical Education and Research. Students graduating from the Institute will have the required skills to deliver quality health care to all sections of the society with compassion and benevolence, without prejudice or discrimination, at an affordable cost. As a research Centre, it shall focus on finding better, safer and affordable ways of diagnosing, treating and preventing diseases. In doing so, it will maintain the highest ethical standards.

### **About – School of Biomedical Sciences**

MGM School of Biomedical Sciences is formed under the aegis of MGM IHS with the vision of offering basic Allied Science and Medical courses for students who aspire to pursue their career in the Allied Health Sciences, teaching as well as research.

School of Biomedical Sciences is dedicated to the providing the highest quality education in basic medical sciences by offering a dynamic study environment with well equipped labs. The school encompasses 21 courses each with its own distinct, specialized body of knowledge and skill. This includes 8 UG courses and 12 PG courses. The college at its growing years started with mere 100 students has recorded exponential growth and is now a full-fledged educational and research institution with the student strength reaching approximately 581 at present.

Our consistent theme throughout is to encourage students to become engaged, be active learners and to promote medical research so that ultimately they acquire knowledge, skills, and understanding so as to provide well qualified and trained professionals in Allied Health Sciences to improve the quality of life.

As there is increased need to deliver high quality, timely and easily accessible patient care system the collaborative efforts among physicians, nurses and allied health providers become ever more essential for an effective patient care. Thus the role of allied health professionals in ever-evolving medical system is very important in providing high-quality patient care.

Last but by no means least, School of Biomedical Sciences envisions to continuously grow and reform. Reforms are essential to any growing institution as it fulfills our bold aspirations of providing the best for the students, for us to serve long into the future and to get ourselves updated to changing and evolving trends in the health care systems.

**Name of the Degree : B.Sc. Physician Assistant in Emergency & Trauma Care**

**Duration of Study:** The duration of the study for B.Sc. Physician Assistant in Emergency & Trauma Care will be of 4 years (3 years Academics +1 year Internship).

**Program pattern:**

- First Semester: July
- Second Semester: January
- Third Semester: July
- Fourth Semester: January
- Fifth Semester-July
- Sixth Semester-January

**Eligibility Criteria:**

- He/she has passed the Higher Secondary (10+2) with Science (PCB) or equivalent examination recognized by any Indian University or a duly constituted Board with pass marks in Physics, Chemistry, and Biology.
- Minimum percentage of marks: 45% aggregate.

**Medium of Instruction:**

- English shall be the Medium of Instruction for all the Subjects of study and for examinations.

**For any query visit the website: [www.mgmsbsnm.edu.in](http://www.mgmsbsnm.edu.in)**

## Preamble

India is one of the rising countries in providing medical and paramedical facilities for the patients. There are all most more than 200 medical colleges and equivalent paramedical institutions which have potential to provide skill training to millions of youth through their own facilities and/or by establishing extension centres in collaboration with government medical colleges (AIIMS, NIMHANS etc.) and Research Centres(ICMR, DBT, BARC, NIRRH, etc.) or Vocational Skill Knowledge providers, NGOs. The high quality of medical care we enjoy today is built upon years of effort by Physicians, Nurses, Physiotherapist, Research Scholars and other medical professionals investigating the causes of and potential treatments for disease. The tireless effort of countless medical professionals has made many life-threatening diseases and conditions a faded memory.

India faces an acute shortage of over 64 lakh skilled human resource in the health sector. Although occupational classifications vary across the globe, little has been done in India to estimate the need and to measure the competency of health care providers beyond the doctors and nurses. As Indian government aims for Universal Health Coverage, the lack of skilled human resource may prove to be the biggest impediment in its path to achieve targeted goals. The benefits of having AHPs in the healthcare system are still unexplored in India.

*Allied and healthcare professionals (AHPs) includes individuals involved with the delivery of health or healthcare related services, with qualification and competence in therapeutic, diagnostic, curative, preventive and/or rehabilitative interventions. They work in multidisciplinary health teams in varied healthcare settings including doctors (physicians and specialist), nurses and public health officials to promote, protect, treat and/or manage a person('s) physical, mental, social, emotional, environmental health and holistic well-being.'*

This prompted the Ministry of Health and Family Welfare to envisage the creation of national guidelines for education and career pathways of allied and healthcare professionals, with a structured curriculum based on skills and competencies which is competence enough to face the challenges. The curriculum represents a conscious and systematic selection of knowledge, skills and values: a selection that shapes the way teaching, learning and assessment processes are organized.

MGM School Of Bio-Medical Sciences (Declared Under Section 3 Of The UGC Act, 1956) Accredited By NAAC with “A”++ Grade, Kamothe, Navi Mumbai, MGM University Regulations on “Choice Based Credit System - 2017”

Our MGMSBS institute is established with the goal to achieve the same and to initiate the patient’s care at the hospital for a high level of health and medical services, which are unusually complex, scientifically advanced, and costly in nature, to meet his special needs. Allied health professionals are very crucial part of evolving health care system as they support diagnosis, recovery, and quality of life. The scope of allied health professionals is profound as they provide direct patient care in virtually at every step. They provide critical care support in intensive care units, deliver scientific support in clinical laboratories, offer numerous rehabilitation services, manage and provide data critical to seamless patient care and diagnosis, operate sophisticated diagnostic equipment and contribute to broader public health outcomes.

In addition, the practice of the faculty is important to the community as teaching students are in the forefront of the knowledge of medical sciences and at MGMSBS.

**MGMSBS is at par with any other MCI recognised medical colleges with the following available resources:**

- Well equipped with physical facilities such as spacious and well furnished class rooms ,laboratories ,Skill centres ,Library and Hostels for enriching knowledge and to serve rural community and slums dwellers through this knowledge.
- We have qualified and trained faculty who can foster research in different discipline and well versed to scientifically formulate, implement and monitor community oriented programs and projects especially where the level of involvement in adoption of innovative and appropriate technologies involved.

Students of MGMSBS will be of tremendous help in making meaningful contribution to community and rural development. The involvement of allied health in implementing the Scheme of Community Development through Paramedics is need of the time.

The Chairman, University Grants Commission (UGC) has in his letter D.O.No.F.1- 1/2015 (CM) dated 8th January, 2015 has communicated the decision of the Ministry of Human Resources Development to implement Choice Based Credit System (CBCS) from the academic session 2015-2016 in all Indian Universities to enhance academic standards and quality in higher education through innovation and improvements in curriculum, teaching learning process, examination and evaluation systems. UGC,



subsequently, in its notification No.F.1-1/2015 (Sec.) dated 10/4/15 has provided a set of, Model curricula and syllabi for CBCS programmes under the Faculties of Arts, Humanities and Sciences providing the academic flexibility for Universities.

MGMSBS has taken the proactive lead in bringing about the academic reform of introducing CBCS for semester wise pattern for the B.Sc. Allied Health Science courses and M.Sc. Courses

**CBCS – Definition and benefits:** Choice Based Credit System is a flexible system of learning. The distinguishing features of CBCS are the following:

- It permits students to learn at their own pace.
- The electives are selected from a wide range of elective courses offered by the other University Departments.
- Undergo additional courses and acquire more than the required number of credits.
- Adopt an inter-disciplinary and intra-disciplinary approach in learning.
- Make best use of the available expertise of the faculty across the departments or disciplines
- Has an inbuilt evaluation system to assess the analytical and creativity skills of students in addition to the conventional domain knowledge assessment pattern.

**Definitions of Key Words:**

- i. **Academic Year:** Two consecutive (one odd + one even) semesters constitute one academic year. Choice Based Credit System (CBCS).
- ii. The CBCS provides choice for students to select from the prescribed courses (core, elective or minor or soft skill courses).
- iii. **Course:** Usually referred to, as “papers” is a component of a programme. All courses need not carry the same weight. The courses should define learning objectives and learning outcomes. A course may be designed to comprise lectures/ tutorials/ laboratory work/ outreach activities/ project work/ viva/ seminars/ term papers/ assignments/ presentations/ self-study etc. or a combination of some of these.

- iv.     **Credit Based Semester System (CBSS):** Under the CBSS, the requirement for awarding a degree or diploma or certificate is prescribed in terms of number of credits to be completed by the students.
  
- v.      **Credit:** A unit by which the course work is interpreted. It functions the number of hours of instructions required per week. One credit is equivalent to one hour of teaching (lecture or tutorial) or two hours of practical work/field work per week.
  
- vi.     **Cumulative Grade Point Average (CGPA):** It is a measure of overall cumulative performance of a student over all semesters. The CGPA is the sum total of the credit points obtained by the student in various courses in all semesters and the sum of the total credits of all courses in all the semesters.
  
- vii.    **Grade Point:** It is a numerical marking allotted to each letter grade on a 10-point scale.
  
- viii.   **Letter Grade:** It is an appreciated point of the student's performance in a selected course. Grades are denoted by letters O, A+, A, B, C and RA x. Programme: An educational programme leading to award of a Degree certificate.
  
- ix.     **Semester Grade Point Average (SGPA):** It is index of performance of all performance of work in a semester. Its total credit points obtained by a student in various courses registered in a semester and the total course credits taken during that semester. It shall be expressed up to two decimal places.
  
- x.      **Semester:** Each semester will consist of minimum of 180 working days. The odd semester may be scheduled from June/ July to December and even semester from December/ January to June.

## Semester System and Choice Based Credit System:

The semester system initiates the teaching-learning process and screws longitudinal and latitudinal mobility of students in learning. The credit based semester system provides flexibility in designing curriculum and assigning credits based on the course content and hours of teaching. The choice based credit system provides a sun shone" type approach in which the students can take choice of courses, learn and adopt an interdisciplinary approach of learning.

### Semesters:

**An academic year consists of two semesters:**

	UG	PG
Odd Semester 1 <sup>st</sup> semester	July – December	July – December
Odd Semester 3 <sup>rd</sup> , 5 <sup>th</sup> semesters	June – October/ November	
Even Semester 2 <sup>nd</sup> , 4 <sup>th</sup> , 6 <sup>th</sup> semesters	December –April	December - June

### Credits:

Credit defines the coefficient of contents/syllabus prescribed for a course and determines the number of hours of instruction required per week. Thus, normally in each of the courses, credits will be assigned on the basis of the number of lectures/ tutorial laboratory work and other forms of learning required, to complete the course contents in a 15-20 week schedule:

- a. **1 credit** = 1 hour of lecture per week
- b. **3 credits** = 3 hours of instruction per week
  - ✓ Credits will be assigned on the basis of the lectures (L) / tutorials (T) / Clinical Training (CR) / laboratory work (P) / Research Project (RP) and other forms of learning in a 15-20 week schedule L - One credit for one hour lecture per week
- c. **P/T** - One credit for every two hours of laboratory or practical
- d. **CR** - One credit for every three hours of Clinical training/Clinical rotation/posting
- e. **RP** - One credit for every two hours of Research Project per week – Max Credit 20- 25

	<b>Lecture - L</b>	<b>Tutorial - T</b>	<b>Practical - P</b>	<b>Clinical Training/ Rotation– CT/CR</b>	<b>Research Project– RP*</b>
1 Credit	1 Hour	2 Hours	2 Hours	3 Hours	2 Hours
RP*	Maximum Credit 20 – 25 / Semester				

**Types of Courses:** Courses in a programme may be of three kinds:

- **Core Course**
- **Elective Course**

**Core Course:** A course, which should compulsorily be studied by a candidate as a basic requirement is termed as a Core course. There may be a Core Course in every semester. This is the course which is to be compulsorily studied by a student as a basic requirement to complete programme of respective study.

**Elective Course:** A course which can be chosen from a very specific or advanced the subject of study or which provides an extended scope or which enables an exposure to some other domain or expertise the candidates ability is called an Elective Course.

**Discipline Specific Elective (DSE) Course:** Elective courses offered by the main subject of study are referred to as Discipline Specific Elective. The University / Institute may also offer discipline related Elective courses of interdisciplinary nature. An elective may be “Discipline Specific Electives (DSE)” gazing on those courses which add intellectual efficiency to the students.

**Dissertation / Project:** An Elective/Core course designed to acquire special / advanced knowledge, such as supplement study / support study to a project work, and a candidate studies such a course on his own with an advisory support by a teacher / faculty member is called dissertation / project.

**Generic Elective (GE) Course:** An elective course chosen generally from an unrelated discipline/subject, with an intention to seek exposure is called a Generic Elective. P.S.: A core course offered in a discipline / subject may be treated as an elective by other discipline / subject and vice versa and such electives may also be referred to as Generic Elective.

**Assigning Credit Hours per Course:** While there is flexibility for the departments in allocation of credits to various courses offered, the general formula would be:

All core course should be restricted to a maximum of 4 credits.

- All electives should be restricted to a maximum of 3 credits.
- All ability enhancement course should be restricted to a maximum of 2 credits.
- Projects should be restricted to a maximum of 20-25 credits.

## **Programme Outcome:**

- After completing this programme, learner will be able to:
- Provide first aid or primary treatment in emergency and trauma cases in the hospital and in the field
- Assist the doctor in management of common medical and surgical emergencies.
- Explain the importance of Golden Hours in trauma care.
- Do primary survey of trauma or emergency patients.
- Perform CPR (Basic +Defibrillation) in adults as well as pediatrics patients
- Perform maintenance and care of life saving equipments in casualty (Emergency Departments )
- maintain and monitor emergency drugs kit.
- Use equipment like ECG machine,ventilator,infusion pump etc.
- Transport the patient safely(inter and intra hospital )
- Communicate with patient ,victims ,patient relative and masses.
- Carry out triage and assist the physician in disaster management.
- Assist the doctor in management of critically ill patient in casualty ,as well as in intensive care units.
- Describe and use emergency drugs , techniques and monitoring
- Describe medico-legal aspect of emergency cases.

## **Programme Specific Outcome:**

- Students should be able giving a quality care to the patients

OUTLINE OF COURSE CURRICULUM												
B.Sc. Physician Assistant in Emergency & Trauma Care												
Semester I												
Code No.	Core Course	Credits/Week				Hrs/Semester				Marks		
		Lecture (L)	Tutorial (T)	Practical (P)	Total Credits (C)	Lecture (L)	Tutorial (T)	Practical (P)	Total (hrs.)	Internal Assement (IA)	Semester End Exam (SEE)	Total
<b>Theory</b>												
BPA 101 L	Human Anatomy Part I	3	-	-	3	45	-	-	45	10	40	50
BPA 102 L	Human Physiology Part I	3	-	-	3	45	-	-	45	10	40	50
BPA 103 L	General Biochemistry Nutrition	3	1	-	4	45	15	-	60	10	40	50
BPA 104 L	Introduction to National Health Care System (Multidisciplinary/ Interdisciplinary)	3	-	-	3	45	-	-	45	10	40	50
<b>Practical</b>												
BPA 101 P	Human Anatomy Part I	-	-	4	-	-	-	60	60	-	-	-
BPA 102 P	Human Physiology Part I	-	-	4	-	-	-	60	60	-	-	-
BPA 103 P	General Biochemistry Nutrition	-	-	4	-	-	-	60	60	-	-	-
BPA 105 P	Community Orientation & Clinical Visit (Including related practicals to the Parent course)	-	-	8	-	-	-	120	120	-	-	-
<b>Ability Enhancement Compulsory Course</b>												
AEC 001 L	English & Communication skills	4	-	-	4	60	-	-	60	10	40	50
AEC 002 L	Environmental Sciences	4	-	-	4	60	-	-	60	10	40	50
<b>Total</b>		<b>20</b>	<b>1</b>	<b>20</b>	<b>21</b>	<b>300</b>	<b>15</b>	<b>300</b>	<b>615</b>	<b>60</b>	<b>240</b>	<b>300</b>

OUTLINE OF COURSE CURRICULUM												
B.Sc. Physician Assistant in Emergency & Trauma Care												
Semester II												
Code No.	Core Course	Credits/Week				Hrs/Semester				Marks		
		Lecture (L)	Tutorial (T)	Practical (P)	Total Credits (C)	Lecture (L)	Tutorial (T)	Practical (P)	Total (hrs.)	Internal Assement (IA)	Semester End Exam (SEE)	Total
<b>Theory</b>												
BPA 106 L	Human Anatomy Part II	2	-	-	2	30	-	-	30	10	40	50
BPA 107 L	Human Physiology Part II	2	-	-	2	30	-	-	30	10	40	50
BPA 108 L	General Microbiology	3	-	-	3	45	-	-	45	10	40	50
BPA 109 L	Basic Pathology & Hematology	3	1	-	4	45	15	-	60	10	40	50
BCCT 110 L	Introduction to Quality and Patient safety (Multidisciplinary/Interdisciplinary)	3	-	-	3	45	-	-	45	10	40	50
<b>Practical</b>												
BPA 106 P	Human Anatomy Part II	-	-	4	-	-	-	60	60	-	-	-
BPA 107 P	Human Physiology Part II	-	-	2	-	-	-	30	30	-	-	-
BPA 108 P	General Microbiology	-	-	4	-	-	-	60	60	-	-	-
BPA 109 P	Basic Pathology & Hematology	-	-	4	-	-	-	60	60	-	-	-
BPA 111 P	Community Orientation & Clinical Visit (Including related practicals to the parent course)	-	-	8	-	-	-	120	120	-	-	-
<b>Skill Enhancement Elective Course</b>												
SEC 001 L	Medical Bioethics & IPR	3	-	-	3	45	-	-	45	10	40	50
SEC 002 L	Human Rights & Professional Values											
<b>Total</b>		<b>16</b>	<b>1</b>	<b>22</b>	<b>17</b>	<b>240</b>	<b>15</b>	<b>330</b>	<b>585</b>	<b>60</b>	<b>240</b>	<b>300</b>

