



SRI SATHYA SAI INSTITUTE OF HIGHER LEARNING

(Deemed to be University)



Undergraduate



Postgraduate



Professional

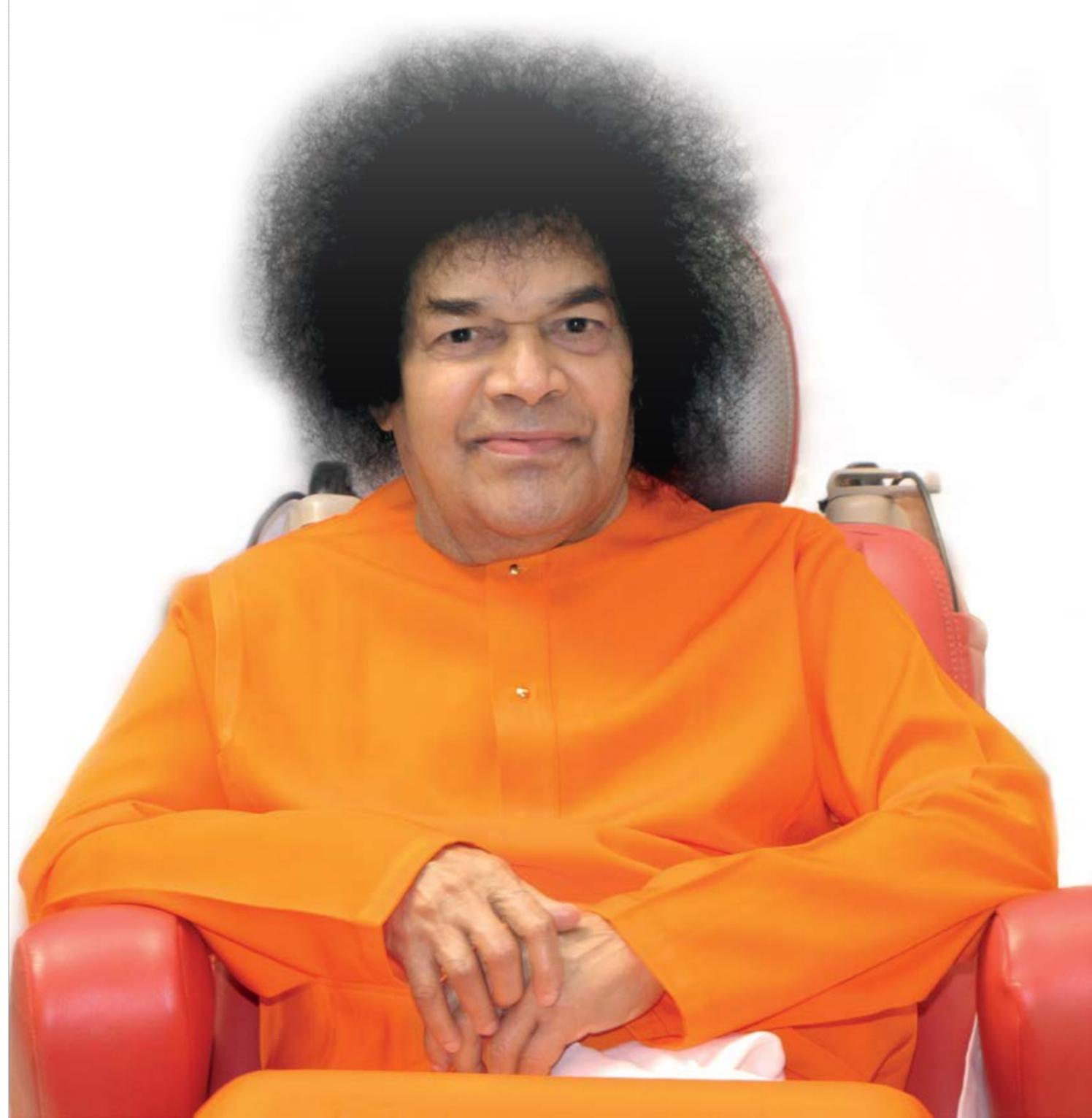
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The Sai educational institutions have been established not merely to enable students to earn a living but to make them acquire good traits, lead ideal lives, and give them ethical, moral and spiritual strength. I have established them with a view to inculcate love and teach good qualities to students. They will learn here humility, discipline and faith.

