

CAREER IN SCIENCE



WHAT AFTER 10+2 MEDICAL

1. MEDICINE (M.B.B.S.)
2. DENTISTRY (B.D.S.)
3. AYURVEDA (B.A.M.S.)
4. HOMEOPATHY (B.H.M.S.)
5. NATUROPATHY (B.Y.N.S)
6. PHYSIOTHERAPY
7. MEDICAL LAB TECHNOLOGY
8. BIO –TECHNOLOGY
9. HOSPITAL MANAGEMENT
10. OCCUPATIONAL THERAPY
11. MEDICAL TRANSCRIPTION
12. MEDICAL REPRESENTATIVES
13. FORENSIC SCIENCE
14. RADIO-GRAPHY/THERAPY
15. NUCLEAR MEDICINE
16. MICROBIOLOGY

MEDICINE(M.B.B.S.)

BACHELOR OF MEDICINE

BACHELOR OF SURGERY (MBBS)

- DURATION 5 & 1/2 YEARS.
(One year of internship)
- ELIGIBILITY 10+2 (physics, chemistry and biology)

ENTRY AND SELECTION

Candidates with a science background (biology/botany/zoology compulsory) can appear for the various entrance exams conducted at the central and state levels.

All India Medical Entrance Exams

- **All India Pre Medical/Pre Dental Examination: CBSE**
The Central Board of Secondary
- MBBS / BDS courses against **15%** of the total seats in all medical/ dental colleges run by the central, state governments and local bodies (excluding Andhra Pradesh and Jammu & Kashmir.)

All India Institute of Medical Sciences (AIIMS)
Ansari Nagar, New Delhi - 110029

- Eligible candidates are required to appear for the Competitive Entrance Exam (CEE) conducted by the institute on the 1st of June every year at centers in
 1. Ahmedabad,
 2. Bangalore,
 3. Delhi,
 4. Mumbai,
 5. Chennai,
 6. Guwahati,
 7. Hyderabad,
 8. Lucknow
 9. Calcutta.

Armed Forces Medical College (AFMC)
Sholapur Road, Pune - 411040

- Candidates, who are eligible, have to appear for the Competitive Entrance Exam held in the month of April/May.

CENTRES:

- Delhi,
- Calcutta,
- Pune,
- Bangalore
- Lucknow.

MEDICAL INSTITUTES IN PUNJAB

1. Govt. Medical College, Amritsar 143001 (150);
2. Govt. Dental College, Amritsar 143001 (40 BDS);
3. Govt. Medical College, Patiala 147001 (150);
4. Dental College, Patiala (40 BDS);
5. Guru Govind Singh Medical College, Faridkot 151203 (50);
6. Dayanand Medical College, Ludhiana 141001 (70);
7. Guru Ramdas Institute of Medical Sciences, Amritsar 143006 (50);
8. Institute of Dental Sciences, Amritsar 143006 (60 BDS);
9. Baba Jaswant Singh Dental College, Ludhiana (100 BDS);
10. Dashmesh Institute of Dental Sciences, Faridkot 151203 (60 BDS);
11. Government Dental College, Patiala 147001 (40 BDS); Khalsa
12. Dental College for Women, Nagar Kalan, Mansa (100 BDS);
13. Christian Dental College, Mansa (30 BDS).

EMPLOYMENT

- Hospitals (private and government-owned; general, specialty and multi specialty)
- Clinics
- Primary Health centres
- Industrial sector
- Voluntary organizations which provide medical care
- Research bodies
- Armed forces
- Educational institutions
- Private practice is also an option.

DENTISTRY (B.D.S.)

- The job of a dentist is to provide surgical, medical and other forms of treatment for oral and dental disorders and diseases.
- A dentist also helps the patient to maintain a healthy mouth and fine teeth.
- The dentist examines the mouth and teeth, then prepares and executes the treatment.

COURSE INFORMATION

BACHELOR IN DENTAL SURGERY

DURATION

4-YEARS.

(One year of residency).

ELIGIBILITY

10+2 (Physics,
chemistry and biology.)

Time of Entrance tests

- All India Pre-medical Examination January
tests are conducted in March / April.
- State Level examinations January
tests conducted in March-April.
- National level institute examinations
January- March
test conducted in May-June.

All India Medical Entrance Exams

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MAIN EMPLOYERS

Dentists are employed by,

- Hospitals
- Dental Clinics
- Private practice
- Educational Institutions
- Armed Forces

AYURVEDA

- In Sanskrit, "Ayu" means "life" and Veda" means "knowledge".
- Hence, "ayurveda" means "knowledge of life" or "science of life". This ancient Indian form of medicine is about 3000 years old.
- The treatment in ayurveda is preventive rather than curative.
- It is based on the belief that all human beings are a combination of the Pancha Boothas or the five elements.

COURSE INFORMATION

- B.A.M.S (Bachelor of Ayurvedic Medicine and Surgery).
- DURATION : 4½ year course
ELIGIBILITY : 10+2
(physics, chemistry and biology.)
- A person with any other background like arts, commerce cannot enter this course.