OUTLINE OF COURSE CURRICULUM														
B.Sc. Physician Assistant in Emergency & Trauma Care														
Semester III														
Code No.	Core Course	Credits/Week					Hrs/Semester					Marks		
		Lecture (L)	Tutorial (T)	Practical (P)	Clinical Posing/Rotation (CP)	Total Credits (C)	Lecture (L)	Tutorial (T)	Practical (P)	Clinical Posing/Rotation (CP)	Total (hrs.)	Internal Assement (IA)	Semester End Exam (SEE)	Total
<b>Theory</b>														
BPA 112 L	General Pharmacology	3	-	-	-	3	45	-	-	-	45	10	40	50
BPA 113 L	Clinical Microbiology	3	-	-	-	3	45	-	-	-	45	10	40	50
BPA 114 L	Obstetrics and Gynaecology	4	-	-	-	4	60	-	-	-	60	20	80	100
BPA 115 L	Clinical Medicine - I	4	-	-	-	4	60	-	-	-	60	20	80	100
BPA 116 CP	PA Directed Clinical Education - 1	-	-	-	15	5	-	-	-	225	225	-	50	50
<b>Practicals</b>														
BPA 113 P	Clinical Microbiology	-	-	2	-	1	-	-	30	-	60	10	40	50
BPA 114 P	Obstetrics and Gynecology	-	-	4	-	2	-	-	60	-	60	10	40	50
BPA 115 P	Clinical Medicine - I	-	-	4	-	2	-	-	60	-	60	10	40	50
<b>Generic Elective Course</b>														
GEC 001 L	Pursuit of Inner Self Excellence (POIS)	3	-	-	-	3	45	-	-	-	45	10	40	50
GEC 002 L	Organisational Behaviour													
<b>Total</b>		<b>17</b>	<b>0</b>	<b>10</b>	<b>15</b>	<b>27</b>	<b>255</b>	<b>0</b>	<b>150</b>	<b>225</b>	<b>660</b>	<b>100</b>	<b>450</b>	<b>550</b>

OUTLINE OF COURSE CURRICULUM														
B.Sc. Physician Assistant in Emergency & Trauma Care														
Semester IV														
Code No.	Core Course	Credits/Week					Hrs/Semester					Marks		
		Lecture (L)	Tutorial (T)	Practical (P)	Clinical Posing/Rotation (CP)	Total Credits (C)	Lecture (L)	Tutorial (T)	Practical (P)	Clinical Posing/Rotation (CP)	Total (hrs.)	Internal Assement (IA)	Semester End Exam (SEE)	Total
<b>Theory</b>														
BPA 117 L	General Surgery and Trauma	4	-	-	-	4	60	-	-	-	60	20	80	100
BPA 118 L	Anaesthesiology	3	-	-	-	3	45	-	-	-	45	20	80	100
BPA 119 L	Paediatrics and Geriatrics	2	-	-	-	2	30	-	-	-	30	20	80	100
BPA 120 L	Clinical Medicine - II	4	-	-	-	4	60	-	-	-	60	20	80	100
BPA 121 CP	PA Directed Clinical Education - 2	-	-	-	15	5	-	-	-	-	225	-	50	50
<b>Practicals</b>														
BPA 117 P	General Surgery and Trauma	-	-	4	-	2	-	-	60	-	60	10	40	50
BPA 118 P	Anaesthesiology	-	-	2	-	1	-	-	30	-	45	10	40	50
BPA 119 P	Paediatrics and Geriatrics	-	-	2	-	1	-	-	30	-	30	10	40	50
BPA 120 P	Clinical Medicine - II	-	-	4	-	2	-	-	60	-	60	10	40	50
<b>Ability Enhancement Elective Course</b>														
AEC 003 L	Computer and Applications	3	-	-	-	3	45	-	-	-	45	10	40	50
AEC 004 L	Biostatistics and Research Methodology													
<b>Total</b>		<b>16</b>	<b>0</b>	<b>12</b>	<b>15</b>	<b>27</b>	<b>240</b>	<b>0</b>	<b>180</b>	<b>0</b>	<b>660</b>	<b>130</b>	<b>570</b>	<b>700</b>



**Resolution No. 6.1 of Academic Council (AC-46/2023):** Resolved to approve the syllabus for V & VI Semester B.Sc. Physician Assistant in Emergency & Trauma Care at MGM SBS, NM with effective from batch admitted in Academic Year 2022-23 onwards [ANNEXURE-46].

OUTLINE OF COURSE CURRICULUM														
B.Sc. Physician Assistant in Emergency & Trauma Care														
Semester V														
Code No.	Core Course	Credits/Week					Hrs/Semester					Marks		
		Lecture (L)	Tutorial (T)	Practical (P)	Clinical Posing/Rotation (CP)	Total Credits (C)	Lecture (L)	Tutorial (T)	Practical (P)	Clinical Posing/Rotation (CP)	Total (hrs.)	Internal Assement (IA)	Semester End Exam (SEE)	Total
BPA 122 L	Cardiology	3	-	-	-	3	45	-	-	-	45	20	80	100
BPA 123 L	Nephrology	2	-	-	-	2	30	-	-	-	30	20	80	100
BPA 124 L	Pulmonology	3	-	-	-	3	45	-	-	-	45	20	80	100
BPA 125 CP	PA Directed clinical education 3	-	-	-	27	9	-	-	-	-	450	-	50	50
<b>Practical</b>														
BPA 122 P	Cardiology	-	-	2	-	1	-	-	30	-	30	10	40	50
BPA 123 P	Nephrology	-	-	2	-	1	-	-	30	-	30	10	40	50
BPA 124 P	Pulmonology	-	-	2	-	1	-	-	30	-	30	10	40	50
<b>Core Elective Course</b>														
CEC 005 L	Basics of Clinical Skill Learning	3	-	-	-	3	45	-	-	-	45	10	40	50
CEC 006 L	Hospital Operation Management													
<b>Total</b>		<b>11</b>	<b>0</b>	<b>6</b>	<b>27</b>	<b>23</b>	<b>165</b>	<b>0</b>	<b>90</b>	<b>0</b>	<b>705</b>	<b>100</b>	<b>450</b>	<b>550</b>

OUTLINE OF COURSE CURRICULUM														
B.Sc. Physician Assistant in Emergency & Trauma Care														
Semester VI														
Code No.	Core Course	Credits/Week					Hrs/Semester					Marks		
		Lecture (L)	Tutorial (T)	Practical (P)	Clinical Posing/Rotation (CP)	Total Credits (C)	Lecture (L)	Tutorial (T)	Practical (P)	Clinical Posing/Rotation (CP)	Total (hrs.)	Internal Assement (IA)	Semester End Exam (SEE)	Total
<b>Theory</b>														
BPA 126 L	Neurology	3	-	-	-	3	45	-	-	-	45	20	80	100
BPA 127 L	Orthopedics	2	-	-	-	2	30	-	-	-	30	20	80	100
BPA 128 L	Gastroentriology	3	-	-	-	3	45	-	-	-	45	20	80	100
BPA 129 L	Emergency medicine	4	-	-	-	4	60	-	-	-	60	20	80	100
BPA 130 CP	PA Directed clinical education 4	-	-	-	24	8	-	-	-	-	360	-	50	50
<b>Practical</b>														
BPA 126 P	Neurology	-	-	2	-	1	-	-	30	-	30	10	40	50
BPA 127 P	Orthopedics	-	-	2	-	1	-	-	30	-	30	10	40	50
BPA 128 P	Gastroentriology	-	-	2	-	1	-	-	30	-	30	10	40	50
BPA 129 P	Emergency medicine	-	-	2	-	1	-	-	30	-	30	10	40	50
<b>Total</b>		<b>12</b>	<b>0</b>	<b>8</b>	<b>24</b>	<b>24</b>	<b>180</b>	<b>0</b>	<b>120</b>	<b>0</b>	<b>660</b>	<b>120</b>	<b>530</b>	<b>650</b>

OUTLINE OF COURSE CURRICULUM											
B.Sc. Physician Assistant in Emergency & Trauma Care											
Semester VII & Semester VIII											
Code No.	Core Course	Credits/Week					Hrs/Semester				
		Lecture (L)	Tutorial (T)	Practical (P)	Clinical Posing/Ro tation (CP)	Total Credits (C)	Lecture (L)	Tutorial (T)	Practical (P)	Clinical Posing/Ro tation (CP)	Total hrs.
	Sem VII (Internship)	-	-	-	720	16	-	-	-	720	720
	Sem VIII (Internship)	-	-	-	720	16	-	-	-	720	720
<b>Total</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>1440</b>	<b>32</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1440</b>	<b>1440</b>

**Resolution No.6.7 of Academic Council (AC-46/2023):** Resolved to incorporate credits in internship as per NEP 2020 & National Credit Framework for UG programme (B.Sc. Medical Laboratory Technology, B.Sc. Medical Radiology & Imaging Technology, B.Sc. Operation Theatre & Anaesthesia Technology, B.Sc. Cardiac Care Technology, B.Sc. Perfusion Technology, B. Optometry, B.Sc. Medical Dialysis Technology, B.Sc. Physician Assistant In Emergency & Trauma Care) from Batch admitted in Academic Year 2020-21 (Sem VII & VIII) onwards [ANNEXURE-49A, 49B, 49C, 49D, 49E, 49F, 49G, 49H].

**Annexure-49F of AC-46/2023**

**OUTLINE OF COURSE CURRICULUM  
B.Sc. Physician Assistant in Emergency & Trauma Care**

Semester VII & VIII														
Code No.	Core Course	Credits/Week					Hrs/Semester					Marks		
		Lecture (L)	Tutorial (T)	Practical (P)	Clinical Posing/Rotation (CP)	Total Credits (C)	Lecture (L)	Tutorial (T)	Practical (P)	Clinical Posing/Rotation (CP)	Total (hrs.)	Internal Assessment (IA)	Semester End Exam (SEE)	Total
BPA 131	B.Sc. PA Internship (Semester VII)	-	-	1	16	17	-	-	42	1008	1050	20	80	100
BPA 132	B.Sc. PA Internship (Semester VIII)	-	-	1	16	17	-	-	42	1008	1050	20	80	100

Internship is for 12 months (July-December; January-June) after deducting for national holidays/Sick Holidays/ sundays + Examination), (6 days/week;8 Hours/day). Minimum of 21 weeks/semester. Students are encouraged to involve in community outreach activities as part of their clinical postings without absenting himself/herself for the other regular classes.

Internal Assessment Exam Pattern (IA) for Semester VII & VIII (Internship Program)	
Internal exam pattern: Total 20 marks with following breakup	
Description	Marks
Internal exam (at department)	10 marks
Viva	5 marks
Log Book	5 marks
<b>Total = 20 Marks</b>	

Scheme of University Semester End Examination (SEE) for Semester VII & VIII (Internship Program)		
Practical exam pattern: Total 80 marks with following breakup		
Exercise	Description	Marks
Q No 1	Case Study	2 x15=30 M
Q No 2	Station exercise	3 x 5=15 M
Q No 3	VIVA	15 M
QNo 4	Log Book	10 M
QNo 5	Attendance	10 M
<b>Total = 80 Marks</b>		

Attendance (10 marks ) of the student. It was decided that weightage be given to attendance as per following scheme	
Attendance Percentage	Marks
< 75	Zero
75	5
76-80	6
81-85	7
86-90	8
91-95	9
96-100	10

# FIRST YEAR

## B.Sc. Physician Assistant in Emergency & Trauma Care

### SEMESTER-I

Code No.	Core Subjects
<b>Theory</b>	
BPA 101 L	Human Anatomy Part I
BPA 102 L	Human Physiology Part I
BPA 103 L	General Biochemistry & Nutrition
BPA 104 L	Introduction to National HealthCare System (Multidisciplinary/ Interdisciplinary)
<b>Practical</b>	
BPA 101 P	Human Anatomy Part I
BPA 102 P	Human Physiology Part I
BPA 103 P	General Biochemistry
BPA 105 P	Community Orientation & Clinical Visit (Including related practical to the parent course)
<b>Ability Enhancement Elective Course</b>	
AEC 001 L	English & Communication Skills
AEC 002 L	Environmental Sciences

<b>Name of the Programme</b>	<b>B.Sc. Physician Assistant in Emergency &amp; Trauma Care</b>
<b>Name of the Course</b>	<b>Human Anatomy- Part I</b>
<b>Course Code</b>	<b>BPA 101 L</b>

<b>Teaching Objective</b>	<ul style="list-style-type: none"> <li>To introduce the students to the concepts related to General anatomy, Muscular, Respiratory, Circulatory, Digestive and Excretory system</li> </ul>
<b>Learning Outcomes</b>	<ul style="list-style-type: none"> <li>Comprehend the normal disposition, interrelationships, gross, functional and applied anatomy of various structures in the human body.</li> <li>Demonstrate and understand the basic anatomy of Respiratory and Circulatory system</li> <li>Demonstrate and understand the basic anatomy of Digestive and Excretory system</li> </ul>

<b>Sr.No.</b>	<b>Topics</b>	<b>No. of Hrs.</b>
1	<b>Introduction to Anatomy , Terminology, Cell and Cell division, Tissues of body, Skin</b>	5
2	<b>Skeletal System</b> - Classification of bones, Parts of developing long bone and its blood supply, Joints I- Classification of joints, Joints II- Synovial Joint, Appendicular skeleton I- Bones of upper Limb, Appendicular skeleton II- Bones of lower limb, Axial skeleton-I , Axial skeleton-II	8
3	<b>Muscular System</b> - Muscle I-Types, Muscle II- Muscle groups and movements, Muscles of Upper limb, Muscles of lower limb, Muscles of Neck, Muscles of back , Muscles of abdomen	7
4	<b>Joints</b> – Shoulder, Hip , Knee , Movements and muscle groups producing movements at other joints	4
5	<b>Respiratory System</b> - Introduction to Respiratory system, Larynx, Thoracic cage and diaphragm, Lung & Pleura , Trachea & Bronchopulmonary segments , Mediastinum	6
6	<b>Circulatory System</b> - Types of blood vessels, Heart& Pericardium, Coronary Circulation, Overview of mediastinum , Blood vessels of Thorax	5
7	<b>Digestive System</b> - GIT I - Pharynx, Oesophagus, GIT II-Stomach, GIT III- Small and Large Intestine, GIT IV-Liver & Gall Bladder, GIT V- Spleen, GIT VI-Pancreas , Salivary glands	7
8	<b>Excretory System</b> - Kidney, Ureter, Bladder, Urethra, Pelvis dynamic	3
<b>Total</b>		<b>45 hrs</b>

### BPA 101 P - Human Anatomy Part I- (Demonstration)

Sr.No.	Topics	No of Hrs
1	<b>Introduction to Anatomy, Terminology, Cell and Cell division, Tissues of body, Skin</b>	60
2	<b>Skeletal System</b> - Classification of bones, Parts of developing long bone and its blood supply, Joints I- Classification of joints, Joints II- Synovial Joint, Appendicular skeleton I- Bones of upper Limb, Appendicular skeleton II- Bones of lower limb, Axial skeleton-I , Axial skeleton-II	
3	<b>Muscular System</b> - Muscle I-Types, Muscle II- Muscle groups and movements, Muscles of Upper limb, Muscles of lower limb, Muscles of Neck, Muscles of back , Muscles of abdomen	
4	<b>Joints</b> – Shoulder, Hip ,Knee , Movements and muscle groups producing , movements at other joints	
5	<b>Respiratory System</b> - Introduction to Respiratory system, Larynx, Thoracic cage and diaphragm, Lung & Pleura , Trachea & Bronchopulmonary segments , Mediastinum	
6	<b>Circulatory System</b> - Types of blood vessels, Heart& Pericardium, Coronary Circulation, Overview of mediastinum , Blood vessels of Thorax	
7	<b>Digestive System</b> - GIT I- Pharynx, Oesophagus, GIT II-Stomach, GIT III- Small and Large Intestine, GIT IV-Liver & Gall Bladder, GIT V- Spleen, GIT VI-Pancreas , Salivary glands	
8	<b>Excretory System</b> - Kidney, Ureter, Bladder, Urethra, Pelvis dynamic	
<b>Total</b>		<b>60 hrs</b>

**Text Books :**

1. Manipal Manual of Anatomy for Allied Health Sciences courses: Madhyastha S.
2. G.J. Tortora & N.P Anagnostakos: Principles of Anatomy and Physiology
3. B.D. Chaurasia: Handbook of General Anatomy

**Reference books:**

1. B.D. Chaurasia : Volume I-Upper limb & Thorax,  
Volume II- Lower limb, Abdomen & Pelvis  
Volume III- Head, Neck, Face  
Volume IV- Brain-Neuroanatomy
2. Vishram Singh: Textbook of Anatomy Upper limb & Thorax  
Textbook of Anatomy Abdomen & Lower limb  
Textbook of Head neck and Brain
3. Peter L. Williams And Roger Warwick:- Gray's Anatomy - Descriptive and Applied,  
36<sup>th</sup> Ed; Churchill Livingstone.
4. T.S. Ranganathan : Text book of Human Anatomy
5. Inderbir Singh, G P Pal : Human Embryology
6. Textbook of Histology, A practical guide:- J.P Gunasegaran

<b>Name of the Programme</b>	<b>B.Sc. Physician Assistant in Emergency &amp; Trauma Care</b>
<b>Name of the Course</b>	<b>Human Physiology Part I</b>

<b>Course Code</b>	<b>BPA 102 L</b>
<b>Teaching objective</b>	<ul style="list-style-type: none"> <li>To teach basic physiological concepts related to General physiology, Haematology, Nerve-Muscle physiology, Cardiovascular ,Digestive &amp; Respiratory physiology</li> </ul>
<b>Learning outcomes</b>	<ul style="list-style-type: none"> <li>To understand the basic physiological concepts of General physiology</li> <li>To understand the basic physiological concepts of Hematology</li> <li>To understand the basic physiological concepts of Nerve-Muscle physiology</li> <li>To understand the basic physiological concepts of Respiratory physiology</li> <li>To understand the basic physiological concepts of Cardiovascular physiology</li> </ul>