I have established these institutions to impart spiritual education as a main component and worldly education as a secondary one. Education should enable one to cultivate good qualities, character and devotion. The teaching of the university curricula is only the means employed for the end, namely, spiritual uplift, self-discovery and social service through love and detachment.

This will be a Gurukula - a place where teachers and taught will grow together in love and wisdom - and like the ancient system of education, it will develop in its students a broad outlook and promote virtues and morals, which serve to foster noble ideals in society.

This Institute will be a temple of learning where youth are shaped into self-reliant, contented and enterprising heroes of action and self-sacrifice, for the purpose of serving humanity.

BHAGAWAN SRI SATHYA SAI BABA
Revered Founder Chancellor



From the Admissions Office

Welcome to SSSIHL. This handbook is for students interested in applying for undergraduate, postgraduate and professional study at SSSIHL.

It is split into two distinct sections. The first section provides a general introduction to the University, including the unique model of values-based integral education it imbibes. It also offers applicants and parents an overview of the unique residential environment, the holistic method of evaluation and the teaching methods, and summarises the facilities, resources and activities available for students.

The second section contains a step-by-step guide to a successful application for all degree programmes open for admissions. This includes programme descriptions and course content along with eligibility

requirements, guidance on how to fill in the application forms, and how to process the application through every stage of the admissions process.

While we have made every effort to ensure accuracy of content, in the case of changes made to programmes or related content, we will notify successful applicants in writing. Any changes will also be reflected on SSSIHL's website (www.sssihl.edu.in).

Good Luck and Sai Ram!

Admissions Office
Office of the Registrar

"Education must teach a person what life is, and what its goals are. It must purify the heart and clarify the vision. It must prevent pollution of the hand, heart and head by habits injurious to the individual, society and the nation. It must promote virtues and raise the moral and spiritual standards of the educated."

Bhagawan Sri Sathya Sai Baba,
Revered Founder Chancellor



SSSIHL Administrative Building, Prasanthi Nilayam.

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SSSIHL Key distinctive features

Introduction

Sri Sathya Sai Institute of Higher Learning (SSSIHL), with its headquarters in Prasanthi Nilayam (Andhra Pradesh) in India, is a visible manifestation of Bhagawan Sri Sathya Sai Baba's vision of education for human transformation.

The Institute was recognised as a Deemed to be University by the Government of India in 1981.

In January 2011, The National Assessment and Accreditation Council (NAAC) – an autonomous body established by the University Grants Commission (UGC) that monitors and evaluates the quality of higher education in India – granted Sri Sathya Sai Institute of Higher Learning (Deemed to be University) re-accreditation with 'A' Grade and a Cumulative Grade Point Average (CGPA) of 3.63 (on a scale of 4.00). This puts SSSIHL in the top bracket of Indian Universities. (See infographic below.) The University hosts over 1200 students across four campuses:

For Women students:

- › Anantapur Campus at Anantapur, Andhra Pradesh

For Men students:

- › Prasanthi Nilayam Campus, at Puttaparthi, Andhra Pradesh
- › Brindavan Campus, at Whitefield, Bangalore, Karnataka
- › Muddenahalli Campus at Muddenahalli, near Chickballapur, Karnataka

WHY SSSIHL?

SSSIHL is the only university in the world founded by Bhagawan Sri Sathya Sai Baba. Here, teaching & learning is based on His philosophy of values-based Integral Education. It offers courses in the sciences, management, arts and humanities.

The key distinctive features of this University are:

ADMISSIONS

- › Free education for all students
- › Merit based open admissions policy for all, irrespective of income, religion or region

RESIDENTIAL CHARACTER

- › Compulsory residential character enabling translation of lessons learnt into practical skills through

experiential learning

- › Spiritual ambience in an environment of discipline and love
- › Teaching faculty, research scholars and students residing in the hostel
- › Cultivation of the spirit of self-reliance, brotherhood and sacrifice through mentoring and personal example

ACADEMICS

- › Curriculum rooted in Indian culture and universal brotherhood
- › Awareness Courses and Moral Classes reinforcing human values
- › Integrated five-year programmes combining Undergraduate and Postgraduate studies for a systematic and graduated learning process
- › Professional programmes in Management, Technology and Education
- › Research with social relevance
- › Favourable teacher-student ratio