COLLEGES IN PUNJAB

Dayanand Ayurvedic college, Jalandhar,

G.T. Road. Mahatma Hansraj Marg, Jalandhar City - 144008

Desh Bhagat Ayurvedic Medical College & Hospital, Gobindgarh

Behind Durga Mandir, Mandi, G.T. Road, Model Town, Gobindgarh - 147301

Government Ayurvedic College, Patiala,

Lower Mall, Patiala 147001

Guru Nanak Ayurvedic Medical College & Research Institute, Ludhiana

VPO Gopalpur Ludhiana - 141118

Mai Bhago Ayurvedic Medical College for Women, Muktsar

Malout Road, Muktsar - 152026

Shaheed Kartar Singh Sarabha Ayurvedic Medical College, Sarabha,

P.O. Sarabha, Ludhiana

Shri L.N. (Laxmi Narayan) Ayurvedic College, Amritsar,

Sant Tulsi Das Marg, Amritsar - 143001

Shri SSMD Ayurvedic College & Hospital, Faridkot,

G.T.Road, Village - Duneka, Moga, Distt. Faridkot - 142001

PAY PACKAGE

- Starting @ Rs.5000 p.m.;
- and after a few years he would be earning around Rs.10,000 p.m
- . At senior level, he could earn around Rs.15,000 -
- Rs.20, 000 p.m. plus other allowances.

Ayurveda doctor can enter other fields such as,

- Medical Journalism
- Pharmacology

HOMEOPATHY

- Homeopathy is a system of medicine which is practiced on the principle, that a drug and a disease which produce similar symptoms cancel each other out in some way thereby restoring the patients to health.
- The principle of 'Like can cure Like' forms the basis of Homeopathy. It is named after the Greek words, 'Homeo' meaning similar and 'Pathos' meaning suffering or treatment by the same.
- This system of healing was founded by a German doctor, Samuel Christian Hahnemann (1755) and is recognised as an effective means of treating diseases.
- Though this system was developed abroad, it has become an integral part of the Indian way of life.
- There are many institutes imparting Homeopathy courses in [India](#).

COURSE INFORMATION

- **COURSE:**BHMS (Bachelor of [Homeopathic Medicine](#) & Surgery)
- **ELIGIBILITY:** 10+2 (physics, chemistry, Biology and English with minimum 45 % marks.)
- **DURATION:** DEGREE→ five and half years, (including [internship](#).) DIPLOMA→four year duration.
- MD →three years duration.
- **SELECTION** : All India Entrance Examination as for MBBS. (Details in [Entrance Details & Syllabus](#)).
- qualification required for entrance is 10+2 or equivalent with Science subjects.
- In the case of private [medical colleges](#) entrance examinations are conducted by the institutes individually.

EMPLOYMENT

- Government and private hospitals
- Clinics,
- Charitable institutions,
- Research institutes as researchers,
- Medical colleges
- Training institutes as teachers
- Private practice.

COLLEGES IN PUNJAB

- [Homoeopathic Medical College, Abohar](#), (Punjab)
Homoeopathic Medical College, Hanumangarh Road (Near Bye Pass), Abohar-152 116.
- [Institute of Homoeopathic Medical Education and Research V.P.O., Distt. Fatehgarh Sahib](#), (Punjab)
Institute of Homoeopathic [Medical Education](#) and Research V.P.O., Chunni Kalan, Distt. Fatehgarh Sahib
- [Kalyan Homoeopathic Medical College, Amritsar](#), (Punjab)
Kalyan Homoeopathic [Medical College](#), Jandiala Road, Tarn Taran, Amritsar.
- [Lord Mahavira Homoeopathic Medical College, Ludhiana](#), (Punjab)
Lord Mahavira Homoeopathic Medical College, Opp. Kitchlu Nagar, Near Civil Lines, Ludhiana
- [Sri Gurunanak Dev Homoeopathic Medical College, Canal Road, Barewal, Ludhiana](#), (Punjab)
Sri Gurunanak Dev Homoeopathic Medical College, Canal Road, Barewal, Near Punjab Agricultural University. Via Ayalikalan, Ludhiana-142 027.

NATUROPATHY

- Naturopathy believes "All healing power are within your body".
- It, therefore advocates aiding the human system to remove the causes of diseases, ie. toxins, by expelling the unwanted matter from the body for curing the diseases.
- **"Naturopathy Heals, while Yoga maintains Therefore these are like two wheels of a cart".**

COLLEGES IN INDIA

- **Sree Ramakrishna Medical College of Naturopathy And Yogic Sciences**
Padanilam, kulasekharam P.O,
kanyakumari dist, tamil nadu,
S.India. 629161.
Phone : + 91- 04651-578425, 580447
e-mail :srkbv@dataone.In
- **ALVA'S EDUCATION FOUNDATION,**
Mudbidri08258 - 6033, 60731.(Bachelor of Naturopathy
&Yogic Sciences)
- **SDM EDUCATIONAL SOCIETY,**
Ujire (College Of Naturopathy &Yogic Sciences)
- **UNITY ACADEMY OF EDUCATION**
Mangalore

NATIONAL INSTITUTE OF NATUROPATHY(NIN)

(Govt. of India, Ministry of Health & Family
Welfare, Dept. of AYUSH)

Bapu Bhavan, Tadiwala Road, Pune – 411 001

Tel: +91-020-26059682/26059683/26059684/
26059685

Fax: +91-020-26059131

Office Timing : 10 am to 5.15 pm

Closed on Sundays & Public Holidays

Email: ninpune@vsnl.com

Website: www.punenin.org

COURSE AT NIN

TWO YEARS FULL TIME DIPLOMA IN
NATUROPATHY AND YOGA THERAPY
(DYNT)

Eligibility: 12th Std.