<b>Sr.No.</b>	<b>Topics</b>	<b>No. of Hrs.</b>
1	<b>General Physiology-</b> Introduction to physiology, Homeostasis, Transport Across cell membrane	3
2	<b>Blood - Composition, properties and functions of Blood,</b> Haemopoiesis , Haemogram (RBC, WBC, Platelet count, Hb Concentrations), Blood Groups - ABO and RH grouping, Coagulations & Anticoagulants, Anaemias: Causes, effects & treatment, Body Fluid: Compartments, Composition, Immunity – Lymphoid tissue	10
3	<b>Cardio vascular system</b> - Introduction, general organization, functions & importance of CVS , Structure of heart, properties of cardiac muscle, Junctional tissues of heart & their functions, Origin & spread of Cardiac Impulse, cardiac pacemaker, Cardiac cycle & E C G, Heart Rate & its regulation, Cardiac output ,Blood Pressure definition & normal values, Physiological needs & variation, regulation of BP	10
4	<b>Digestive system</b> - General Introduction, organization, innervations & blood supply of Digestive system, Composition and functions of all Digestive juices ,Movements of Digestive System (Intestine), Digestion & Absorption of Carbohydrate, Proteins & Fats	6
5	<b>Respiratory System</b> -Physiologic anatomy, functions of respiratory system, non respiratory functions of lung, Mechanism of respiration, Lung Volumes & capacities, Transport of Respiratory GasesO <sub>2</sub> , Transport of Respiratory Gases CO <sub>2</sub> , Regulation of Respiration.	10
6	<b>Muscle nerve physiology</b> - Structure of neuron & types, Structure of skeletal Muscle, sarcomere, Neuromuscular junction& Transmission. Excitation & contraction coupling (Mechanism of muscle contraction)	6
<b>Total</b>		<b>45 hrs</b>

**BPA 102 P - Human Physiology Part I (Demonstration)**

Sr. No.	Topics	No. of Hrs.
1	Study of Microscope and its use, Collection of Blood and study of Haemocytometer	60
2	Haemoglobinometry	
3	White Blood Cell count	
4	Red Blood Cell count	
5	Determination of Blood Groups	
6	Leishman's staining and Differential WBC Count	
7	Determination of Bleeding Time, Determination of Clotting Time	
8	Pulse & Blood Pressure Recording, Auscultation for Heart Sounds	
9	Artificial Respiration –Demonstration, Spirometry-Demonstration	
<b>Total</b>		<b>60 hrs</b>

**Textbooks**

1. Basics of medical Physiology –D Venkatesh and H.H Sudhakar, 3<sup>rd</sup> edition.
2. Principles of Physiology – DevasisPramanik, 5<sup>th</sup> edition.
3. Human Physiology for BDS –Dr A.K. Jain, 5<sup>th</sup> edition.
4. Textbook of human Physiology for dental students-Indukhurana 2<sup>nd</sup> edition.
5. Essentials of medical Physiology for dental students –Sembulingum.

**Reference books**

1. Textbook of Medical Physiology, Guyton , 2<sup>nd</sup> South Asia Edition.
2. Textbook of Physiology Volume I & II (for MBBS) – Dr. A. K. Jain.
3. Comprehensive textbook of Medical Physiology Volume I & II – Dr. G. K. Pal.

<b>Name of the Programme</b>	<b>B.Sc. Physician Assistant in Emergency &amp; Trauma Care</b>
<b>Name of the Course</b>	<b>General Biochemistry &amp; Nutrition</b>
<b>Course Code</b>	<b>BPA 103 L</b>

<b>Teaching Objective</b>	<p>At the end of the course, the student demonstrates his knowledge and understanding on:</p> <ul style="list-style-type: none"> <li>• Structure, function and interrelationship of biomolecules and consequences of deviation from normal.</li> <li>• Integration of the various aspects of metabolism, and their regulatory pathways.</li> <li>• Principles of various conventional and specialized laboratory investigations and instrumentation, analysis and interpretation of a given data.</li> <li>• to diagnose various nutritional deficiencies</li> <li>• Identify condition and plan for diet</li> <li>• Provide health education base on the client deficiencies</li> </ul>
<b>Learning Outcomes</b>	<ul style="list-style-type: none"> <li>• Define “biochemistry.”</li> <li>• Identify the five classes of polymeric biomolecules and their monomeric building blocks.</li> <li>• Explain the specificity of enzymes (biochemical catalysts), and the chemistry involved in enzyme action.</li> <li>• Explain how the metabolism of glucose leads ultimately to the generation of large quantities of ATP.</li> <li>• Describe how fats and amino acids are metabolized, and explain how they can be used for fuel.</li> <li>• Describe the structure of DNA, and explain how it carries genetic information in its base sequence.</li> <li>• Describe DNA replication.</li> <li>• Describe RNA and protein synthesis.</li> <li>• Explain how protein synthesis can be controlled at the level of transcription and translation.</li> <li>• Summarize what is currently known about the biochemical basis of cancer.</li> </ul>



Sr. No.	Topics	No. of Hrs.
1	Introduction and scope of biochemistry	1
2	<p><b>Chemistry of carbohydrates, proteins, lipids and nucleic acid–</b>  <b>Chemistry of Carbohydrates:</b> Definition, Functions, Properties, Outline of classification with eg.(Definition of Monosaccharides, Disaccharides, Polysaccharides and their examples).  <b>Chemistry of Proteins:</b>Amino acids (total number of amino acids, essential and non essential amino acids) .Definition, Classification of Proteins Structural organisation of protein, Denaturation of Proteins.  <b>Chemistry of Lipids:</b> Definition, functions, Classification (Simple Lipids, Compound Lipids, Derived Lipids.) Essential Fatty Acids.  <b>Chemistry of Nucleic acid:</b>Nucleosides and Nucleotides, Watson and Crick model of DNA, RNA- it's type along with functions</p>	12
3	<b>Elementary knowledge of enzymes</b> - Classification, mechanism of enzyme action, Factors affecting activity of enzymes, enzyme specificity, Enzyme inhibition, Isoenzymes and their diagnostic importance.	8
4	<b>Biological oxidation</b> - Brief concept of biological oxidation: Definition of Oxidative phosphorylation Electron transport chain. Inhibitors and Uncouplers briefly	5
5	<p><b>Metabolism of Carbohydrate:</b>Glycolysis, TCA cycle, Definition and significance of glycogenesis and glycogenolysis. Definition and significance of HMP shunt, definition and significance of gluconeogenesis. Regulation of blood Glucose level, Diabetes Mellitus, Glycosuria.Glucose Tolerance Test.  <b>Metabolism of Proteins:</b> Transamination, Transmethylation reactions. Urea cycle, Functions of glycine, tyrosine, phenylalanine, tryptophan and Sulphur containing aminoacids.  <b>Metabolism of Lipid:</b>Outline of beta oxidation with energetic, Ketone bodies (Enumerate) and its importance. Functions of cholesterol and its biomedical significance. Lipid profile and its diagnostic importance. Fatty liver, lipotropic factor, atherosclerosis.  <b>Metabolism of Nucleic acid:</b>Purine catabolism ( Formation of uric acid), Gout</p>	14
6	<p><b>Vitamins and Minerals-</b> RDA, Sources, functions and deficiency manifestations of Fat soluble vitamins.  RDA, sources, functions and deficiency manifestations of Water soluble vitamins.  RDA, Sources, functions and deficiency manifestations of Calcium, Phosphorous, Iron, Iodine</p>	5
7	<b>Principle and applications of :</b> Colorimeters, pH Meter	5
8	<b>Pre examination Skills</b> - Collection and preservation of samples (Anticoagulants), transportation & separation of biological specimens, Sample rejection criteria, Disposal of biological Waste materials.	5
9	<b>Nutrition:</b> History of Nutrition, Nutrition as a science, Food groups, RDA, Balanced diet, diet planning, Assessment of nutritional status, <b>Energy:</b> Units of energy, Measurements of energy and value of food, Energy expenditure, Total energy/calorie requirement for different age groups and diseases, Satiety value, Energy imbalance- obesity, starvation, Limitations of the daily food guide, Role of essential nutrients in the balanced diet	5
<b>Total</b>		<b>60 hrs</b>

**BPA 103 P – General Biochemistry (Demonstration)**

Sr. No.	Topics	No. of Hrs
1	Introduction to Personnel protective equipments used in laboratory and their importance (LCD)	60
2	Handling of colorimeters – operation and maintenance (LCD)	
3	Serum electrolytes measurement (only demo)	
4	Demonstration of semi automated / fully automated blood analyser	
5	Demonstration of tests for carbohydrates (Monosacchrides, disaccharides and polysaccharides)	
6	Precipitation Reactions of protein (only demonstration)	
7	Test on bile salts (only demonstration)	
8	Tests on Normal constituents of Urin (only demo)	
9	Tests on Abnormal constituents of Urin (only demo)	
<b>Total</b>		<b>60 hrs</b>

**Textbooks:**

1. Textbook of Medical Laboratory Technology, Volume 1, 3<sup>rd</sup> Edition by PrafulGhodkar
2. Textbook of Medical Laboratory Technology, Volume 2, 3<sup>rd</sup> Edition by PrafulGhodkar
3. Medical Laboratory Technology (Volume 1): Procedure Manual for Routine Diagnostic, Kanai Mukharjee
4. Medical Laboratory Technology (Volume 2): Procedure Manual for Routine Diagnostic, Kanai Mukharjee
5. Medical Laboratory Technology (Volume 3): Procedure Manual for Routine Diagnostic, Kanai Mukharjee
6. Essentials of Biochemistry, Second Edition, Dr.( Prof) Satyanarayana
7. Essentials of Biochemistry, 2<sup>nd</sup> Edition, Dr. PankajaNaik
8. Principles and Techniques of Biochemistry and Molecular Biology, 5<sup>Th</sup> Edition, Wilson &Walker

**Reference books:**

1. An Introduction to Chemistry, 8<sup>th</sup> Edition by Mark Bishop
2. Clinical Chemistry made easy, 1<sup>st</sup>Eidtion by Hughes
3. Tietz Fundamentals of Clinical Chemistry , 7<sup>th</sup> Edition by Carl Burtis

<b>Name of the Programme</b>	<b>B.Sc. Physician Assistant in Emergency &amp; Trauma Care</b>
<b>Name of the Course</b>	<b>Introduction to National Health Care System (Multidisciplinary/Interdisciplinary)</b>
<b>Course Code</b>	<b>BPA 104 L</b>

<b>Teaching Objective</b>	<ul style="list-style-type: none"> <li>To teach the measures of the health services and high-quality health care</li> <li>To understand whether the health care delivery system is providing high-quality health care and whether quality is changing over time.</li> <li>To provide to National Health Programme- Background objectives, action plan, targets, operations, in various National Health Programme.</li> <li>To introduce the AYUSH System of medicines.</li> </ul>
<b>Learning Outcomes</b>	<ul style="list-style-type: none"> <li>The course provides the students a basic insight into the main features of Indian health care delivery system and how it compares with the other systems of the world.</li> </ul>

<b>Sr. No.</b>	<b>Topics</b>	<b>No. of Hrs.</b>
1	<b>Introduction to healthcare delivery system</b> - Healthcare delivery system in India at primary, secondary and tertiary care; Community participation in healthcare delivery system; Health system in developed countries; Private / Govt Sector; National Health Mission; National Health Policy; Issues in Health Care Delivery System in India	10
2	<b>National Health Programme-</b> Background objectives, action plan, targets, operations, achievements and constraints in various National Health Programme.	8
3	<b>Introduction to AYUSH system of medicine</b> - Introduction to Ayurveda; Yoga and Naturopathy; Unani; Siddha; Homeopathy; Need for integration of various system of medicine	8
4	<b>Health Scenario of India-</b> past, present and future	4
5	<b>Demography &amp; Vital Statistics-</b> Demography – its concept; Census & its impact on health policy	5
6	<b>Epidemiology</b> - Principles of Epidemiology; Natural History of disease; Methods of Epidemiological studies; Epidemiology of communicable & non-communicable diseases, disease, transmission, host defense immunizing agents, cold chain, immunization, disease, monitoring and surveillance.	10
<b>Total</b>		<b>45 hrs</b>

**Books:**

1. National Health Programs Of India National Policies and Legislations Related to Health: 1 J. Kishore (Author)
2. A Dictionary of Public Health Paperback by J Kishor
3. Health System in India: Crisis & Alternatives , National Coordination Committee, Jan Swasthya Abhiyan
4. In search In Search of the Perfect Health System
5. Central Bureau of Health Intelligence (1998). Health Information of India, Ministry of Health and Family Welfare, New Delhi.
6. Goyal R. C. (1993). Handbook of Hospital Personal Management, Prentice Hall of India, New Delhi, 17–41. Ministry of Health and Family Welfare (1984). National Health Policy, Annual Report (1983–4), Government of India, New Delhi
7. Historical Development of Health Care in India, Dr. Syed Amin Tabish,
8. cultural Competence in Health Care by Wen-Shing Tseng (Author), Jon Streltzer (Author)
9. Do We Care: India's Health System by K. Sujatha Rao (Author)

**BPA 105 P - Community Orientation & Clinical Visit (including related practical's to the parent course) (Total -120 hrs.)**

**ABILITY ENHANCEMENT ELECTIVE COURSE**

<b>Name of the Programme</b>	<b>B.Sc. Physician Assistant in Emergency &amp; Trauma Care</b>
<b>Name of the Course</b>	<b>English and Communication Skills</b>
<b>Course Code</b>	<b>AEC 001 L</b>

<b>Teaching Objective</b>	<ul style="list-style-type: none"> <li>This course deals with essential functional English aspects of the of communication skills essential for the health care professionals.</li> <li>To train the students in oral presentations, expository writing, logical organization and Structural support.</li> </ul>
<b>Learning Outcomes</b>	<ul style="list-style-type: none"> <li>Able to express better.</li> <li>Grow personally and professionally and Develop confidence in every field</li> </ul>

<b>Sr. No.</b>	<b>Topics</b>	<b>No. of Hrs.</b>
1	<b>Basics of Grammar</b> - Vocabulary, Synonyms, Antonyms, Prefix and Suffix, Homonyms, Analogies and Portmanteau words	10
2	<b>Basics of Grammar – Part II</b> - Active, Passive, Direct and Indirect speech, Prepositions, Conjunctions and Euphemisms	10
3	<b>Writing Skills</b> - Letter Writing, Email, Essay, Articles, Memos, one word substitutes, note making and Comprehension	5
4	Writing and Reading, Summary writing, Creative writing, news paper reading	5
5	Practical Exercise, Formal speech, Phonetics, semantics and pronunciation	5
6	<b>Introduction</b> to communication skills - Communication process, Elements of communication, Barriers of communication and how to overcome them, Nuances for communicating with patients and their attenders in hospitals	6
7	<b>Speaking</b> - Importance of speaking efficiently, Voice culture, Preparation of speech. Secrets of good delivery, Audience psychology, handling , Presentation skills, Individual feedback for each student, Conference/Interview technique	5
8	<b>Listening</b> - Importance of listening , Self assessment, Action plan execution, Barriers in listening, Good and persuasive listening	5
9	<b>Reading</b> - What is efficient and fast reading , Awareness of existing reading habits, Tested techniques for improving speed, Improving concentration and comprehension through systematic study	5
10	<b>Non Verbal Communication</b> - Basics of non-verbal communication, Rapport building skills using neuro- linguistic programming (NLP), Communication in Optometry practice	4
<b>Total</b>		<b>60 hrs</b>

**Text books:**

1. Graham Lock, Functional English Grammar: Introduction to second Language Teachers. Cambridge University Press, New York, 1996.
2. Gwen Van Servellen. Communication for Health care professionals: Concepts, practice and evidence, Jones & Bartlett Publications, USA, 2009

<b>Name of the Programme</b>	<b>B.Sc. Physician Assistant in Emergency &amp; Trauma Care</b>
<b>Name of the Course</b>	<b>Environmental Sciences</b>
<b>Course Code</b>	<b>AEC 002 L</b>

<b>Teaching Objective</b>	<ul style="list-style-type: none"> <li>To understand and define terminology commonly used in environmental science</li> <li>To teach students to list common and adverse human impacts on biotic communities, soil, water, and air Quality.</li> <li>To understand the processes that govern the interactions of organisms with the biotic and abiotic.</li> <li>Understand the relationship between people and the environment; Differentiate between key ecological terms and concepts</li> </ul>
<b>Learning Outcomes</b>	<ul style="list-style-type: none"> <li>Current environmental issues and highlight the importance of adopting an interdisciplinary approach.</li> <li>Sample an ecosystem to determine population density and distribution.</li> <li>Create food webs and analyse possible disruption of feeding relationships.</li> </ul>