INFRASTRUCTURE

- › World-class facilities and resources offered despite a rural set-up
- › Campuses set amidst peaceful surroundings
- › Spacious, elegant and aesthetically designed buildings

- › Well equipped, modern science laboratories and Instrumentation centres
- › Libraries across campuses with over 1,50,000 volumes
- › Computer centres with ultra-high speed broadband internet connectivity
- › Well-equipped Multimedia learning centres
- › International Centre for Sports and a Cricket stadium

INTEGRAL EDUCATION

- › Life lessons learnt through the inspiration and message of the Revered Founder Chancellor, Bhagawan Sri Sathya Sai Baba
- › Application of what is learned in daily life
- › Integrating human values with secular knowledge
- › Equal emphasis on curricular and co-curricular activities
- › Inculcating the spirit of self-reliance and service to society
- › Synthesis of science and spirituality for societal benefit

SRI SATHYA SAI PHILOSOPHY OF FREE EDUCATION

As a matter of philosophy, the Revered Founder Chancellor, Bhagawan Sri Sathya Sai Baba insisted on providing education totally free to all students. Indeed this was the practice in ancient *Bharath*, where *Vidya* (knowledge) and *Vaidya* (health) were never treated as commodities for sale but were regarded as most sacred gifts to be offered free to all mankind.

Bhagawan Baba says, "Educational institutions, which are supposed to be *Saraswati* Mandirs (centres of learning) have turned into *Lakshmi* Mandirs (centres of money). Provide free education to the children and they will be good. Education which is purchased can lead only to agitation."

Bhagawan Baba further says, "We must strive to revive the ancient system of free education. Today such a sacred approach to education is lacking among students, parents, teachers and the authorities. There must be a change in the moral climate of the educational system. Only then the educational institutions can turn out young men and women of character."

Thus, in addition to the sanctity and nobility of education and knowledge as institutions of transformation, another reason for providing education free is the sense of obligation and gratitude that it instills in the minds of students, inspiring them to willingly and voluntarily follow the discipline and adhere to values that should truly form the undercurrent of an ideal education system.

Highlighting the success of such a model, many years later, Bhagawan declared, "In the Sai Educational System, there are no problems of student unrest because education is free. Our students are happy. All of us are also happy. Because of free education, the students' behaviour is exemplary. All students feel spontaneously: 'Here we are getting free education. We must conduct ourselves well to show our gratitude to

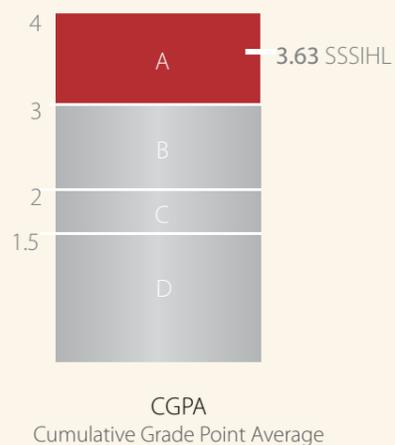
all concerned.' Opportunities must be provided for students to develop such an attitude towards their alma mater."

Above all, the Sri Sathya Sai Institute of Higher Learning (Deemed to be University) is a visible manifestation of the Divine love of Bhagawan Baba for humanity at large and students in particular. In a talk to students Bhagawan Baba said, "Who is giving free to whom? You are all Mine, and I am yours. I give my children what I want to give; is it proper to describe this as a free offering? You must appreciate this bond of unity between Swami and yourself – I and you are one."



"Blessed indeed are the students who have had the privilege of going through an education programme which combines deep appreciation of the method of modern science and technology and the ancient Indian knowledge and wisdom accumulated over the centuries. This type of education can be a powerful means of self-perfection and social redemption."

Dr. Manmohan Singh
Prime Minister of India



SSSIHL is among the **top 4% of 175 Universities** accredited by the National Assessment and Accreditation Council (NAAC) under the new methodology.