Passed Seats: 30

Fee: Rs. 5000/- per annum (approx.)

EMPLOYMENT

- Hospitals (private and government-owned; general, specialty and multi specialty)
- Clinics
- Primary Health centres
- Industrial sector
- Voluntary organizations which provide medical care
- Research bodies
- Armed forces
- Educational institutions
- Private practice is also an option.

BIOTECHNOLOGY

- Bio-Technology is a research oriented science, a combination of [Biology](#) and Technology.
- It covers a wide variety of subjects like Genetics,
- Biochemistry,
- Microbiology,
- Immunology,
- Virology,
- Chemistry
- Engineering
- Health and Medicine,
- Agriculture and Animal Husbandry,
- Cropping system and Crop Management
- Ecology, Cell Biology,
- Soil [science](#) and Soil Conservation,
- Bio-statistics, Plant Physiology,
- Seed Technology etc.

ELIGIBILITY

- 12, with physics, chemistry, mathematics. and biology at the intermediate level
- Graduates in all sciences/engineering technology/medicine are eligible for the postgraduate (m.Sc.) Course in biotechnology.

Duration

- Three years duration for B.Sc course.
- Two years to complete the M.Sc. course.
- B.Tech. course is of four years duration and
- five year for integrated M.Tech. programme
offered at IIT Delhi and Kharagpur.

COLLEGES

-
- **Guru Nanak Dev University -**
- **Course Name:** B.Tech Biotechnology
- **Address:**
- Amritsar – 143005
- **Website:** <http://www.gnduonline.org/>
- **Email:** enquiry@gnduadmin.com

- **IIT –**
- **Description:**
- **IIT Kanpur-** It offers a BTech degree program in Biological Sciences and BioEngineering
- Visit <http://www.iitk.ac.in/>
- **IIT Kharagpur** – It offers a BTech degree program in Biotechnology and Biochemical Engineering.
- Visit <http://www.iitkgp.ernet.in/>
- **IIT Chennai** – It offers a BTech degree in Biotechnology. Visit <http://www.iitm.ac.in/>
- **IIT Guwahati** – It offers a BTech degree in Biotechnology. Visit <http://www.iitg.ac.in/>
- **IIT Roorkee** – It offers a BTech degree in Biotechnology. Visit <http://www.iitr.ac.in/>
- **Entrance Exam:** JEE (Joint Entrance Examination)

DBT (The Department of Biotechnology)

- launched an integrated Manpower Development Programme which includes training of scientists/technologists for the expanding biotechnological R&D activities

Short term Training Courses;

- M.Sc/M.Tech./Post Doc.Programmes;
- National and Overseas Associate ships;
- Visiting Scientist from Abroad Programme;
- Short-term Training Course for Industrial personnel
- Technician Training
- Biotechnology teaching/training programme for school
- Biotechnology Publications
- Popular lectures
- Biotechnology films etc.

Career options after Biotechnology

- **Business development manager**
- **Lab technician**
- **Research associate**
- **Engineer (Chemical, Electrical,
Environmental and Industrial)**
- **Sales representative**
- **Marketing**

REMUNERATION

- The amount of remuneration depends upon academic qualification, institute or university from which the degree is attained and the level of work experience.
- In the corporate sector, fresh IIT pass outs may get anything in the range of Rs. 70,000 to Rs. 85,000 as annual income
- and fresh B.Sc./B. Tech. graduates from other universities may get anything in the range of Rs. 50,000 to Rs. 70,000 as annual income.

BIOINFORMATICS

- Bioinformatics or computational biology is the use of information technology in the field of molecular biology,
- The application of computer technology to the management and analysis of biological data.
- Here computers are used to gather, store, analyze and merge biological data.

Name of the Course	Educational Qualification Required
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- | | |
|----------------------------|---|
| • B.Tech in Bioinformatics | Candidate should complete 10+2 with physics, chemistry, biology and English |
|----------------------------|---|
- | | |
|---|--|
| • <u>Degree</u> in Bioinformatics | Candidate should complete their graduation in any of the following subjects such as B.Sc / B.Sc (Agriculture)/ BCS / BE / B.Tech / MBBS /B Pharm / BAMS / BHMS/BVSc. |
|---|--|
- | | |
|-----------------------------|---|
| • Diploma in Bioinformatics | Candidates having a post graduation in any of the following subjects such as M.Sc in Life Sciences, Physics, Chemistry, Mathematics, <u>Biotechnology</u> , Biophysics, Botany, Zoology, Biochemistry, Microbiology, Pharmacology, <u>Computer Science</u> or Equivalent),. |
|-----------------------------|---|

Job Prospect

- Career areas
- Sequence assembly,
- Database design and maintenance,
Sequence analysis,
- Proteomics (study of protein, particularly their structures and functions),
- Pharmacogenomics, Pharma-cology,
- Clinical pharmacologist,
- Informatics developer;
- Computational chemist,
- Bio-analytics and Analytics etc.