<b>Sr. No.</b>	<b>Topics</b>	<b>No. of Hrs.</b>
1	<b>Components of Environment</b> – Hydrosphere, lithosphere, atmosphere and biosphere – definitions with examples; Interaction of man and environment;	8
2	<b>Ecosystem</b> : Basic concepts, components of ecosystem, Tropic levels, food chains and food webs, Ecological pyramids, ecosystem functions, Energy flow in ecological systems, Characteristics of terrestrial fresh water and marine ecosystems,	8
3	<b>Global Environmental Problems</b> – Green House Effect, Acid rain, El Nino, Ozone depletion, deforestation, desertification, salination, biodiversity loss; chemical and radiation hazards.	8
4	<b>Environmental pollution and degradation</b> – Pollution of air, water and land with reference to their causes, nature of pollutions, impact and control strategies; perspectives of pollution in urban, industrial and rural areas. Habitat Pollution by Chlorinated Hydrocarbons (DDT, PCBs, Dioxin etc, Endocrine disrupting chemicals, Nutrient pollution.	8
5	<b>Environmental Management</b> – Concept of health and sanitation, environmental diseases – infectious (water and air borne) and pollution related, spread and control of these diseases, health hazards due to pesticide and metal pollution, waste treatment, solid waste management, environmental standards and quality monitoring.	10
6	<b>Environmental Protection Act</b> – Environmental Laws, national movements, environmental ethics – holistic approach of environmental protection and conservation, IUCN – role in environmental protection. Concept with reference to UN – declaration, aim and objectives of human right policies with reference to India, recent north-south debate on the priorities of implementation, Environmental Protection Agency (EPA)	10
7	<b>Bioremediation</b> – Oil spills, Wastewater treatment, chemical degradation, heavy Metals.	8
<b>Total</b>		<b>60 hrs</b>



**Books:**

1. Carson, R. 2002. *Silent Spring*. Houghton Mifflin Harcourt.
2. Gadgil, M., & Guha, R. 1993. *This Fissured Land: An Ecological History of India*. Univ. of California Press.
3. Gleeson, B. and Low, N. (eds.) 1999. *Global Ethics and Environment*, London, Routledge.
4. Gleick, P. H. 1993. *Water in Crisis*. Pacific Institute for Studies in Dev., Environment & Security. Stockholm Env. Institute, Oxford Univ. Press.
5. Groom, Martha J., Gary K. Meffe, and Carl Ronald Carroll. *Principles of Conservation Biology*. Sunderland: Sinauer Associates, 2006.
6. Grumbine, R. Edward, and Pandit, M.K. 2013. Threats from India's Himalaya dams. *Science*, 339: 36-37.
7. McCully, P. 1996. *Rivers no more: the environmental effects of dams* (pp. 29-64). Zed Books.
8. McNeill, John R. 2000. *Something New Under the Sun: An Environmental History of the Twentieth Century*.
9. Odum, E.P., Odum, H.T. & Andrews, J. 1971. *Fundamentals of Ecology*. Philadelphia: Saunders.
10. Pepper, I.L., Gerba, C.P. & Brusseau, M.L. 2011. *Environmental and Pollution Science*. Academic Press.
11. Rao, M.N. & Datta, A.K. 1987. *Waste Water Treatment*. Oxford and IBH Publishing Co. Pvt. Ltd.
12. Raven, P.H., Hassenzahl, D.M. & Berg, L.R. 2012. *Environment*. 8th edition. John Wiley & Sons.
13. Rosencranz, A., Divan, S., & Noble, M. L. 2001. *Environmental law and policy in India*. Tripathi 1992.
14. Sengupta, R. 2003. *Ecology and economics: An approach to sustainable development*. OUP.
15. Singh, J.S., Singh, S.P. and Gupta, S.R. 2014. *Ecology, Environmental Science and Conservation*. S. Chand Publishing, New Delhi.
16. Sodhi, N.S., Gibson, L. & Raven, P.H. (eds). 2013. *Conservation Biology: Voices from the Tropics*. John Wiley & Sons.
17. Thapar, V. 1998. *Land of the Tiger: A Natural History of the Indian Subcontinent*.
18. Warren, C. E. 1971. *Biology and Water Pollution Control*. WB Saunders.
19. Wilson, E. O. 2006. *The Creation: An appeal to save life on earth*. New York: Norton.
20. World Commission on Environment and Development. 1987. *Our Common Future*. Oxford University Press

# FIRST YEAR

## B.Sc. Physician Assistant in Emergency & Trauma Care

### SEMESTER- II

Code No.	Core Subjects
<b>Theory</b>	
BPA 106 L	Human Anatomy Part II
BPA 107 L	Human Physiology Part II
BPA 108 L	General Microbiology
BPA 109 L	Basic Pathology & Hematology
BPA 110 L	Introduction to Quality and Patient safety (Multidisciplinary/Interdisciplinary)
<b>Practical</b>	
BPA 106 P	Human Anatomy Part II
BPA 107 P	Human Physiology Part II
BPA 108 P	General Microbiology
BPA 109 P	Basic Pathology & Hematology
BPA 111 P	Community Orientation & Clinical Visit (Including related practical's to the parent course)
<b>Skill Enhancement Elective Course</b>	
SEC 001 L	Medical Bioethics & IPR
SEC 002 L	Human Rights & Professional Values

<b>Name of the Programme</b>	<b>B.Sc. Physician Assistant in Emergency &amp; Trauma Care</b>
<b>Name of the Course</b>	<b>Human Anatomy- Part II</b>
<b>Course Code</b>	<b>BPA 106 L</b>

<b>Teaching Objective</b>	<ul style="list-style-type: none"> <li>To teach the students the basic anatomy of Reproductive , Lymphatic Endocrine ,Nervous system and Special senses</li> </ul>
<b>Learning Outcomes</b>	<ul style="list-style-type: none"> <li>Demonstrate and understand the basic anatomy of Reproductive and Lymphatic system.</li> <li>Demonstrate and understand the basic anatomy of Endocrine,Nervous system</li> <li>Demonstrate and understand the basic anatomy of Special senses</li> </ul>

<b>Sr. No.</b>	<b>Topics</b>	<b>No. of Hrs.</b>
1	<b>Reproductive system</b> - Male- Testis, Spermatic Cord, Female- Ovaries & Fallopian tube, Uterus	6
2	<b>Lymphatic system</b> - Lymphoid Organs, Lymph node groups- Cervical, Axillary, Inguinal	5
3	<b>Endocrine system</b> - Thyroid, Parathyroid, Adrenal, Pitutary	4
4	<b>Nervous system</b> - Introduction to nervous system(Neuron, ANS, PNS) Meninges, Cerebrum I, Cerebrum II, Cerebellum, Blood supply of Brain, Brain stem, Spinal cord, Cranial and peripheral nerves, CSF & Ventricles	12
5	<b>Sensory system</b> - Eye (Gross anatomy), Ear	3
<b>Total</b>		<b>30 hrs</b>

**BPA 106 P - Human Anatomy Part II (Demonstration)**

Sr. No.	Topics	No. of Hrs.
1	<b>Reproductive system</b> - Male- Testis, Spermatic Cord, Female- Ovaries & Fallopian tube, Uterus	60
2	<b>Lymphatic system</b> - Lymphoid Organs, Lymph node groups- Cervical, Axillary, Inguinal	
3	<b>Endocrine system</b> - Thyroid, Parathyroid, Adrenal, Pitutary	
4	<b>Nervous system</b> - Introduction to nervous system(Neuron, ANS, PNS) Meninges, Cerebrum I, Cerebrum II, Cerebellum, Blood supply of Brain ,Brain stem, Spinal cord, Cranial and peripheral nerves, CSF & Ventricles	
5	<b>Sensory system</b> - Eye (Gross anatomy), Ear	
<b>Total</b>		<b>60 hrs</b>

**Textbooks:**

1. Manipal Manual of Anatomy for Allied Health Sciences courses:Madhyastha S.
2. G.J. Tortora& N.P Anagnostakos: Principles of Anatomy and Physiology
3. B.D. Chaurasia: Handbook of General Anatomy

**Reference books:**

1. B.D. Chaurasia : Volume I-Upper limb & Thorax,  
Volume II- Lower limb, Abdomen & Pelvis  
Volume III- Head, Neck, Face  
Volume IV- Brain-Neuroanatomy
2. Vishram Singh: Textbook of Anatomy Upper limb & Thorax  
Textbook of Anatomy Abdomen & Lower limb  
Textbook of Head neck and Brain
3. Peter L. Williams And Roger Warwick:- Gray's Anatomy - Descriptive and Applied,  
36<sup>th</sup> Ed; Churchill Livingstone.
4. T.S. Ranganathan : Text book of Human Anatomy
5. Inderbirsingh, G P Pal : Human Embryology
6. Textbook of Histology, A practical guide:- J.P Gunasegaran

<b>Name of the Programme</b>	<b>B.Sc. Physician Assistant in Emergency &amp; Trauma Care</b>
<b>Name of the Course</b>	<b>Human Physiology Part II</b>
<b>Course Code</b>	<b>BPA 107 L</b>

<b>Teaching Objective</b>	<ul style="list-style-type: none"> <li>To teach basic physiological concepts related to Renal physiology, Endocrinology &amp; Reproductive physiology, CNS, Special senses</li> </ul>
<b>Learning Outcomes</b>	<ul style="list-style-type: none"> <li>To understand the basic physiological concepts of Renal physiology</li> <li>To understand the basic physiological concepts of Endocrinology &amp; Reproductive physiology</li> <li>To understand the basic physiological concepts of CNS, Special senses</li> </ul>

<b>Sr. No.</b>	<b>Topics</b>	<b>No. of Hrs.</b>
1	<b>Nervous system</b> -Functions of Nervous system , Neuron – Conduction of Impulses, factors affecting, Synapse- transmission, Receptors, Reflexes Ascending tracts, Descending tracts, Functions of various parts of the Brain.Cerebro-Spinal Fluid (CSF): Composition, functions & Circulation, Lumbar Puncture, Autonomic Nervous System (ANS): Functions.	10
2	<b>Special senses</b> - Vision: Structure of Eye, functions of different parts, Refractive errors of Eye and correction, Visual Pathway, Colour vision & tests for colour Blindness, Hearing: Structure and function of ear, Mechanism of Hearing, Tests for Hearing (Deafness)	6
3	<b>Skin</b> - Structure and function, Body temperature, Regulation of Temperature & fever.	4
4	<b>Endocrine System</b> - Short description of various endocrine glands and their functions	2
5	<b>Reproductive systems</b> - Structure & Functions of Reproductive system, Male Reproductive System: spermatogenesis, Testosterone, Female reproductive system: Ovulation, Menstrual cycle, Oogenesis, Tests for Ovulation, Oestrogen & Progesterone , Pregnancy test, Parturition. Contraceptives, Lactation: Composition of Milk, advantages of breast Feeding.	4
6	<b>Excretory System</b> General Introduction, structure & functions of kidney, Renal circulation, Glomerular filtration & tubular reabsorption, Nephron, Juxta Glomerular Apparatus, Mechanism of Urine formation, Micturition, Cystomatogram. Diuretics, Artificial Kidney.	4
<b>Total</b>		<b>30 hrs</b>

**BPA 107 P - Human Physiology Part II –(Demonstration)**

Sr. No.	Topics	No. of Hrs.
1	Recording of body temperature	30
2	Examination of sensory system	
3	Examination of motor system	
4	Examination of Eye	
5	Examination of ear	
<b>Total</b>		<b>30 hrs</b>

**Textbooks:**

1. Basics of medical Physiology –D Venkatesh and H.H Sudhakar, 3<sup>rd</sup> edition.
2. Principles of Physiology – DevasisPramanik, 5<sup>th</sup> edition.
3. Human Physiology for BDS –Dr A.K. Jain, 5<sup>th</sup> edition.
4. Textbook of human Physiology for dental students-Indukhurana 2<sup>nd</sup> edition.
5. Essentials of medical Physiology for dental students –Sembulingum.

**Reference books:**

1. Textbook of Medical Physiology, Guyton , 2<sup>nd</sup> South Asia Edition.
2. Textbook of Physiology Volume I & II (for MBBS) – Dr. A. K. Jain.
3. Comprehensive textbook of Medical Physiology Volume I & II – Dr. G. K. Pal.

<b>Name of the Programme</b>	<b>B.Sc. Physician Assistant in Emergency &amp; Trauma Care</b>
<b>Name of the Course</b>	<b>General Microbiology</b>
<b>Course Code</b>	<b>BPA 108 L</b>

<b>Teaching Objective</b>	<ul style="list-style-type: none"> <li>To introduce basic principles and then applies clinical relevance in four segments of the academic preparation for paramedical: immunology, bacteriology, mycology, and virology. This rigorous course includes many etiological agents responsible for global infectious diseases.</li> </ul>
<b>Learning Outcomes</b>	<ul style="list-style-type: none"> <li>Upon completion, students should be able to demonstrate knowledge of microorganisms and the disease process as well as aseptic and sterile techniques.</li> <li>Perform microbiological laboratory procedures according to appropriate safety standards</li> </ul>

<b>Sr. No.</b>	<b>Topics</b>	<b>No. of Hrs.</b>
1	<b>Concepts and Principles of Microbiology</b> - Historical Perspective, Koch's Postulates, Importance of Microbiology, Microscopy, Classification of Microbes.	4
2	<b>General Characters of Microbes</b> - Morphology, staining methods, Bacterial growth & nutrition, Culture media and culture methods +ABS, Collection of specimen, transport and processing, Antimicrobial mechanism and action, Drug Resistance minimization.	6
3	<b>Sterilization and Disinfection</b> - Concept of sterilization, Disinfection aseptis, Physical methods of Sterilization, Chemical methods (Disinfection), OT Sterlization, Biological waste and Biosafety & Biohazard.	5
4	<b>Infection and Infection Control</b> - Infection, Sources, portal of entry and exit, Standard (Universal) safety Precautions & hand hygiene, Hospital acquired infections & Hospital Infection Control	3
5	<b>Immunity</b> - Types Classification, Antigen, Antibody – Definition and types, Ag-Ab reactions – Types and examples, Procedure of Investigation & Confidentiality, Immunoprophylaris – Types of vaccines, cold chain, Immunization Schedule.	6
6	<b>Systemic Bacteriology (Morphology, diseases caused, specimen collection &amp; lists of laboratory tests)</b> – Introduction, Gram Positive Cocci & Gram Negative Cocci, Enterobacteraece & Gram negative bacilli, Mycobacteria, Anaerobic bacteria & Spirochaetes, Zoonotic diseases, Common Bacterial infections of eye.	7
7	<b>Mycology</b> - Introduction, Classification, outline of lab diagnosis, List of Fungi causing: Common fungal infections of eyes, Superficial Mycoses, Deep mycoses & opportunistic , Fungi.	3
8	<b>Virology</b> - Common Viral infection of eye, Introduction, General Properties, outline of lab diagnosis& Classification, HIV Virus, Hepatitis -B Virus.	4
9	<b>Parasitology</b> – Morphology, Life Cycle & Outline of Lab Diagnosis & Classification, Common parasite infection of eye, Protozoa- E, histolytica, Malarial Parasite, General properties, classification, list of diseases caused by: Cestodes and Trematodes, Intestinal Nematodes& Tissue Nematodes, Vectors.	7
<b>Total</b>		<b>45 hrs</b>

**BPA 108 P - General Microbiology(Demonstration)**

Sr. No.	Topics	No. of Hrs.
1	Concepts and Principles of Microbiology	60
2	General Characters of Microbes	
3	Sterilization and Disinfection	
4	Infection and Infection Control	
5	Immunity	
6	Systemic Bacteriology (Morphology, diseases caused, specimen collection & lists of laboratory test)	
7	Mycology	
8	Virology	
9	Parasitology	
<b>Total</b>		<b>60 hrs</b>

**Text Book:**

1. Text Book of Microbiology for Nursing Students, AnantNarayan Panikar
2. Text Book of Ophthalmology, Khurana

**Reference Book:**

1. Text Book of Microbiology, Baveja.



<b>Name of the Programme</b>	<b>B.Sc. Physician Assistant in Emergency &amp; Trauma Care</b>
<b>Name of the Course</b>	<b>Basic Pathology &amp; Hematology</b>
<b>Course Code</b>	<b>BPA 109 L</b>

<b>Teaching Objective</b>	<ul style="list-style-type: none"> <li>• Understand the importance of clinical information in supporting a timely, accurate pathological diagnosis.</li> <li>• Describe normal and disordered hematopoiesis</li> <li>• Develop implement and monitor a personal continuing education strategy and critically appraise sources of pathology related medical information.</li> <li>• Describe mechanisms of oncogenesis&amp;demonstrate an understanding of genetics and cytogenetics pertaining to hematology</li> </ul>
<b>Learning Outcomes</b>	<ul style="list-style-type: none"> <li>• The student should submit the appropriate tissue sections per protocol to demonstrate the lesion and other clinically-relevant information needed for the final pathologic report</li> <li>• To aid hematology in the reference ranges for hemoglobin, hematocrit, erythrocytes, and leukocytes in infants, children and adult.</li> </ul>

<b>Sr. No.</b>	<b>Topics</b>	<b>No. of Hrs.</b>
1	Introduction to Pathology	1
2	Working and maintenance of instruments	2
3	General principles of Haematology techniques, blood collection, anticoagulants, fixation, processing, routine staining, Haemoglobin, TLC, DLC, Peripheral smear (CBC report), platelet counts, cell counter working	10
4	General principles of Histopathology techniques collection, fixation, processing & routine staining	3
5	General principles of Cytopathology techniques collection, fixation, processing & routine staining	5
6	General principles of Clinical Pathology techniques sample collection, processing for routine test, normal urine & urine examination, urine strip, introductions to body fluids (Distinguish between Transudate and exudate)	10
7	General principles of Blood Bank techniques antigen, antibody, ABO & Rh system	5
8	General principles of Autopsy & Museum	4
9	<b>General Pathology including introduction to :</b> I) Cell Injury (Reversible, Irreversible cell injury) II) Inflammation (Acute inflammation, cells, Chronic inflammation, granuloma and examples III) Circulatory disturbances (Thrombosis, Embolism, Edema- ascetic, pleural, pericardial-effusions, Shock, Allergy, Anaphylaxis-Definition, Morphological features, And distinguishing features) IV) Neoplasia (Definition of Anaplasia, dysplasia, metaplasia and metastasis and difference between benign and malignant lesions)	8