Remuneration

- A postgraduate joining a private sector pharmaceutical company can expect to get a salary in the range of Rs. 12,000 to Rs. 20,000 per month.
- Those employed in government research can start on Rs. 9,000 along with government allowances

INSTITUTES

1. Calcutta University
2. Institute of Bioinformatics and Applied Biotechnology
3. Indian Institute of Information Technology
4. Jamia Millia Ismalia University
5. Madurai Kamaraj University
6. Pondicherry University
7. University of Hyderabad
8. Universtiy of Pune

PHYSIOTHERAPY

- Physiotherapy alias physical therapy, one of the fastest-growing allied area of medicine, is the system of treatment of disease and disability using physical exercises.
- It is the most important rehabilitative service needed in a community and a vital therapeutic supplement of the medical profession, integral to the treatment of most patients.

Eligibility & Course Area

COURSE OFFERED: B.Sc. degree in
physiotherapy.

ELIGIBILITY: 10+2 (physics, chemistry,
biology and English.) 50%

Age limit for the candidates is 17 years.

DURATION: 4 years (last six months
involves an internship period at a hospital)

NOTE: Admission to institutes is through
Common Entrance Test (CET)

INSTITUTIONS

- All saints para medical college ,ludhiana
- College of Physiotherapy for Women,
V.P.O.Nangal Kalan, Distt.Mansa (Pb)
- Mother Teresa Institute of Health
Sciences, Victor Simond St, General
Hospital , Pondicherry-605001,

Job Prospects and Career Options

- Employment opportunities for physiotherapists are tremendous as it is a career where the demand exceeds supply.
- A physiotherapist could be employed in the
- rehabilitation departments,
- municipal corporations and
- private bodies.
- Their demand in medical institutions is increasing since physiotherapy plays an important role in the treatment of patients with muscular and cerebral problems.

- Like all other medical and paramedical professionals, physiotherapists can work in hospitals, orthopaedic departments, [rehabilitation](#) centres for the handicapped, schools for the mentally retarded and physically disabled children, health institutions and defense medical establishments.
- While those with adequate capital can establish private clinics of their own.
- The demand for physiotherapists in the country as well as abroad is immense. They are in great demand in USA, [Canada](#) and Australia.

REMUNERATION

- The physiotherapists in government hospitals varies between Rs. 3000 to 5000.
- Most well-run private hospitals offer a starting salary around Rs 7,500 which could go up to Rs 10,000 per month.
- The remuneration for established private practitioners can be almost Rs 20,000 to 40,000 per month.

MEDICAL LAB TECHNOLOGY

- Medical Laboratory Technology also called Clinical laboratory science is an allied health profession which is concerned with the diagnosis, treatment and prevention of disease through the use of clinical laboratory tests.
- These tests help doctors to detect, diagnose and treat diseases.
- A Medical Laboratory Technologist (MLT) do these tests by analyzing body fluids, tissues, blood typing, microorganism screening, chemical analyses, cell counts of [human body](#) etc.
- They play an important role in collecting the information's needed, sampling, testing, reporting and [documentation](#) of these investigations.
- They determine the presence, extent or absence of disease and provide data needed to evaluate the effectiveness of treatment.

COURSE INFORMATION

- COURSE OFFERED:

1 Bachelor of Medical Laboratory Technology
(BMLT)

2. [Diploma](#) in Medical Laboratory Technology
(DMLT)

DURATION: 1) 3 YEARS

2) 2 YEARS

- Eligibility: 10+2 or equivalent with Science subjects

INSTITUTES

- **Post Graduate Institute of Medical Education and Research, Sector 12, Chandigarh-160012**
(Chandigarh)
Sector 12, Chandigarh-160012
- **Institute of Para-medical & Management Technology, Delhi, (Delhi)**
29-Anand Nagar, Inderlok, Delhi

All India Institute Of Medical Sciences, Ansari Nagar, New Delhi, (Delhi)
All India Institute Of Medical Sciences, Ansari Nagar, New Delhi 110029

JOB PROSPECTS

Opportunities are available in

1. molecular diagnostics,
2. molecular biotechnology companies
3. vitro fertilization laboratories
4. research labs.
5. clinical areas,
6. drug testing,
7. therapeutic drug monitoring and
8. biogenetics
9. medical technologists
10. product development,
11. marketing,
12. sales,
13. quality assurance,
14. environmental health and insurance,

REMUNERATION

- The challenges and rewards of a Lab technician is high.
- Employment of clinical laboratory workers is expected to grow fast.
- The salary ranges from Rs.6,500 - 10,000 per month in hospitals and in clinics.

Medical Transcription

- Medical Transcription is one of the fastest growing fields in health care.
- Medical Transcriptionists are in demand in Western countries especially in the US where the entire healthcare industry is based on insurance and detailed medical records are needed for processing insurance claims.
- Medical transcription could be one of the speedy growing IT enabled service in India also, with the rapid change in the outlook in Indian healthcare and privatization of the insurance sector.

COURSE INFORMATION

- COURSE OFFERED: Medical transcriptionist
- ELIGIBILITY: Graduation with English comprehension skill
- DURATION: 2-3 YRS.

INSTITUTES

- Wintel Institute of Medial Transcription,
New Delhi (www.wintelinfotech.com)
- Novatech Institute of Teleworking (corporate member of
American Association of Medical Transcription (AAMT)),
Bangalore
- EIMT,
2nd Neelkanth Udyog Bhavan, Above Mainland China,
Saki Naka Junction, Andheri East, Mumbai
- Sofcom Institute of E-Com and Teleworking,
103 Chitrakoot, 1065/A/1 Chaturshrungi Road, Pune-
411016
- KG Information Systems (P) Ltd.,
Coimbatore (www.kgisl.com)
- Focus Infosys
#117-120, 2nd Floor 80 Feet Peripheral Road 4th Block,
Koramangala
Bangalore, Karnataka, India
Phone 5527231; [Fax](tel:5527230) 5527230

JOB PROSPECTS

- Drish Infotech limited
SCO 104-106, Sector 34 A
Chandigarh Punjab
Phone 0172665653 / 0172665654; Fax +91-172-615622
- SA Softtech Solutions Pvt. Ltd.
S.C.O 75, PHASE IX
Mohali Punjab
India
Phone 0172-394517 / 0172-394518

REMUNERATION

- At entry level medical transcriptionist is paid around Rs. 5000/- per month, which can exceed to Rs. 20000/- per month with two years, depending on their capabilities.
- There are also additional perks and performance incentives.
- If the MTs can become independent and do editors work also they have better prospects to earn more.
- With experience one can move on to becoming a supervisor, editor, trainer or manager of a medical transcription unit.

OCCUPATIONAL THERAPY

- Occupational therapy is a health profession that focuses on helping individuals with mental or physical illness/disabilities to achieve the highest level of functioning and wellness possible in their daily lives.
- In other words occupational therapy is skilled treatment that helps individuals with disabilities, achieve independence in all facets of their lives.
- This includes performance of all daily normal activities in work, play, leisure etc.

ELIGIBILITY

- COURSENAME: Occupational therapy assistant (OTA)
- ELIGIBILITY: 10+2 with PCM (physics, chemistry and biology).
-
- DURATION: Bachelor's degree of 4 years.

INSTITUTES

S. Seth Medical College, Parel, Mumbai 400012 (Maharashtra)
G.S. Seth Medical College, Parel, Mumbai 400012

Govt. Medical College, AJNI, Nagpur, (Maharashtra)
Govt. Medical College, AJNI, Nagpur - 440003

Govt. Medical College, AJNI, Nagpur, (Maharashtra)
Govt. Medical College, AJNI, Nagpur - 440003

Lokmanya Tilak Municipal Medical College, Sion, Mumbai-400022, (Maharashtra)
Lokmanya Tilak Municipal Medical College, Sion, Mumbai-400022

T.N. Medical College, Mumbai, (Maharashtra)
T.N. Medical College, Mumbai - 400 008

Job Prospects

- Therapists are in high demand in the conventional medical and fitness arenas.
- OT's work with the patients of various disorders who have orthopedic, neurological and psychological/psychiatric conditions.
- Therapists may practice privately and own their own clinics or work in conjunction with other medical specialties in polyclinics, hospitals, rehabilitation centers, special schools, psychiatric institutions, community mental health centers, adult daycare programs, sports teams, residential care facilities etc.
- They may also be involved in ergonomic consultations in industries/work places and architectural arenas for greater accessibility by the disabled.

Remuneration

- Junior occupational therapists may initially draw salaries ranging between Rs 8,500 and Rs 11,500 per month.
- However, with rank and experience, remuneration increases.
- In the private sector, salaries are a lot higher.

FORENSIC SCIENCE

- Forensic science is primarily concerned with the application of scientific principles for the investigation of crime.
- Using the very latest in technology, forensic scientists convert the clues collected from a crime scene into evidence admissible in a court of law.
- It is the use or application of science in courts or legal proceedings.
- This is a challenging and interesting field for those who have are inquisitive and loves adventure.

ELIGIBILITY

- One should have to pursue first division in Physics, chemistry, zoology, botany, biochemistry, microbiology, B.pharm, BDS or applied science.
- To become a specialist who conducts post-mortems on dead bodies to find out the cause of death, you must first secure an MBBS degree and then go for an MD in Forensic Science. All Indian Universities that offer MBBS courses also offer an MD in Forensic Science.

INSTITUTIONS

1. Punjabi University, Patiala 147002
2. Panjab University ,Chandigarh
3. University of Delhi,Delhi
4. Central Forensic Science Laboratory,
Chandigarh, CFIs Complex, Sector 36A,
Chandigarh 160036

JOB PROSPECTS

- They can find employment with law enforcement agencies, police, legal system and in the investigative services of the government and also private agencies. They can also work as teachers in institutes that conduct courses in this subject.
- Opportunities for forensic scientists exist in government organisations such as the Intelligence Bureau (IB), the Central Bureau of Investigation (CBI) and as investigative officers in the crime cells of state police forces.