10	<b>Systemic pathology basis and morphology of common disorders like</b> I) Anemia (types-Iron deficiency, megaloblastic, Aplastic-Etiology, Pathogenesis Investigation)- II) Leukemia (Acute and chronic, Peripheral smear), AIDS (Definition, Pathogenesis, Mode of transmission, Two Confirmatory test Tridot, Western blot), Hepatitis (Types, Etiology, Mode of spread) III) Malaria-(Mode of spread IV) Tuberculosis-(Primary and secondary tb, Granuloma formation, Mode of transmission, Organs involved)	8
11	Maintenance and medicolegal importance of records and specimens, Lab information system(LIMS)	3
12	Biomedical Waste, Universal Safety Precaution(Protocol to be followed after -Needle injury, chemical injury)	1
<b>Total</b>		<b>60 hrs</b>

**BPA 109 P – Basic Pathology & Hematology (Demonstration)**

Sr. No.	Topics	No. of Hrs.
1	Working and maintenance of instruments,	60
2	General principles of Haematology techniques, blood collection, anticoagulants, fixation, processing, routine staining, Haemoglobin, TLC, DLC, Peripheral smear (CBC report), platelet counts, cell counter working	
3	General principles of Histopathology techniques collection, fixation, processing & routine staining	
4	General principles of Cytopathology techniques collection, fixation, processing & routine staining	
5	General principles of Clinical Pathology techniques sample collection, processing for routine test, normal urine & urine examination, urine strip, introductions to body fluids (Distinguish between Transudate and exudate)	
6	General principles of Blood Bank techniques antigen, antibody, ABO & Rh system	
7	General principles of Autopsy & Museum	
<b>Total</b>		<b>60 hrs</b>

**Reference Books:**

1. *A Handbook of Medical Laboratory (Lab) Technology: Editor) Second Edition. V.H. Talib (Ed).*
2. *Comprehensive Textbook Of Pathology For Nursing: Pathology Clinical Pathology Genetics. Ak Mandal Shramana Choudhury, Published by Avichal Publishing Compnay | Language English*
3. *Textbook of Medical Laboratory Technology- Praful B. Godkar, Darshan P. Godkar*
4. *Medical Laboratory Technology. Methods and Interpretations – Ramnik Sood (volume 1&2)*
5. *Medical Laboratory technology a procedure manual for routine diagnostic test – vol – I, II, III. Kanai L. Mukharjee Tata Mc graw hill pub. New Delhi.*
6. *Practical Pathology P. Chakraborty Gargi Chakraborty New Central Book Agency, Kolkata.*
7. *Theory & Practice of Histological Techniques John D. Bancroft [et.al.](#) Churchill Livingstone Printed in China.*
8. *Histochemistry in Pathology M.I. Filipe [et.al.](#) Churchill Livingstone, London*
9. *Hand Book of Histopathological & Histochemical Techniques C.F.A. Culling Butterworths Company Ltd. London.*
10. *A Handbook of Medical Laboratory (Lab) Technology. By V.H Talib.*

<b>Name of the Programme</b>	<b>B.Sc. Physician Assistant in Emergency &amp; Trauma Care</b>
<b>Name of the Course</b>	<b>Introduction to Quality and Patient safety</b>
<b>Course Code</b>	<b>BPA 110 L</b>

<b>Teaching Objective</b>	<ul style="list-style-type: none"> <li>• The objective of the course is to help students understand the basic concepts of quality in health Care and develop skills to implement sustainable quality assurance program in the health system.</li> <li>• To understand the basics of emergency care and life support skills.</li> <li>• To Manage an emergency including moving a patient</li> <li>• To help prevent harm to workers, property, the environment and the general public.</li> <li>• To provide a broad understanding of the core subject areas of infection prevention and control.</li> <li>• To provide knowledge on the principles of on-site disaster management</li> </ul>
<b>Learning Outcomes</b>	<ul style="list-style-type: none"> <li>• Upon completion, Students should be able to apply healthcare quality improvement and patient safety principles, concepts, and methods at the micro-, meso-, and macro-system levels.</li> </ul>

<b>Sr. No.</b>	<b>Topics</b>	<b>No. of Hrs.</b>
1	<b>Quality assurance and management</b> – Concepts of Quality of Care, Quality Improvement Approaches, Standards and Norms, Introduction to NABH guidelines	7
2	<b>Basics of emergency care and life support skills</b> - Basic life support (BLS), Vital signs and primary assessment, Basic emergency care – first aid and triage, Ventilations including use of bag-valve-masks (BVMs), Choking, rescue breathing methods, One- and Two-rescuer CPR	7
3	<b>Bio medical waste management and environment safety</b> -Definition of Biomedical Waste, Waste minimization, BMW – Segregation, collection, transportation, treatment and disposal (including color coding), Liquid BMW, Radioactive waste, Metals/ Chemicals / Drug waste, BMW Management & methods of disinfection, Modern technology for handling BMW, Use of Personal protective equipment (PPE), Monitoring & controlling of cross infection (Protective devices)	8
4	<b>Infection prevention and control</b> - Evidence-based infection control principles and practices [such as sterilization, disinfection, effective hand hygiene and use of Personal protective equipment (PPE)], Prevention & control of common healthcare associated infections, Components of an effective infection control program, Guidelines (NABH and JCI) for Hospital Infection Control	8
5	<b>Antibiotic Resistance</b> - History of Antibiotics, How Resistance Happens and Spreads, Types of resistance- Intrinsic, Acquired, Passive, Trends in Drug Resistance, Actions to Fight Resistance, Bacterial persistence, Antibiotic sensitivity, Consequences of antibiotic resistance	8
6	<b>Disaster preparedness and management</b> - Fundamentals of emergency management, Psychological impact management, Resource management, Preparedness and risk reduction, information management, incident command and institutional mechanisms.	7
<b>Total</b>		<b>45 hrs</b>

**Reference Books:**

1. Washington Manual of Patient Safety and Quality Improvement Paperback – 2016 by Fondahn (Author)
2. Understanding Patient Safety, Second Edition by Robert Wachter (Author)
3. Handbook of Healthcare Quality & Patient Safety Author : Girdhar J Gyani, Alexander Thomas
4. Researching Patient Safety and Quality in Healthcare: A Nordic Perspective Karina Aase, Lene Schibevaag
5. Old) Handbook Of Healthcare Quality & Patient Safety by Gyani Girdhar J (Author)
6. Handbook of Healthcare Quality & Patient Safety by .Gyani G J/Thomas A
7. Quality Management in Hospitals by S. K. Jos

**BPA 111 P - Community orientation & clinical visit (including related practicals to the parent course) (Total -120 hrs)**

**SKILL ENHANCEMENT ELECTIVE COURSE**

<b>Name of the Programme</b>	<b>B.Sc. Physician Assistant in Emergency &amp; Trauma Care</b>
<b>Name of the Course</b>	<b>Medical Bioethics &amp; IPR</b>
<b>Course Code</b>	<b>SEC 001 L</b>

<b>Teaching Objective</b>	<ul style="list-style-type: none"> <li>• To introduce the wide range of ethical issues in health care.</li> <li>• To provide basic skills in: A) Approaching ethical issues. B) Analysis and statement of issues. C) Understanding the relevant ethical principles invoked.</li> <li>• Imparting knowledge and skills that will enable students to develop ethical answers to these issues</li> <li>• To acquire acquire specialized knowledge of law and IPR.</li> <li>•The main objective of the IPR is to make the students aware of their rights for the protection of their invention done in their project work.</li> </ul>
<b>Learning Outcomes</b>	<ul style="list-style-type: none"> <li>• Upon successful completion of the course, students will be able to: Recognize what constitutes an ethical concern in health care</li> <li>•Understanding ethical issues in Health care.</li> <li>• Understand better the complexity and multi-dimensionality of medical ethical concerns and uniqueness of each problem.</li> <li>• Capacity to rationally justify your decision</li> <li>• Develop the ability to reason through difficult medical/clinical ethical issues both orally, in the context of a group of their peers, and through written</li> <li>• The students get awareness of acquiring the patent and copyright for their innovative works.</li> <li>•They also get the knowledge of plagiarism in their innovations which can be questioned legally.</li> </ul>

<b>Sr. No.</b>	<b>Topics</b>	<b>No. of Hrs.</b>
1	<b>Introduction to Bioethics</b> Bioethical issues related to Healthcare & medicine .	5
2	<b>Anatomy</b> - Cadaver ethics, Human dignity, PNDD, Disposal of cadaver, Genetic Counselling	7
3	<b>Physiology</b> - Animal ethics, Health policy privacy	7
4	<b>Biochemistry &amp; Pathology</b> - Prudence of investigation confidentiality, Patients bill of rights, Disposal of investigative material, Integrity, Blood transfusion	5
5	<b>Pharmacology</b> - Rational drug prescribing, Clinical trials, Risk minimization, Animal ethics	5
6	<b>Microbiology</b> - Hand wash, Drug resistance minimization, Prudence of investigation confidentiality, Sterilization procedure, Biosafety and bio hazard	5
7	<b>Medicolegal aspects of medical records</b>	3
8	<b>Introduction to Intellectual Property:</b> Concept of Intellectual Property Kinds of Intellectual Property Patents, Copyrights Designs, Trademarks, Geographical Indication, Infringement of IPR, Its protection and Remedies Licensing and its types	8
<b>Total</b>		<b>45 hrs</b>

**Reference Books:**

1. Contemporary issues in bioethics – Beauchamp & Walters (B&W ) 4th edition.
2. Classic philosophical questions by Glouck (8<sup>th</sup> Edition)
3. Case book series and booklets by UNESCO Bioethics Core curriculum 2008
4. Encyclopedia of Bioethics 5 vol set, (2003) ISBN-10: 0028657748
5. Intellectual property rights- Ganguli-Tat McGrawhill. (2001) ISBN-10: 0074638602,
6. Intellectual Property Right- Wattal- Oxford Publication House.(1997) ISBN:0195905024.



<b>Name of the Programme</b>	<b>B.Sc. Physician Assistant in Emergency &amp; Trauma Care</b>
<b>Name of the Course</b>	<b>Human Rights &amp; Professional Values</b>
<b>Course Code</b>	<b>SEC 002 L</b>

<b>Teaching Objective</b>	<ul style="list-style-type: none"> <li>• To understand interaction between society and educational institutions.</li> <li>• To sensitize the citizens so that the norms and values of human rights and duties of education programme are realized.</li> <li>• To encourage research activities.</li> </ul> <p>To encourage research studies concerning the relationship between Human Rights and Duties Education.</p>
<b>Learning Outcomes</b>	<ul style="list-style-type: none"> <li>• This course will aim at making the learners acquire conceptual clarity and develop respect for norms and values of freedom, equality, fraternity and justice.</li> <li>• It will include awareness of civil society organizations and movements promoting human rights.</li> <li>• This will make the students realize the difference between the values of human rights and their duties</li> </ul>

<b>Sr. No.</b>	<b>Topics</b>	<b>No. of Hrs.</b>
1	<b>Background</b> - Introduction, Meaning, Nature and Scope, Development of Human Rights, Theories of Rights, Types of Rights	6
2	<b>Human rights at various level</b> - Human Rights at Global Level UNO, <b>Instruments:</b> U.N. Commission for Human Rights, European Convention on Human Rights.	6
3	<b>Human rights in India</b> - Development of Human Rights in India, Human Rights and the Constitution of India, Protection of Human Rights Act 1993- National Human Rights Commission, State Human Rights Commission, Composition Powers and Functions, National Commission for Minorities, SC/ST and Woman	7
4	<b>Human Rights Violations</b> -Human Rights Violations against Women, Children, Violations against Minorities SC/ST and Trans-genders, Preventive Measures.	6
5	<b>Professional values</b> - Integrity, Objectivity, Professional competence and due care, Confidentiality	6
6	<b>Personal values</b> - ethical or moral values, Attitude and behavior- professional behavior, treating people equally	6
7	<b>Code of conduct</b> - professional accountability and responsibility, misconduct, Cultural issues in the healthcare environment	8
<b>Total</b>		<b>45 hrs</b>

**Reference Books:**

1. Jagannath Mohanty Teaching of Human sRights New Trends and Innovations Deep & Deep Publications Pvt. Ltd. New Delhi2009
2. Ram Ahuja: Violence Against Women Rawat Publications Jewahar Nager Jaipur.1998.
3. Sivagami Parmasivam Human Rights Salem 2008
4. Hingorani R.C.: Human Rights in India: Oxford and IBA New Delhi.

## SECOND YEAR

### B.Sc. Physician Assistant In Emergency and Trauma Care

#### SEMESTER-III

Code No.	Core Subjects
<b>Theory</b>	
BPA 112 L	General Pharmacology
BPA 113 L	Clinical Microbiology
BPA 114 L	Obstetrics and Gynaecology
BPA 115 L	Clinical Medicine - I
PA 116 CP L	PA Directed Clinical Education – 1
<b>Practical</b>	
BPA 113 P	Clinical Microbiology
BPA 114 P	Obstetrics and Gynecology
BPA 115 P	Clinical Medicine - I
<b>Generic Elective Course</b>	
GEC 001 L	Pursuit of Inner Self Excellence (POIS)
GEC 002 L	Organizational Behavior

<b>Name of the Programme</b>	<b>B.Sc. Physician Assistant in Emergency &amp; Trauma Care</b>
<b>Name of the Course</b>	<b>General Pharmacology</b>
<b>Course Code</b>	<b>BPA 112 L</b>

<b>Teaching Objective</b>	To introduce the students to the concepts related basic drugs ,common drugs and classification of drugs acting on human system
<b>Learning Outcomes</b>	Uses of drugs

<b>Sr. No.</b>	<b>Topics</b>	<b>No. of Hrs.</b>
1	<b>Introduction to Pharmacology</b>	3
2	<b>Respiratory System:</b> Classification of Drugs, Common effects and side effects of drugs, Action and interaction of drugs	4
3	<b>Cardiovascular System:</b> Classification of drugs ,Common effects and side effects of drugs ,Action and interaction of drugs	4
4	<b>Nervous System :</b> Classification of drugs, Common effects and side effects of drugs ,Action and interaction of drugs	4
5	<b>Gastrointestinal System :</b> Classification of drugs ,Common effects and side effects of drugs ,Action and interaction of drugs	4
6	<b>Excretory System :</b> Classification of drugs ,Common effects and side effects of drugs ,Action and interaction of drugs	4
7	<b>Endocrine System :</b> Classification of drugs ,Common effects and side effects of drugs,Action and interaction of drugs	4
8	<b>Musculoskeletal System:</b> Classification of drugs ,Common effects and side effects of drugs ,Action and interaction of drugs	4
9	<b>Reproductive System (Male and Female):</b> Classification of drugs,Common effects and side effects of drugs ,Action and interaction of drugs	4
10	Analgesics Drugs, Narcotics Drugs,Sedatives Drugs	10
<b>Total</b>		<b>45 hrs</b>

**Reference:**

K.D. Tripathi

<b>Name of the Programme</b>	<b>B.Sc. Physician Assistant in Emergency &amp; Trauma Care</b>
<b>Name of the Course</b>	<b>Clinical Microbiology</b>
<b>Course Code</b>	<b>BPA 113 L</b>

<b>Teaching Objective</b>	To teach Clinical Microbiology concepts related Microorganism, Bacteria, Viruses
<b>Learning Outcomes</b>	To understand the basic Clinical Microbiology

<b>Sr. No.</b>	<b>Topics</b>	<b>No. of Hrs.</b>
1	Introduction ,Types of Microorganism ,microbial growth	5
2	Sterilization and disinfection in the laboratory ,control of microbial growth	10
3	Antimicrobial method and chemotherapy	5
4	Microbes versus Humans : Disease process ,Pathogenicity ,Virulence ,Immune System	15
5	Introduction ,Types of Microorganism ,microbial growth	10
<b>Total</b>		<b>45 hrs</b>

### BPA 113 P Clinical Microbiology

<b>Sr. No.</b>	<b>Topics</b>	<b>No. of Hrs</b>
1	Concepts and principles of microbiology	30
2	Sterilization and Disinfection	
3	Infection and infection control	
4	Sample and specimen collection	
5	Lists of laboratory test	
6	Concepts and principles of microbiology	
<b>Total</b>		<b>30 hrs</b>

<b>Name of the Programme</b>	<b>B.Sc. Physician Assistant in Emergency &amp; Trauma Care</b>
<b>Name of the Course</b>	<b>Obstetrics and Gynaecology</b>
<b>Course Code</b>	<b>BPA 114 L</b>

<b>Teaching Objective</b>	To introduce basic concepts of Obstetrics and Gynaecology
<b>Learning Outcomes</b>	Understand the importance of Obstetrics and Gynaecology emergencies

<b>Sr. No.</b>	<b>Topics</b>	<b>No. of Hrs.</b>
1	<b>Introduction of Obstetrics and Gynaecology</b>	4
2	<b>Bony pelvis-</b> importance land mark of obstetric significant , fetal skull	3
3	Physiological changes in pregnancy/menopause	3
4	Conception, abortion, gestation trophoblastic diseases	3
5	<b>Vulva</b> –cyst,inflammation , neoplasia,dystrophy	3
6	<b>Vaginal-</b> cytology,infection,inflammation,neoplasia,dystrophy	3
7	<b>Uterus-</b> endometriosis, adenomyosis, hyperplasia,carcinoma	3
8	<b>Cervix-</b> erosion ,infection malignancy	3
9	<b>Infection-</b> STD,genital TB,HIV, TORCH,Vertical transmission of HIV	3
10	<b>Antepartum hemorrhage (placenta previa and abruption placenta, Preeclampsia and Eclampsia</b> (pathophysiology,sign and symptoms, causes,treatment )	8
11	<b>PPH with hypovolemic shockTraumatic PPH</b> (pathophysiology,sign and symptoms, causes,treatment )	8
12	<b>Pulmonary embolism,Amniotic fluid embolism,Trauma related abruption placenta and ruptured uterus</b> ( pathophysiology,sign and symptoms, causes,treatment )	8
13	<b>Septic shock ,Uterine perforation during abortion</b> ( pathophysiology,sign and symptoms, causes,treatment )	8
<b>Total</b>		<b>60 hrs</b>