REMUNERATION

- The state department salaries begin around Rs. 4000 and increases according to the rank and years of experience.
- Forensic scientists holding postgraduate qualifications can expect to start with a salary of Rs.6000 - Rs.8000 depending on the nature of the organisation.
- Private forensic laboratories offer lucrative pay packages to scientists with a few years of experience behind them.
- A freelancer in the field can charge according to requirements of the individual case.

PHARMACY

- Pharmacy or Pharmacology is one of the main disciplines under Biomedical Science and the pharmaceutical industry. There are many disciplines within the Biomedical sciences.
- Pharmacy is related to health sciences.
- It is the profession responsible for the preparation, dispensing and appropriate use of medication and which provides services to achieve optimal therapeutic outcomes.
- A Pharmacist's job is to prepare, mix, compound or dispense drugs and medicines, ointments, powder, pills, tablets and injections on the prescription of a medical practitioner, dentist or veterinarian.

Eligibility & Course Area

COURSE OFFERED: Bachelor degree in
pharmacy.

ELIGIBILITY: 10+2 (physics, chemistry,
[biology](#) and English.) 50%

DURATION: 3 to 4 years

NOTE: Admission to institutes is through
AIEEE

INSTITUTES

- **Gurunanak Dev University, Amritsar**, (Punjab)
Gurunanak Dev University, Amritsar

**National Institute Of Pharmaceutical
Education and Research**, (Punjab)
sector 67 , SAS Nagar, Punjab 160062

**S.D.B. Pharmacy College, New Town, Moga,
Punjab**, (Punjab)
S.D.B. Pharmacy College, St.No.9, New Town,
Moga, Punjab-142001

JOB PROSPECTS

- Pharmacists are hired within the central and state government departments-
- The health protection branch of the department of health and welfare,
- The pest control division of agriculture,
- The department of national defense, provincial research councils, and
- The provincial departments of agriculture or the environment.

REMUNERATION

Pharmacy is a highly reputed job.

- The average starting salary for a pharmacist is around Rs 4,000.
- Research Scientists Rs.10,000 - 40,000 per month,
- Medical Representative Rs. 5,000 - 10,000 per month + incentives,
- Manufacturing Pharmacists Rs. 5,000 upwards,
- Hospital Pharmacists Rs.3,000 - 5,000 per month,
- Government Jobs Rs. 1,500 - 2,500 per month (basic) along with Contributory Provident Fund, D.A., Insurance, Medical reimbursement, and other allowances and benefits as per government rules.

NUTRITION AND DIETICS

- Dietetics is the science of managing food and nutrition to promote health. A relatively new profession, this field has gained importance with the realisation that inappropriate eating habits can lead to many major diseases and that quality of life depends on the quality of food we eat.

COURSE INFORMATION

- COURSE OFFERED: Bachelor course in Nutrition & Dietetics
- ELIGIBILITY: Higher Secondary Examination or Plus two (physics, chemistry, home science and biology.)
- DURATION: 3YRS.

INTITUTES IN INDIA

- B C M College Kottayam, (Kerala)
Pin: 686 001

College of Home Science, (Assam)

College of home science, Assam agricultural university,
Jorhat , Assam

Ethiraj College for Women, (Tamil Nadu)

Ethiraj College for Women, Ethiraj Salai, Egmore,
Chennai - 600 008

Gandhigram Rural Institute, (Tamil Nadu)

Gandhigram Rural Institute Deemed University
Gandhigram - 624 302 Dindigul District Tamil Nadu,

JOB PROSPECTS

- The main fields in which a dietician or nutritionists can work is in
- Food service field,
- Institutional Catering,
- Health Care field,
- Research & Development
- and Social Welfare.
- Food service field include food Catering service, Restaurants etc where professionals can do menu planning, monitoring the food preparation etc.
- Institutional Catering is another field where [Nutrition](#) and dietetics professionals are needed to plan, supervise and prepare nutritious and well-balanced meals for
 - schools,
 - colleges,
 - factories or
 - office cafeterias etc.

REMUNERATION

- In private hospitals, trainees may get starting salary of Rs. 2500 per month and after they gain more experience their salary may range between Rs. 4500 - 5000 with benefits.
- Research work, teaching, catering jobs etc. has good payment as also Food Technologists working in a food services department or industry etc.
- Consultant dieticians in private practice can earn more depending on their practice.

NURSING

- Nursing, a profession that recalls the name of Florence Nightingale is indeed one of the noblest professions in the world.
- It is the art of caring for sick people with the science of health care.
- It is a vital component of any form of medical care.
- The largest group of workers in the health sector are those in the nursing occupations as nurses and nursing assistants.

Eligibility & Course Area

COURSE OFFERED: Bachelor degree in
pharmacy.