**BPA 114 P Obstetrics and Gynecology**

<b>Sr. No.</b>	<b>Topics</b>	<b>No. of Hrs.60hrs</b>
1	Identify Obs and Gynac emergencies	<b>60</b>
2	Normal Delivery	
3	Obs and Gynac instruments /sterile technique /instruments	
4	Importance of PAP smear /terminal care	
5	Care of Patients	
<b>Total</b>		<b>60 hrs</b>

<b>Name of the Programme</b>	<b>B.Sc. Physician Assistant in Emergency &amp; Trauma Care</b>
<b>Name of the Course</b>	<b>Clinical Medicine - I</b>
<b>Course Code</b>	<b>BPA 115 L</b>

<b>Teaching Objective</b>	To understand the medical emergencies To manage the emergencies
<b>Learning Outcomes</b>	Students should be able to identify and managing medical emergencies

<b>Sr. No.</b>	<b>Topics</b>	<b>No. of Hrs.</b>
1	<b>Introduction to medical terminology</b> –roots, prefixes ,and suffixes,vocabulary problems-genetics, aging,infection,injury	8
2	<b>Skeletal System</b> Bones and Ligaments –Disorders,Diagnosis-blood and imaging ,and treatments	8
3	<b>Muscular System</b> Skeletal ,smooth and cardiac muscle Disorders Diagnosis-Blood and Imaging and treatment	8
4	<b>Integumentary System</b> Skin ,Hairs and nails-Disorders, Diagnosis-Blood and Imaging and treatment	8
5	<b>Respiratory System</b> Air passage ,Lungs ,Diaphragm-Disorders, Diagnosis-Blood and Imaging and treatment	10
6	<b>Cardiovascular System</b> Heart, Blood vessels –Disorders, Diagnosis-Blood and Imaging and treatment	10
7	<b>Fluid and Electrolyte Disturbances I</b> –Osmolality ,Osmolarity, Tonicity ,Volume regulation and osmoregulation , Assessing volume status ,Disturbances of body fluids,Volume Depletion(Hypovolemia),Volume Expansion (Hypervolemia),Edema	8
<b>Total</b>		<b>60 hrs</b>



**BPA 115 P Clinical Medicine - I**

<b>Sr. No.</b>	<b>Topics</b>	<b>No. of Hrs.60hrs</b>
1	Case Sheet Writing	<b>60</b>
2	Physical Systemic Examination	
3	Assesment and communication to the patients	
4	Vitals Normal and abnormal values and their significance	
5	Procedure –IV cannulation, Ryles Tube Insertion, Foleys Catheterization, Blood Sample Collection, Airway Secure	
6	Blood Transfusion	
7	Introduction to Intensive Care Unit	
<b>Total</b>		<b>60 hrs</b>

**BPA 116 CP Directed Clinical Education – I**

Students will gain additional skills in clinical procedures, interaction with patients and professional personnel. Students will apply knowledge from clinical learning experience under the supervision of a Physician. ( **Total-225 hrs.**)

## GENERIC ELECTIVE COURSE

<b>Name of the Programme</b>	<b>B.Sc. Physician Assistant in Emergency &amp; Trauma Care</b>
<b>Name of the Course</b>	<b>Pursuit of Inner Self Excellence (POIS)</b>
<b>Course Code</b>	<b>GEC 001 L</b>

<b>Teaching Objective</b>	<ul style="list-style-type: none"> <li>• To inculcate moral values in students – Self-Discipline , Time Management, Develop attitude of Service with humility, Empathy, Compassion, brotherhood, Respect for teachers, colleagues &amp; society members.</li> <li>• Develop Effective means of communication &amp; presentation skills in students</li> <li>• To develop wisdom in students for deciding their career based on their areas of interest and inner skills.</li> <li>• Introduce techniques for Relaxation, Meditation &amp; Connecting with innerself.</li> <li>• Rejuvenation Techniques which can be used by students to distress themselves</li> <li>• To improve performance of students during various assignments, projects, elocutions, events, quiz, interviews.</li> </ul>
<b>Learning Outcomes</b>	<ul style="list-style-type: none"> <li>• Students will become self dependent, more decisive and develop intuitive ability for their study and career related matter.</li> <li>• Student's ability to present their ideas will be developed.</li> <li>• Enhanced communication skills, public speaking &amp; improved Presentation ability.</li> <li>• Students will be able to explore their inner potential and inner ability to become a successful researcher or technician &amp; hence become more focused.</li> <li>• Students will observe significant reduction in stress level.</li> <li>• With the development of personal attributes like Empathy, Compassion, Service, Love &amp; brotherhood, students will serve the society and industry in better way with teamwork and thus grow professionally.</li> </ul>

Sr. No.	Topics	No. of Hrs.
1	<b>Spiritual Values for human excellence :</b> The value of human integration; Compassion, universal love and brotherhood (Universal Prayer) ; Heart based living ; Silence and its values, Peace and non-violence in thought, word and deed ; Ancient treasure of values - Shatsampatti , Patanjali'sAshtanga Yoga ,Vedic education - The role of the Acharya , values drawn from various cultures and religious practices - Ubuntu, Buddhism, etc.; Why spirituality? Concept – significance ; Thought culture	10
2	<b>Ways and Means :</b> Correlation between the values and the subjects ;Different teaching techniques to impart value education; Introduction to Brighter Minds initiative; Principles of Communication; Inspiration from the lives of Masters for spiritual values - Role of the living Master	15
3	<b>Integrating spiritual values and life:</b> Relevance of VBSE (Value Based Spiritual Education) in contemporary life ; Significant spiritual values ; Spiritual destiny ; Principles of Self-management; Designing destiny	10
4	<b>Experiencing through the heart for self-transformation (Heartfulness Meditation):</b> Who am I? ; Introduction to Relaxation; Why, what and how HFN Meditation?; Journal writing for Self-Observation ; Why, what and how HFN Rejuvenation (Cleaning)? ; Why, what and how HFN connect to Self (Prayer)?; Pursuit of inner self excellence ; Collective Consciousness-concept of <i>egregore effect</i> ;	10
<b>Total</b>		<b>45 hrs</b>

**Books:**

- The Art of Learning: **A Journey in the Pursuit of Excellence**, Josh Waitzkin, Simon and Schuster, 2007
- Reality at Dawn. By Shri Ram Chandra, Published by ISRC

<b>Name of the Programme</b>	<b>B.Sc. Physician Assistant in Emergency &amp; Trauma Care</b>
<b>Name of the Course</b>	<b>Organizational Behavior</b>
<b>Course Code</b>	<b>GEC 002 L</b>

<b>Teaching Objective</b>	<ul style="list-style-type: none"> <li>• To understand the initial insights into underlying principles and fundamental theories of organizational behaviour.</li> <li>• The Student should develop a sense of what falls under the domain of organizational behaviour.</li> <li>• He should develop an understanding of academic views on the behaviour and motivations of people in organizations and the purposes of organizations.</li> <li>• This course clearly takes an academic and scientific lens with the aim of understanding human behaviour in organizations.</li> </ul>
<b>Learning Outcomes</b>	<ul style="list-style-type: none"> <li>• Describe and apply motivation theories to team and organizational scenarios in order achieve a team's or an organization's goals and objectives.</li> <li>• Explain the effect of personality, attitudes, perceptions and attributions on their own and other's behaviours in team and organizational settings.</li> <li>• Explain types of teams and apply team development, team effectiveness, and group decision making models and techniques.</li> </ul> <p>Analyse and apply leadership theories and better understand their own leadership style.</p>

<b>Sr. No.</b>	<b>Topics</b>	<b>No. of Hrs.</b>
1	Organizational Behavior - Definition - Importance - Historical Background - Fundamental concepts of OB - 21st Century corporate - Different models of OB i.e. autocratic, custodial, supportive	6
2	<b>Organization Structure and Design</b> - Authority and Responsibility Relationships - Delegation of Authority and Decentralization - Interdepartmental Coordination - Emerging Trends in Corporate Structure, Strategy and Culture - Impact of Technology on Organizational design - Mechanistic vs Adoptive Structures – Formal and Informal Organization	8
3	Perception Process - Nature & Importance - Perceptual Selectivity - Perceptual Organization - Social Perception - Impression Management	6
4	Learning - Process of Learning - Principles of Learning - Organizational Reward Systems – Behavioral Management	6
5	Motivation - Motives - Characteristics - Classification of motives - Primary Motives - Secondary motives - Morale - Definition and relationship with productivity – Morale Indicators	6
6	Leadership - Definition - Importance - Leadership Styles - Models and Theories of Leadership Styles	7
7	Conflict Management - Traditional vis-a-vis Modern view of conflict - Constructive and Destructive conflict - Conflict Process - Strategies for encouraging constructive conflict - Strategies for resolving destructive conflict	6
<b>Total</b>		<b>45 hrs</b>

**Books:**

1. Organizational Behavior, 9th Ed. - Stephen Robbins
2. Human Behaviour at work - Davis and Newstorm
3. Organizational Behaviour - Uma Sekaran
4. Organizational Behaviour - Fred Luthans
5. Organizational Behaviour - K.Aswathappa
6. Human Behaviour at Work - Keith Davis
7. Organizational Behaviour - JitS.Chandran
8. Human Relations & Organizational Behaviour - R.S.Dwivedi
9. Organizational Behaviour - McShane

## SECOND YEAR

### B.Sc. Physician Assistant In Emergency and Trauma Care

#### SEMESTER-IV

Code No.	Core Subjects
<b>Theory</b>	
BPA 117 L	General Surgery and Trauma
BPA 118 L	Anesthesiology
BPA 119 L	Peadriatics and Geriatrics
BPA 120 L	Clinical Medicine - II
BPA 121 CP	PA Directed Clinical Education - 2
<b>Practical</b>	
BPA 117 L	General Surgery and Trauma
BPA 118 L	Anesthesiology
BPA 119 L	Peadriatics and Geriatrics
BPA 120 L	Clinical Medicine - II
<b>Ability Enhancement Elective Course</b>	
AEC 003 L	Computer and Applications
AEC 004 L	Biostatistics and Research Methodology

<b>Name of the Programme</b>	<b>B.Sc. Physician Assistant in Emergency &amp; Trauma Care</b>
<b>Name of the Course</b>	<b>General Surgery and Trauma Care</b>
<b>Course Code</b>	<b>BPA 117 L</b>

<b>Teaching Objective</b>	To introduce the basic surgical concepts To teach how to manage surgical and traumatic cases in emergency
<b>Learning Outcomes</b>	Able to handling all surgical instruments ,application of surgical concepts during emergency conditions ,and surgical procedure like suturing, bandaging etc.

<b>Sr. No.</b>	<b>Topics</b>	<b>No. of Hrs.</b>
1	History of surgery ,role of surgeon ,Importance of team work	4
2	<b>Surgical Terminology-</b> Centesis/clasis/desis/ectomy/gram/graph/ize/lysis/meter/metry/opsy/pexy/plasty /RRhaphy/scope/copy/stomy/tomy/tripsy <b>Types of incision and indication-Kochersincision/midline incision/gridionincision/battle incision/lanz incision/paramedian /transverse/rutherfordmarrison incision/pfannestiel</b>	6
3	<b>Sutures</b> -Types, Uses, Indications, <b>Surgical instruments</b> -Types ,Uses ,Cleaning	4
4	<b>Wounds</b> –Definitions Types-open and closed ,Treatment <b>Hemorrhage</b> – Definition,Types,Control of hemorrhage ,Treatment	6
5	<b>Primary survey, Secondary Survey, Glasgow Coma Scale, Revised Trauma Score</b>	4
6	<b>Upper Airway and Chest-</b> ,Disorders,Blunt and Penetrating Trauma,Causes,Sign and Symptoms,Pathophysiology,Treatments	4
7	<b>Head and Maxillofacial Injury-</b> Disorders,blunt and penetrating trauma,Causes ,sign and symptoms,pathophysiology,treatments	4
8	<b>Spine and spinal cord</b> -Disorders ,blunt and penetrating injury,pathophysiology,sign and symptoms,causes,treatments	6
9	<b>Abdomen and Urinary Tract-</b> Disorders,Blunt and Penetrating Trauma,Pathophysiology,Sign and Symptoms,Causes,Treatments	6
10	<b>Limb Injury-</b> Disorders,Blunt and Penetrating Injury,Pathophysiology,Sign and Symptoms,Causes,Treatments	6
11	<b>Chemical incidents/Blast and Gunshot Injury</b> – Definition,sign andsymptoms,Pathophysiology,Treatments	6
12	<b>Burns and scalds</b> - Rule of 9, Treatments	4
<b>Total</b>		<b>60 hrs</b>



**BPA 117 P: General Surgery and Trauma Care**

<b>Sr. No.</b>	<b>Topics</b>	<b>No. of Hrs.</b>
<b>1</b>	Dressings and Bandages	<b>60</b>
<b>2</b>	Wound care	
<b>3</b>	Lifting and transporting injured patients	
<b>4</b>	Spine immobilization	
<b>5</b>	Scoop board ,splinting and slings	
<b>6</b>	Cervical collar ,spine board with strapping	
<b>7</b>	Log roll	
<b>8</b>	Surgical instruments and their sterilization procedure	
<b>9</b>	Suturings	
<b>Total</b>		<b>60 hrs</b>

<b>Name of the Programme</b>	<b>B.Sc. Physician Assistant in Emergency &amp; Trauma Care</b>
<b>Name of the Course</b>	<b>Anesthesiology</b>
<b>Course Code</b>	<b>BPA 118 L</b>

<b>Teaching Objective</b>	<ul style="list-style-type: none"> <li>To introduce the students common equipments and anaesthesia ,to teach aseptic technique, pre and postoperative care of patients and emergency procedure</li> </ul>
<b>Learning Outcomes</b>	<ul style="list-style-type: none"> <li>To understand basic anesthesiology,identify and uses of instruments,describe emergency procedure</li> </ul>

<b>Sr. No.</b>	<b>Topics</b>	<b>No. of Hrs.</b>
1	<b>Common equipments /anesthesiology</b>	3
2	<b>Machines</b> -structures,work , uses ,cleaning ECG,DC defibrillators, Intravenous pumps, Laryngoscope, Ambu bag ,Suction Machine,Spo2 Monitoring ,Temperature Monitoring,BP apparatus- NIBP,IBP, Ventilators-Intensive ,portable,Nebulizer,Medicalgases,Dialysismachine,Infant warmer, and incubator,Ambulance	10
3	Personal cleanliness and aseptic technique/dressing technique/wound care	4
4	Pre and post operative care of patients	5
5	<b>Basic life supports</b> -Adult and peadiatrics	5
6	Safety during CPR training and actual rescue	4
7	Triage and acute trauma life supports	4
8	<b>Emergency procedure</b> -Endotracheal intubation, tracheostomy, central line placements, Ambu Bag ventilation	10
<b>Total</b>		<b>45 hrs</b>

**BPA 118 P: Anaesthesiology**

<b>Sr. No.</b>	<b>Topics</b>	<b>No. of Hrs.</b>
1	Demonstration of all equipments-see the unit II in theory	<b>30</b>
2	Personal cleanliness and aseptic techniques	
3	CPR and Basic life supports –adult and paediatrics	
4	Emergency procedures Endotracheal intubation, tracheostomy, central line placements, Ambu bag ventilation	
<b>Total</b>		<b>30hrs</b>

<b>Name of the Programme</b>	<b>B.Sc. Physician Assistant in Emergency &amp; Trauma Care</b>
<b>Name of the Course</b>	<b>Pediatrics and Geriatrics</b>
<b>Course Code</b>	<b>BPA 119 L</b>

<b>Teaching Objective</b>	To teach basic concepts of paediatrics and geriatrics To teach paediatrics and geriatrics emergencies
<b>Learning Outcomes</b>	To understand the basic concepts of paediatrics and geriatrics To understand paediatrics and geriatrics emergencies

<b>Sr. No.</b>	<b>Topics</b>	<b>No. of Hrs.</b>
1	<b>Pediatrics -</b> Status epileptics, status asthmaticus, acute severe asthma, shock and anaphylaxis, burns, hypertensive emergencies, gastrointestinal bleed, coma in child, congestive heart failure, acute renal failure, genetics-principles of inheritance and diagnosis of genetic disorders-down syndrome, pediatric trauma (pathophysiology, sign and symptoms, causes, treatments)	15
2	<b>Geriatrics-</b> Gerontology, Biology of aging, comprehensive geriatrics assessment, common clinical problem of aging, guidelines of drug therapy in the elderly, infection, dehydration, acute confusional status, osteoporosis, trauma in elderly (Pathophysiology, sign and symptoms, causes, treatments)	15
<b>Total</b>		<b>30 hrs</b>

### BPA 119 P: Pediatrics and Geriatrics

<b>Sr. No.</b>	<b>Topics</b>	<b>No. of Hrs.</b>
1	Pediatrics procedures- IV cannulation, Endotracheal intubation, Foleys catheterization, Ryles tube Insertion, Blood sample collection	<b>30</b>
2	Pediatrics basic life support	
3	Geriatrics basic life support	
4	Pediatrics instruments	
5	Pediatrics and Geriatrics emergencies	
<b>Total</b>		<b>30 hrs</b>

<b>Name of the Programme</b>	<b>B.Sc. Physician Assistant in Emergency &amp; Trauma Care</b>
<b>Name of the Course</b>	<b>Clinical Medicine - II</b>
<b>Course Code</b>	<b>BPA 120 L</b>

<b>Teaching Objective</b>	To understand the medical emergencies To manage emergencies
<b>Learning Outcomes</b>	Students should able to identify and manage medical emergencies

<b>Sr.No.</b>	<b>Topics</b>	<b>No. of Hrs.</b>
1	<b>Immune and lymphatic system</b> -Disorders ,diagnosis-blood and imaging ,treatments	8
2	<b>Digestive system</b> -mouth, throat, stomach, intestine, liver ,pancreas-disorders, diagnosis- blood and imaging, treatments	8
3	<b>Urinary system</b> -kidneys, ureters, bladder, urethra-disorders, diagnosis-blood and imaging and treatment	8
4	<b>Nervous system</b> Brain, spinal cord ,peripheral nerves, sense organs –disorders, diagnosis-blood and imaging ,treatments	10
5	<b>Endocrine system</b> Disorders ,Diagnosis-blood and imaging and treatment	8
6	<b>Reproductive system(Male and Female)</b> Disorders, Diagnosis-blood and imaging ,treatments	8
7	<b>Fluid electrolytes disturbances II</b> -Electrolytes-sodium, potassium, chloride, etc. -Acid base balance -Approach to acid base disorders -Anion gap	10
<b>Total</b>		<b>60 hrs</b>

**BPA 120 P: Clinical Medicine – II**

<b>Sr. No.</b>	<b>Topics</b>	<b>No. of Hrs.</b>
1	Case sheet writing	<b>60</b>
2	Systemic Physical Examination	
3	Blood reports and imaging interpretation like X ray,CT Scan ,MRI,2Decho,usg	
4	Procedure-Endotracheal intubation, central line placement, arterial line ,pleural tapping ,ascetic tapping,intercoastal drainage ,needle thoracotomy	
5	Introduction to Intensive care unit	
<b>Total</b>		<b>60 hrs</b>

**BPA 121 CP Directed Clinical Education – 2**

Students will gain additional skills in clinical procedures, interaction with patients and professional personnel. Students apply knowledge from previous clinical learning experience under the supervision of Physician. **(Total – 225 hrs.)**

**ABILITY ENHANCEMENT ELECTIVE COURSE**

<b>Name of the Programme</b>	<b>B.Sc. Physician Assistant in Emergency &amp; Trauma Care</b>
<b>Name of the Course</b>	<b>Computer and Applications</b>
<b>Course Code</b>	<b>AEC 003 L</b>

<b>Teaching Objective</b>	<ul style="list-style-type: none"> <li>• Learn IT applications in medicine and allied health care field.</li> <li>• Introduction to health informatics.</li> <li>• Understand the theories and practices adopted in Hospital Information Systems in the light of medical standards, medical data formats and recent trends in Hospital Information Systems.</li> </ul>
<b>Learning Outcomes</b>	<ul style="list-style-type: none"> <li>• Discuss about health informatics and different IT applications in allied health care.</li> <li>• Explain the function of Hospital Information Systems</li> <li>• Analyze medical standards</li> </ul>

<b>Sr. No.</b>	<b>Topics</b>	<b>No. of Hrs.</b>
1	Introduction to computer: Introduction, characteristics of computer, block diagram of computer, generations of computer, computer languages.	1
2	Input output devices: Input devices(keyboard, point and draw devices, data scanning devices, digitizer, electronic card reader, voice recognition devices, vision-input devices), output devices(monitors, pointers, plotters, screen image projector, voice response systems).	3
3	Processor and memory: The Central Processing Unit (CPU), main memory.	4
4	Storage Devices: Sequential and direct access devices, magnetic tape, magnetic disk, optical disk, mass storage devices.	3
5	Introduction of windows: History, features, desktop, taskbar, icons on the desktop, operation with folder, creating shortcuts, operation with windows (opening, closing, moving, resizing, minimizing and maximizing, etc.).	5
6	Introduction to MS-Word: introduction, components of a word window, creating, opening and inserting files, editing a document file, page setting and formatting the text, saving the document, spell checking, printing the document file, creating and editing of table, mail merge.	5
7	Introduction to Excel: introduction, about worksheet, entering information, saving workbooks and formatting, printing the worksheet, creating graphs.	5
8	Introduction to power-point: introduction, creating and manipulating presentation, views, formatting and enhancing text, slide with graphs.	5
9	Introduction of Operating System: introduction, operating system concepts, types of operating system.	4

10	Computer networks: introduction, types of network (LAN, MAN, WAN, Internet, Intranet), network topologies (star, ring, bus, mesh, tree, hybrid), components of network.	5
11	Internet and its Applications: definition, brief history, basic services (E-Mail, File Transfer Protocol, telnet, the World Wide Web (WWW)), www browsers, use of the internet.	4
12	Application of Computers in clinical settings.	1
<b>Total</b>		<b>45 hrs</b>

**Text books:**

- (1) Mausner&bahn : Epidemiology-An Introductory text, 2<sup>nd</sup> Ed.,W.B.Saunders Co.
- (2) Richard f. Morton & j. Richard hebd : A study guide to Epidemiology and Biostatistics, 2<sup>nd</sup> Ed., University Park Press, Baltimore.
- (3) Sylvia W Smoller, J Smoller, Biostatistics & Epidemiology A Primer for health and Biomedical professionals, 4<sup>th</sup> edition, Springs, 2015



<b>Name of the Programme</b>	<b>B.Sc. Physician Assistant in Emergency &amp; Trauma Care</b>
<b>Name of the Course</b>	<b>Biostatistics and Research Methodology</b>
<b>Course Code</b>	<b>AEC 004 L</b>

<b>Teaching Objective</b>	<ul style="list-style-type: none"> <li>• To enable students to present, analyze and interpret data.</li> <li>• To enable students to use concepts of probability in business situations.</li> <li>• To enable students to make inferences from samples drawn from large datasets.</li> <li>• To enable students to apply univariate and multivariate statistical techniques.</li> </ul>
<b>Learning Outcomes</b>	<ul style="list-style-type: none"> <li>• To understand the importance &amp; Methodology for research</li> <li>• To learn in detail about sampling, probability and sampling distribution, significance tests correlation and regression, sample size determination, study design and multivariate analysis.</li> </ul>

<b>Sr. No.</b>	<b>Topics</b>	<b>No. of Hrs.</b>
1	Introduction to research methods	5
2	Identifying research problem	5
3	Ethical issues in research	5
4	Research design	5
5	Basic Concepts of Biostatistics	5
6	Types of Data	5
7	Research tools and Data collection methods	5
8	Sampling methods	5
9	Developing a research proposal	5
<b>Total</b>		<b>45 hrs</b>

**Text books:**

- (1) Mausner&bahn : Epidemiology-An Introductory text, 2<sup>nd</sup> Ed.,W.B.Saunders Co.
- (2) Richard f. Morton & j. Richard hebd : A study guide to Epidemiology and Biostatistics, 2<sup>nd</sup> Ed., University Park Press, Baltimore.
- (3) Sylvia W Smoller, J Smoller, Biostatistics & Epidemiology A Primer for health and Biomedical professionals, 4<sup>th</sup> edition, Springs, 2015

# THIRD YEAR

## B.Sc. Physician Assistant in Emergency & Trauma Care

### SEMETER- V

CODE NO	CORE SUBJECT
<b>THEORY</b>	
BPA 122 L	Cardiology
BPA 123 L	Nephrology
BPA 124 L	Pulmonology
BPA 125 CP	PA Directed Clinical Education 3
<b>PRACTICAL</b>	
BPA 122 P	Cardiology
BPA 123 P	Nephrology
BPA 124 P	Pulmonology
<b>Core Elective Course</b>	
CEC 005 L	Basics of Clinical Skill Learning
CEC 006 L	Hospital Operation Management

<b>Name of the Programme</b>	<b>B.Sc. Physician Assistant in Emergency &amp; Trauma Care</b>
<b>Name of the Course</b>	<b>Cardiology</b>
<b>Course Code</b>	<b>BPA 122 L</b>

<b>Teaching Objectives</b>	To introduce the basic cardiology concept To teach how to manage cardiac cases in emergency
<b>Learning Objective</b>	Able to handling all cardiac instrument , Cardiac emergency

<b>Sr No</b>	<b>Topics</b>	<b>No of hours</b>
1	<b>Acute Coronary Syndrome And Coronary Artery disease :-</b> Defination , Management	10
2	<b>Cardiovascular Diseases:-</b> Defination Sign and Symptoms, Pulse, BP, Jvp	4
3	<b>Congenital Heart Disease-</b> Cynotic and Acynotic Heart Disease	4
4	<b>Hypertension-</b> Essential, Malignant, Systemic, Pulmonary	4
5	<b>Arterial Disease-</b> Atherosclerosis-Risk factors, Burgers disease	4
6	<b>Heart Failure-</b> Defination, Sign and symptoms, Treatment	4
7	<b>Cardiac Arrhythmias-</b> Types, Defination, Management	5
8	Cardiomyopathies, Rheumatic heart disease, Peripheral vascular disease, Pulmonary thromboembolism, Cardiac trauma	5
9	<b>Surgery-</b> Cardiac angiography, Cardiac angioplasty, CABG, etc.	5
<b>Total</b>		<b>45 hrs</b>

### **BPA 122 P :- Cardiology**

<b>Sr No.</b>	<b>Topics</b>	<b>No of hours</b>
1	ECG :- Identify and Interpretation	30
2	2D ECHO :- Interpretation	
3	Pacemaker, Holter monitoring	
4	Cardiac Angiography	
5	Cardiac Angioplasty	
6	CABG	
<b>Total</b>		<b>30 hrs</b>

<b>Name of the Programme</b>	<b>B.Sc. Physician Assistant in Emergency &amp; Trauma Care</b>
<b>Name of the Course</b>	<b>Nephrology</b>
<b>Course Code</b>	<b>BPA 123 L</b>

<b>Teaching Objectives</b>	To introduce basic concept in nephrology to students
<b>Learning Objective</b>	Identification and management of emergencies in nephrology

<b>Sr No.</b>	<b>Topics</b>	<b>Hours</b>
1	<b>Basic</b> :- Physiology and anatomy of urinary bladder , Gross and microscopic anatomy of kidney and Nephron, Juxtaglomerular apparatus , blood and nerve supply of kidney , Ureters , Urinary bladder and Urethra	5
2	<b>Renal Hemodynamics and Glomerular Filtration</b> :- Renal function test , urine analysis, Micturition physiology, Glomerular filtration rate	5
3	<b>Clinical Examination of kidney and Urinary System</b> :- Sign and symptoms and investigation , Major manifestation :- Dysuria, Pyuria, Urethral symptoms , Disorders of urine volume , Hematuria, Proteinuria /Edema	5
4	Acute kidney injury, Rapidly progressive renal failure and Chronic Kidney Disease, Nephrotic syndrome, Acute nephritis	5
5	Renal vascular disorders, Renovascular Hypertension	2
6	<b>Urinary Bladder</b> -Cystitis, Carcinoma, Urinary tract tuberculosis, Urolithiasis and obstructive uropathy	3
7	Congenital abnormalities of kidney and urinary system	2
8	Drugs and kidney, renal replacement therapy	3
<b>Total</b>		<b>30 Hrs</b>

### BPA 123 P -Nephrology

<b>Sr No.</b>	<b>Topics</b>	<b>No Of Hrs.</b>
1	HD Catheterization Kidney biopsy	30
2	Dialysis-Machine, Function, Working	
3	Urine Analysis	
<b>Total</b>		<b>30 Hrs</b>

<b>Name of the Programme</b>	<b>B.Sc. Physician Assistant in Emergency &amp; Trauma Care</b>
<b>Name of the Course</b>	<b>Pulmonology</b>
<b>Course Code</b>	<b>BPA 124 L</b>

<b>Teaching Objectives</b>	To introduce about respiratory system and emergencies to the students
<b>Learning Objective</b>	Able to manage respiratory emergencies

<b>Sr No.</b>	<b>Topics</b>	<b>No of Hrs.</b>
1	<b>Upper Airway Disease</b> -Basic respiratory mechanics, Causes and Pathophysiology of Hypoxia and Hypercapnia	3
2	<b>Respiratory Failure</b> -Acute,Chronic,Mechanism,Management	5
3	Allergy and bronchial asthma,chronic obstructive lung disease	4
4	<b>Retrictive/Interstitial lung disease,Pulmonary tuberculosis,Occupational lung disease</b> -Defination, Sign and symptoms ,Management	4
5	<b>Lung Cancer</b> -Primary and Secondary Hemoptysis	3
6	<b>Pneumonia</b> -Defination, Sign and symptoms,Management	5
7	<b>Pleural Disease</b> -Pneumothorax,Pleural Effusion	5
8	Cardiogenic and Noncardiogenic Pulmonary Edema	5
9	<b>Diseases of the Diaphragm and the Chest Wall</b> -Types,Sign symptoms,Management	3
10	<b>Obstructive Lung Disease :-</b> Definition and Management	2
11	<b>Tuberculosis :-</b> Definition and Management	2
12	Foregin bodies in Skin,Eyes,Ear,Nose, Throat, Stomach	2
13	<b>Artificial Respiration</b> -Types,Procedure	2
<b>Total</b>		<b>45 hrs</b>

### **BPA 124 P : Pulmonology**

<b>Sr No.</b>	<b>Topics</b>	<b>No of Hours</b>
1	Oxygen Therapy :- Type , Working	30
2	Ventilator :- Invasive , Non- invasive	
3	HFNC	
4	Intubation :- Endotracheal Intubation Procedure	
5	ABG :-Interpretention	
6	Chest Xray-Interpretention	
7	HRCT -Interpretention	
<b>Total</b>		<b>30 hrs</b>

### **BPA 125 CP Directed Clinical Education – 3**

Students will gain additional skills in clinical procedures, interaction with patients and professional personnel. Students will apply knowledge from clinical learning experience under the supervision of a Physician. (**Total-450 hrs.**)

## CORE ELECTIVE COURSES

<b>Name of the Programme</b>	<b>B.Sc. Physician Assistant in Emergency &amp; Trauma Care</b>
<b>Name of the Course</b>	<b>Basics of Clinical Skills Learning</b>
<b>Course Code</b>	<b>CEC 005 L</b>

<b>Teaching Objective</b>	<ul style="list-style-type: none"> <li>• To Understand the basic ideas on how to check for Vital Signs of the Patient</li> <li>• This course the Student will learn how to handle the patients and their positioning</li> <li>• They will also learn on the Basics of Nasal-Gastric Tube</li> <li>• The Students will learn on Administration of IV, IV and Medication</li> <li>• Also they will know about Cleanliness in the Asepsis</li> </ul>
<b>Learning Outcomes</b>	<ul style="list-style-type: none"> <li>• After successful accomplishment of the course, the students would be able to Measure Vital Signs, do basic physical Examination of the patients, NG tube basics, Administration of Medicines</li> <li>• The students will learn about Asepsis, and the Cleanliness related to asepsis and on mobility of the patients</li> </ul>

<b>Sr. No.</b>	<b>Topics</b>	<b>No. of Hrs.</b>
1	<b>MEASURING VITAL SIGNS:</b> Temperature: Axillaries Temperature, Pulse: Sites of pulse, Measurement, Respiratory, Blood Pressure, Pain: Pain Scale	5
2	<b>PHYSICAL EXAMINATION:</b> Observation, Auscultation(Chest), Palpation, Percussion, History Taking	10
3	<b>FEEDING: ENTRAL FEEDING, NG TUBE:</b> Measurement, Procedure, Care, Removal of Nasal-Gastric Tube, Nasal-Gastric Tube Feeding, and Parenteral Nutrition.	10
4	<b>ADMINISTRATIONS:</b> Oral, Intravenous, Intramuscular, Subcutaneous, Recapping of Syringe, Loading of Drugs, Calculation of Drugs, Venipuncture, IV Infusion, Cannula, Attachment of IV infusion Set, Fluid Collection, Heparin Lock, Maintenance of IV set, Performing Nebulizer Therapy, Inhaler, Oxygen Therapy (Nasal, prongs, nasal Catheter, Venturi Mask, face mask)	10
5	<b>ASEPSIS:</b> Hand wash Techniques,(Medical, Surgical) Universal Precaution, Protecting Equipments: Using Sterile Gloves, Opening a Sterile package and Establishing a Sterile Field, Sterile Dressing Changes, Surgical Attire, Wound Dressing, Suture Removal, Cleaning and Application of Sterile Dressing, Wearing and Removal of personal	5

	protective Equipment	
6	<b>MOBILITY AND SUPPORT:</b> Moving and Positioning, range of Motion exercises (Active & Passive) Assisting for Transfer, Application of Restraints	5
<b>Total</b>		<b>45 hrs</b>



<b>Name of the Programme</b>	<b>B.Sc. Physician Assistant in Emergency &amp; Trauma Care</b>
<b>Name of the Course</b>	<b>Hospital Operation Management</b>
<b>Course Code</b>	<b>CEC 006 L</b>

<b>Teaching Objective</b>	<ul style="list-style-type: none"> <li>• To promote scientific management of hospital and advancement of health care systems so as to make it rational, responsive and cost efficient</li> <li>• To promote the development of high quality of hospital care in the community and the country.</li> <li>• It has to provide a satisfactory environment to the patient and also to the doctors for clinical research.</li> </ul>
<b>Learning Outcomes</b>	<ul style="list-style-type: none"> <li>• Understand and apply resource management concepts (personnel, finance, and material resources) and the processes and strategies needed in specific hospital sectors</li> <li>• Communicate effectively and develop their leadership and teambuilding abilities</li> <li>• Apply modern change management and innovation management concepts to optimize structures</li> <li>• Analyze existing hospital service policies and enhance their alignment within the local and national context</li> </ul>