ELIGIBILITY: 10+2 (physics, chemistry,
biology.) 50%

DURATION: 3 to 4 years

INSTITUTES

- **College Of Nursing, Christian Medical College, Ludhiana**, (Punjab)
College Of Nursing, Christian Medical College,
Ludhiana 141008
- **College Of Nursing, Chandigarh**, (Chandigarh)
College Of Nursing, Post Graduate Institute Of
Medical Education & Research, Sector 12,
Chandigarh 160012
- **Jamia Hamdard Faculty of Nursing, New Delhi**, (Delhi)
Jamia Hamdard Faculty of Nursing, Hamdard
Nagar, New Delhi 110062

Job Prospects

They can find employment in

- Hospitals
- Nursing homes
- Clinics and Health Departments
- Orphanages and old age homes
- Military
- Schools
- Industrial houses and factories
- Railways and public sector medical departments
- Training Institutes as educators

REMUNERATION

- Nurses employed by government hospitals receive a monthly salary of Rs 6,500 to Rs 10,000.
- Private nurses have a fixed daily fee.
- Midwives receive above 4,000 per month approximately, plus a fixed amount per birth registered.
- Health workers receives between Rs. 1,000 to Rs. 2,000 per month.

Radio-Graphy/Therapy

Radiography is used to diagnose the ailment and diseases of the internal and hidden parts of the body using

1. X-ray,
2. Fluoroscopy,
3. Ultrasound (sonography),
4. CTscan (Computer Tomography),
5. MRI (Magnetic Resonance Imaging),
6. Angiography,
7. PET (Positron Emission Tomography) etc.

PET is a nuclear medicine medical imaging, a branch of medicine and medical imaging that uses unsealed radioactive substances in diagnosis and therapy, which produces a three dimensional image of the functional processes in the body.

Eligibility & Course Area

- COURSE OFFERED: Bachelor degree in Radiography.
- ELIGIBILITY: 10+2 (physics, chemistry, biology/maths) 50%
- DURATION: 3 to 4 years

Institutes

Dr. M.V. Shetty Institute Of health Science, A.B. Shetty Circle, Mangalore 575001, (Karnataka)

Dr. M.V. Shetty Institute Of health Science, A.B. Shetty Circle, Mangalore 575001

Dr.B.R.Ambedkar Medical College Hospital, Kadugondanhalli, Bangalore-560045, (Karnataka)

Dr.B.R.Ambedkar Medical College Hospital, Kadugondanhalli, Bangalore-560045

University College Of Medical Sciences (University Of Delhi) & G.T.B Hospital, Delhi 110095, (Delhi)

University College Of Medical Sciences (University Of Delhi) & G.T.B Hospital, Delhi 110095

Job Prospects

- Radiographers have to work in diagnostic imaging department, intensive care unit, operating theatre, along with doctors and other hospital staff. In short they have to work as a team.
- Radio Diagnosis: It is the method of diagnosing the patient's illness with the help of X-ray, ultrasound or other such equipment.
- Radio Therapy: A therapy radiographer treat patients with tumour, using radiation in highly controlled conditions.
- Radiation Protection: Specialists in this area monitor the levels of radiation exposure and thereby ensure that no one is over-exposed to these radiations, which could prove to be extremely harmful.

Job Opportunities

Radiographers are required in large numbers in

1. Nursing homes,
 2. Hospitals,
 3. Diagnostic centers and
 4. Super speciality [hospitals](#).
 5. Medicine,
 6. Research
 7. Teaching.
 8. Nuclear medicine
 9. Photography
- . Radiographers have to make high quality images which in turn will help to diagnose disease and injury. They are employed in the X-ray and ultrasound departments of medical institutions and clinics.

Remunerations

- In private hospitals, trainees may get starting salary of Rs. 2500 per month and after they gain more experience their salary may range between Rs. 4500 - 5000 with benefits.

Nuclear Medicine

- Two-thirds of nuclear medicine technologists worked in hospitals.
- Nuclear medicine technology programs range in length from 1 to 4 years and lead to a certificate, an associate degree, or a bachelor's degree.
- Faster-than-average job growth will arise from an increase in the number of middle-aged and elderly persons, who are the primary users of diagnostic and treatment procedures.

Education and training.

- Completion Of A Nuclear Medicine Technology Program Takes 1 To 4 Years And Leads To
- A Certificate,
- An Associate Degree, Or
- A Bachelor's Degree.
- Certificate Programs Are Offered In Hospitals,
- Associate Degree Programs In Community Colleges, And
- Bachelor's Degree Programs In 4-year Colleges And Universities.

Courses cover the

- Physical Sciences,
- Biological Effects Of Radiation Exposure,
- Radiation Protection And Procedures,
- The Use Of Radiopharmaceuticals,
- Imaging Techniques,
- Computer Applications.

Other qualifications.

- Nuclear medicine technologists should have Excellent communication skills,
- Be detail-oriented, and have a desire to continue learning.
- Technologists must effectively interact with patients and their families and
- Should be sensitive to patients' physical and psychological needs.
- Nuclear medicine technologists must be able to work independently as they usually have little direct supervision.
- Technologists also must be detailed-oriented and meticulous when performing procedures to assure that all regulations are being followed.

Employment

- Nuclear medicine technologists held about 20,000 jobs in 2006.
- About 67 percent of all nuclear medicine technologists jobs were in hospitals—private and government.
- Most of the rest were in offices of physicians or in medical and diagnostic laboratories, including diagnostic imaging centers.

- Employment of nuclear medicine technologists is expected to increase by 15 percent from 2006 to 2016, faster than the average for all occupations.
- Growth will arise from technological advancement,
- the development of new nuclear medicine treatments, and
- an increase in the number of middle-aged and older persons, who are the primary users of diagnostic procedures, including nuclear medicine tests.

Job prospects.

- In spite of fast growth in nuclear medicine, the number of openings into the occupation each year will be relatively low because of the small size of the occupation.
- Technologists who have additional training in other diagnostic methods, such as radiologic technology or diagnostic medical sonography, will have the best prospects.

Projections Data

Occupational title	Employment , 2006	Projected employment, 2016	Change, 2006-16	
			Number	Percent
Nuclear medicine technologists	20,000	23,000	2,900	15

Earnings

- Median annual earnings of nuclear medicine technologists were \$62,300 in May 2006.
- The middle 50 percent earned between \$53,530 and \$72,410.
- The lowest 10 percent earned less than \$46,490,
- the highest 10 percent earned more than \$82,310.
- Median annual earnings of nuclear medicine technologists in 2006 were \$61,230 in general medical and surgical hospitals.

Microbiology

- **The study of microscopic organisms is called microbiology.**
- **Micro-organisms are very small organisms which are not visible through naked eye.**
- **These organisms include algae, bacteria, moulds, protozoa, yeasts and viruses.**
- **Sometimes they are even referred to as microbes and are studied under microscope, being very small in appearance.**
- **Micro-organisms are almost found everywhere and they constitute by far the largest group of living things existing on earth.**
- **Our existence, health, food, agriculture and even industrial development are very much dependent on them.**
- **If microbes were to become extinct, disaster would become inevitable and would be beyond imagination.**
- **Unknowingly, man has made use of micro-organism since prehistoric times, mostly in the production of food and drinks, such as leavening of bread, souring of milk and making of wine and beer etc.**

Nature of Work

- Microbiologists study and investigate micro-organisms and their relationships with man, animals and plants.

Some of the sub-categories of microbiologists are as follows.

1. MEDICAL MICROBIOLOGISTS

2. AGRICULTURAL MICROBIOLOGISTS

3. INDUSTRIAL MICROBIOLOGISTS

4. MARINE MICROBIOLOGISTS

5. GENERAL MICROBIOLOGISTS

Personality

Microbiology like any other research related science field requires utmost dedication apart from having

- Scientific and analytical temper,
- Interest in research,
- Observant attitude,
- Diligence,
- Ability to work in team of professionals,
- Good communication skills and hardwork.
- Good mathematical and computational skills are of added advantage.

Professional Courses

- Microbiology being a science subject can be pursued by candidates with background in science at the school level.
- B.Sc. and further M.Sc. courses can be taken up at the institutions and universities offering these courses.

Colleges, Institutions and Universities

- 1 Govt. Medical College, Patiala
- 2 Guru Govind Singh Medical College, Faridkot
- 3 Christian Medical College, Ludhiana
- 4 Dayanand Medical College, Ludhiana
- 5 Govt Medical College, Amritsar
- 6 Shri Guru Ram Das Institute of Medical Sciences and Research Sri Amritsar

Specialization

- Biologists can further specialize in the study of micro-organisms in the fields of their interest such as
- Bacteriology: Study Of Bacteria,
- Mycology : Study Of Fungi
- Virology : Study Of Viruses.

Career Prospects

Microbiologists find jobs in many places like

1. Research and development laboratories of government and private hospitals,
2. Research Organisations,
3. Pharmaceutical,
4. Food,
5. Beverage And Chemical Industries.

Related Courses

- Being closely related to biotechnology, there are many similarities between them, making microbiology also a very promising career option.
- A steep rise in employment avenues for microbiologists is envisaged as a result of growing numbers of above mentioned organisations.

PHYSICS

Areas of specialisation include:

- Molecular Physics
- Particle Physics
- Plasma and Fluid Physics
- Optics
- Acoustics
- Atomic Physics
- Geophysics
- Nuclear Physics
- Solid State Physics
- Astrophysics
- Electronics

CHEMISTRY

Specialisation could be in the following fields:

- Organic
- Inorganic
- Biochemistry
- Analytical
- Polymer Chemistry
- Industrial Chemistry
- Pharmaceutical Chemistry
- Petro Chemistry
- Metallurgy
- Others include paint, food, sugar technology

BIOLOGY

Biological scientists can specialize in a variety of fields. These include:

- **Biochemistry**
- **Microbiology**
- **Genetics**
- **Taxonomy**
- **Cytology**
- **Entomology**
- **Pisciculture**
- **Physiology**
- **Agronomy**
- **Breeding**
- **Ornithology**
- **Paleontology**
- **Environmental Biology**
- **Horticulture**
- **Biophysics**
- **Bionics**

Biological Scientists are employed in a variety of fields,

which include:

- Industries producing biological and allied products
- Govt. departments
- Food Industry
- Export houses
- Pharmaceutical Industry
- Veterinary Clinics
- Co-operatives
- Poultry and Diary Farming
- Fish Culture
- Agriculture and Allied Industries
- Rural Banks
- Milk Industry
- Environmental Organizations

COURSES IN BIOLOGY

- B.Sc Botany
- B.Sc Biochemistry
- B.Sc Zoology
- B.Sc Microbiology
- B.Sc Fishery science
- B.Sc Horticulture

THANK YOU FOR WELL
CO-OPERATION