<b>Sr. No.</b>	<b>Topics</b>	<b>No. of Hrs.</b>
1	<b>MEDICO-LEGAL CASES:</b> Introduction, Laws associated with Medico-Legal Cases, Three Core Contents in Medico-legal cases w.r.t Doctors, Patient & Profession,	5
2	<b>CONSIDERATIONS OF ETHICS:</b> Consent, Confidentiality, Mental Health, End of life and Organ Transportation, Research & Clinical Trials	10
3	<b>HOSPITAL INFORMATION SYSTEM(HIS):</b> Hospital Information System Management, software applications in registration, billing, investigations, reporting, medical records management, Security and ethical challenges	10
4	<b>EQUIPMENT OPERATIONS MANAGEMENT:</b> Hospital equipment repair and maintenance, types of maintenance, job orders, equipment maintenance log books, AMCS	10
5	<b>ROLE OF MEDICAL RECORDS IN HEALTH CARE MANAGEMENT:</b> Computers for Medical records, Developments of computerized medical record information processing system(EMR's), Computer stored (Vs) Manual hand written record, Advantages of EMR (Vs) Manual	10
<b>Total</b>		<b>45 hrs</b>

# THIRD YEAR

## B.Sc. Physician Assistant in Emergency & Trauma Care

### SEMESTER – VI

<b>Code No.</b>	<b>Core Subject</b>
<b>Theory</b>	
BPA 126 L	Neurology
BPA 127 L	Orthopedics
BPA 128 L	Gastroentrology
BPA 129 L	Emergency Medicine
BPA 130 CP	PA Directed Clinical Education 4
<b>Practical</b>	
BPA 126 P	Neurology
BPA 127 P	Orthopedics
BPA 128 P	Gastroentrology
BPA 129 P	Emergency Medicine

<b>Name of the Programme</b>	<b>B.Sc. Physician Assistant in Emergency &amp; Trauma Care</b>
<b>Name of the Course</b>	<b>Neurology</b>
<b>Course Code</b>	<b>BPA 126 L</b>

<b>Teaching objectives</b>	To teach neurological assessment and management to the students
<b>Learning Objective</b>	Able to identify neurological deficiency and management of patients

<b>Sr No.</b>	<b>Topics</b>	<b>No. of hrs</b>
1	<b>Nervous System</b> :- Basic , Neurotransmitters , General principal and common transmitters	1
2	<b>Muscle Protein,Excitation</b> :- Contraction coapling , Injury and repair of nerves and muscles , Work physiology	1
3	<b>Sensory System</b> :- Function organization pf sensory system , Perception of sensory stimuli , Coding , Physiology of pain	1
4	<b>Motor System</b> :-Functional organization of motor system ,Pproperties of reflexes , Brain stem , Stretch , Tendon reflex , Basal ganglia cerebellum and vestibular neck reflexes , Maintenance of equilibrium , Localizing the level of lesion in neurological diseases.	3
5	<b>Visceral and Motivational System</b> :-Autonomic nervous system , Hypothalamus , Limbic system , Emotions	2
6	<b>Neuropathology</b> :- Trauma (Traumatic Brain Injury )	4
7	<b>Inflammatory Disorder</b> :- Pyogenic and tuberculous meningitis , Brain abscess , Tuberculoma	3
8	<b>CSF and its Disturbance</b> :- Cerebral edema raised intracranial pressure	3
9	<b>Cerebrovascular Diseases</b> :- Arthrosclerosis , Thrombosis , Embolism , Aneurysm , Hypoxia, Infraction and hemorrhage	3
10	<b>Neurological Diseases</b> :- Clinical examination of nervous system , Investigation	3
11	<b>Major Manifestation</b> :- Headache , Facial pain , Raised intracranial tension , Dizziness , Syncope , Vertigo	3
12	Disorder of sleep and movement	3
13	Sensory Disturbances(numbness, tingling and sensory loss) ,Acute confusionalstate , Coma and death , Aphasis and focal cerebral disorders , Disturbance of brain stem , Vision and sphincter.	3
14	<b>Headaches</b> :- Migraine , Cluster and seizures	3
15	<b>CerebrovacularDiseases</b> :- Dementia , Meningitis , Encephalitis , Cranial nerve diseases , Spinal cord diseases , Tumours ( primary and secondary ) , Peripheral neuropayjie and demyelinating disorders , Multiple sclerosis , Parkinsons diseases , Extrapyramidal disorders , Cerebellar disorders .	4
16	Motor neuron diseases, Disease of muscles, Neurological manifestation of systemic ,Nutritional and metabolic diseases of the nervous system	3
17	<b>Unconcioussness</b> -Defination, Management	2
<b>Total</b>		<b>45 Hrs</b>

## **BPA 126 P- Neurology**

<b>Sr No.</b>	<b>Topics</b>	<b>No Of Hrs.</b>
1	Neurological Physical Examination	30
2	EEG(Electroencephalogram)	
3	CT SCAN-Interpretention	
4	MRI-Interpritation	
5	EMG :- NCV Test	
<b>Total</b>		<b>30 Hrs</b>

<b>Name of the Programme</b>	<b>B.Sc. Physician Assistant in Emergency &amp; Trauma Care</b>
<b>Name of the Course</b>	<b>Orthopedics</b>
<b>Course Code</b>	<b>BPA 127 L</b>

<b>Teaching Objectives</b>	To introduce about fractures, dislocations etc. and orthopedic emergencies to the students
<b>Learning Objective</b>	Able to handling orthopedics emergencies and immediate management

<b>Sr No.</b>	<b>Topics</b>	<b>No of Hours</b>
1	<b>Ortho</b> :- Basic , Ossification of bone of the limbs for age determination , X – rays of bone	3
2	<b>Fracture</b> :- Definition , Classification , Management , Fracture healing	1
3	<b>Dislocation</b> :- Definition , Classification , Management	1
4	<b>Muscle Injury</b> :- Definition , Management	1
5	<b>Axial – Spine</b> :-Fracture , Dislocation , Management	4
6	<b>Shoulder</b> :- Fracture , Dislocation , Management	4
7	<b>Pelvic</b> :- Fracture , Dislocation ,Management	4
8	<b>Upper Limb</b> :-Fracture , Dislocation ,Management	2
9	<b>Lower Limb</b> :- Fracture , Dislocation ,Management	3
10	Compartment Syndrome	3
11	<b>Tumor Arthritis</b> :-Rheumatoid , Osteoarthritis , Mkvlosing spondylitis	4
<b>Total</b>		<b>30 hrs</b>

### **BPA 127 P-Orthopedics**

<b>Sr No .</b>	<b>Topics</b>	<b>No. of Hours</b>
1	Application of slab, cast, plaster	30
2	Spine Immobilization	
3	Scoop board, Sling, Cervical collar	
4	Spine board with strapping	
5	Procedure to perform log roll and used of performing a log roll	
6	Splints :- Types , Application , Complication	
7	X – Ray :- Identification and Interpretation	
<b>Total</b>		<b>30 hrs</b>

<b>Name of the Programme</b>	<b>B.Sc. Physician Assistant in Emergency &amp; Trauma Care</b>
<b>Name of the Course</b>	<b>Gastroenterology</b>
<b>Course Code</b>	<b>BPA 128 L</b>

<b>Teaching Objectives</b>	To teach Gastroenterological concepts and procedures in emergency
<b>Learning Objective</b>	Able to prepared for gastroenterological procedure and manage gastroenterological emergencies

<b>Sr No.</b>	<b>Topics</b>	<b>No of hours</b>
1	<b>Clinical Gastroenterology</b> -Basics,Functions,Physiology	2
2	<b>Preventive Gastroenterology</b> -Obesity,Constipation, Diarrhea,Dysentery	2
3	<b>Colitis</b> -Defination,Management	3
4	<b>Diverticulitis Disease</b> -Defination,Management	2
5	<b>Haemorrhoids</b> -Defination, Management	3
6	<b>Irritable Bowel Disease</b> -Defination, Management	2
7	<b>GI Disorders</b> -Defination,Management	2
8	<b>GI Bleeding</b> -Management, Defination	3
9	<b>Bowel Obstruction</b> -Management,Defination . Management,	2
10	<b>Pancreatitis</b> -Defination, Management,	2
11	<b>Peptic Perforation Peritonitis</b> -,Defination, Management,	2
12	<b>Small Bowel Obstruction</b> -, Defination, Management,	3
13	<b>Acute Intestinal Obstruction</b> -, Defination, Management,	3
14	<b>Blunt Abdominal Trauma</b> -Defination, Management	4
15	<b>Penetrating Abdominal Trauma</b> -Defination,Management	4
16	<b>Peptic Ulcer</b> :- Definition , Management	2
17	<b>Appendicitis / Cholecystitis / Hepatitis</b> :- Definition , Management	2
18	<b>Inflammatory Bowel Disease</b> :- Defination , Management	2
<b>Total</b>		<b>45 Hrs</b>

## BPA 128 P - Gastroenterology

Sr No.	Topics	No Of Hrs
1	Endoscopy-Preparation of sterile field,preparation of instruments,oral anrsthetics agents,positioning of pateints,patient care before and after procedure,during and after endoscopy procedure,special precaution in handling sepsis,hepatitis B,HCV,HIV,cleaning and disinfection, Ultrasound , Abdominal X ray	30
<b>Total</b>		<b>30 Hrs</b>

<b>Name of the programme</b>	<b>B.Sc. Physician Assistant in Emergency &amp; Trauma Care</b>
<b>Name of the course</b>	<b>Emergency Medicine</b>
<b>Course code</b>	<b>BPA 129 L</b>

<b>Teaching Objectives</b>	To introduce emergencies in casualty and ICU to the students
<b>Learning Objective</b>	Able to identify and manage emergencies

<b>Sr No.</b>	<b>Topics</b>	<b>No Of Hrs</b>
1	Prehospital Emergency Management	5
2	<b>Disaster Management</b> -Introduction,Types, Causes, Preparedness	5
3	<b>Resuscitation</b> -Shocks(Types,Causes,Management),Diabetic mellitus, Sudden Cardiac Deat,Fluid and Blood Resuscitation in Traumatic Shock, Acid Base Disorders,Blood Gases, Fluid and Electrolytes, Procedural sedation, Chronic Pain	10
4	<b>Trauma</b> -Primary survey, Secondary survey, BLS, ATLS,Drowning, Glasgow coma scale, Revised trauma score,Assualts	10
5	<b>Toxicology</b> -Poisoning( Organophosphrous ,Sedatives, etc)	5
6	<b>Environmental</b> -Snake Bite,Scorpion Bite,Honey bee sting,Heat stroke ,Heat exhaustion ,Electrical and lightening injuries,Frost Bite,Effects of heat,Cramps	10
7	Transportation of patients	5
8	Sepsis,Rebies	5
9	Legal aspects in emergency,Medico legal cases and documentation	5
<b>Total</b>		<b>60 Hrs</b>

### **BPA 129 P-Emergency Medicine**

<b>Sr No.</b>	<b>Topics</b>	<b>No Of Hrs.</b>
1	Identify and manage emergencies cases in casualty	30
2	Identify and manage emergencies in ICU	
<b>Total</b>		<b>30 Hrs</b>

### **BPA 130 CP Directed Clinical Education – 4**

Students will gain additional skills in clinical procedures, interaction with patients and professional personnel. Students will apply knowledge from clinical learning experience under the supervision of a Physician. **(Total-360 hrs.)**



# **INTERNSHIP**

## **Guidelines:**

1. The internship shall commence after the student has completed and passed all subjects up to VI semesters.
2. The internship is compulsory.
3. The duration of the internship shall be one year.
4. The degree of Bachelor in Allied Health Sciences shall be awarded after the satisfactory completion of the internship.

## **Evaluation of Internees:**

### **Formative Evaluation:**

Day to day assessment of the internees during their internship postings should be done by the Head of the Department/Faculty assigned. The objective is that all the interns must acquire necessary minimum skills required for carrying out day to day professional work competently. This can be achieved by maintaining Records/Log Book by all internees. This will not only provide a demonstrable evidence of the processes of training but more importantly of the internee's own acquisition of competence as related to performance.

### **Summative Evaluation:**

It shall be based on the observation of the Sr. Technical staff / Faculty of the department concerned and Record / Log book maintained by the interns. Based on these two evaluations, the Head of the Department shall issue certificate of satisfactory completion of training, following which the university shall award the degree or declare him/her eligible for it.

To implement the project work uniformly for all the specialties in view of the curriculum and training to be acceptable internationally and the students to get opportunity for higher studies and employment.

## **Internship Programme:**

- 05 days for orientation Programme
- 60 days in Emergency Medicine
- 60 days in Surgery and Trauma
- 30 day in Anaesthesiology
- 15 days in Orthopedics
- 30 in General Medicine
- 15 days in Cardiology
- 15 days in Pulmonology
- 15 days in Nephrology
- 30 days in Neurology
- 15 days in Gastroentrology
- 15 days in Obstetrics and Gynaecology
- 30 days in Peadiatrics and Geriatric
- 30 days Elective Posting

**Internal Examination Pattern UG Second & Third Year (Semester III to VI)  
(Approved in BOM 55/2018 dated, 27/11/2018)**

**Internal examination pattern UG (Second & Third Year) (Theory) : 20 marks**

Question type	No. of questions	Questions to be answered	Question X marks	Total marks
Long essays	2	1	1x10	10 marks
Short answers	3	2	2x5	10 marks
<b>Total</b>				<b>Total= 20 marks</b>

Marks should be submitted by respective departments at least 15 days prior to onset of university examination to the university.

**Internal examination pattern UG (Second & Third Year) (Practical) : 10 marks**

Internal exam (At department level)	10 marks
Viva	5 marks
Log book	5 marks
Theory and practical	Total = 20 M

**Note –20 marks to be converted to 10 marks weightage for submission to the university.**

## University Examination Pattern UG Second & Third Year (Semester III to VI)

(Approved in BOM 55/2018 dated, 27/11/2018)

Theory Question Paper Pattern For Core Subjects in University Examinations (Second & Third year) Under CBCS - 80 Marks

Question type	No. of questions	Questions to be answered	Question X marks	Total marks
<b>Section 1</b>				
MCQ	10	10	10x1	10 marks
<b>Section 2</b>				
Structured LAQ	3	2	2x15	30 marks
Short notes	6	5	5 x 8	40 marks
				<b>Total= 80 Marks</b>

### General Instructions (Theory):

- A. Time duration of each Theory Paper will be of Three (3) Hrs or 1 1/2 hrs as the case may be.
- B. Total Marks of each Theory Paper will be 80 Marks / 40 Marks.
- C. There will be TWO Sections in Question Paper. Section ONE will be MCQ while Section TWO will be long & short essay questions. There will be internal option.
- D. Both the Sections are compulsory.
- E. Both the sections are to be written in the separate answer sheet

### Practical Question Paper Pattern For University Examinations Under CBCS - 40 Marks

Exercise	Description	Marks
Q No 1	Practical exercise - 1	1 x10=10 M
Q No 2	Station exercise	3x5M=15 M
Q No 3	VIVA	10 M
Q No 4	Journal	5 M
		<b>Total = 40 M</b>

**General Instructions (Practical):**

- A. All the students have to remain present at the examination centre 15 minutes before the scheduled time for examination.
- B. Students have to carry with them certified journal, I-card or examination receipt, and other necessary requirements for examination.
- C. Candidate should not leave the practical hall without the permission of examiner.
- D. Use of calculator is allowed but the use of mobile phones is strictly prohibited.
- E. The candidate has to leave the laboratory only after the submission of all the answer sheets of the exercises performed.

**Theory Question Paper Pattern For Elective courses under University exam for B.Sc. Second and Third year (semester III to V) (AY 2020-21 onwards) (Resolution No. 4.7 of Academic Council (AC-40/2021- Point no ii))**

<b>Question type</b>	<b>No. of questions</b>	<b>Questions to be answered</b>	<b>Question X marks</b>	<b>Total marks</b>
Structured LAQ	3	2	2x10	20 marks
Short notes	5	4	4 x5	20 marks
<b>Total</b>				<b>40 Marks</b>

## Annexure 1.5 - Model Checklist for Evaluation of the Clinical Directed Posting (UG)

Name of the student: \_\_\_\_\_ Date: \_\_\_\_\_

Program: \_\_\_\_\_

Semester: \_\_\_\_\_ Name of the Internal faculty/Observer: \_\_\_\_\_

Name of the External Faculty/Observer: \_\_\_\_\_

Core Competencies	Marks allotted	Marks obtained
	Students will begin to develop critical thinking abilities utilizing the allied health personnel roles of communicator and caregiver. Students will learn principles of professional allied health personnel practice and provide direct care to individuals within a medical surgical setting while recognizing the diverse uniqueness of individuals with health alterations.	
<b>Clinical Teaching</b>		
a. Demonstrate beginning competency in technical skills.	10	
<b>Independent Work by Student guided by faculty</b>		
a. Develop effective communication skills (verbally and through charting) with patients, team members, and family	2.5	
b. Identify intra and inter-professional team member roles and scopes of practice. Establish appropriate relationships with team members.	2.5	
<b>Hands on practical work by students</b>		
a. Protect confidentiality of electronic/manual health records data, information, and knowledge of technology in an ethical manner	05	
<b>Independent work by student</b>		
a. Demonstrate expected behaviors and complete tasks in a timely manner. Arrive to clinical experiences at assigned times. Maintain professional behavior and appearance.	05	
<b>Log book</b>	10	
<b>Viva</b>	10	
<b>Attendance</b>	05	
<b>Total</b>	<b>50 Marks</b>	

Sign of Internal Examiner: \_\_\_\_\_

Sign of External Examiner: \_\_\_\_\_



# MGM INSTITUTE OF HEALTH SCIENCES

(Deemed to be University u/s 3 of UGC Act, 1956)

Grade 'A++' Accredited by NAAC

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