Source: NAAC.gov.in, 8 July 2013

Educare Values-based Integral Education

EDUCARE - The Holistic Foundation of SSSIHL

The Revered Founder Chancellor says, "The term education is derived from the Latin term 'Educare', which means 'drawing out'. The idea is to draw out what is already latent. Acquisition of knowledge is a worldly aspect. But what has to be discerned is the divine feeling present in the human heart...
 ...Secular knowledge is no doubt necessary, but its acquisition must have a fundamental (spiritual) basis. The latent powers in each student have to be brought out."

Right from its inception, the Sri Sathya Sai Institute of Higher Learning has integrated ethics and values as the undercurrent of every subject taught at the University. Combined with academic excellence, the University provides a holistic framework of inter-personal development for its students. Its compulsory residential character trains the mind, body and spirit of the student in an environment similar to the ancient Indian 'gurukula' system of education, in the most modern context.

The University strives at every level to blend the Academic (Secular) aspects of learning with that of Character Building (Spiritual), as depicted in the 'Temple of Learning' diagram. This helps students develop a wholesome and balanced personality, one where academic competence is supplemented with good character.

Students – both women and men – typically spend between two to five years pursuing an education at SSSIHL. Upon graduation, they are well-qualified to find suitable employment related to their academic backgrounds. However, what differentiates them from graduates of other universities is not just the training of their minds, but also the transformation of their hearts.

Sri Sathya Sai values-based Integral Education

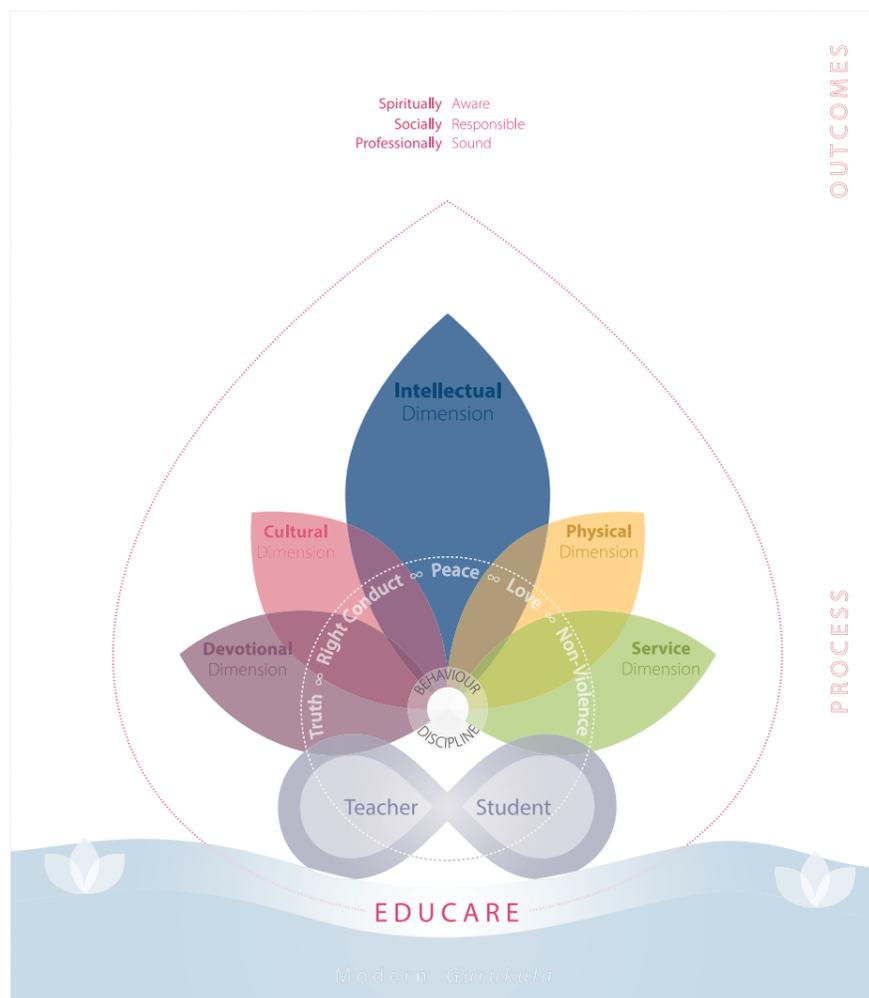
The Revered Founder Chancellor says, "In this University the medium of instruction is discipline. The first, second and third languages are love, service and sadhana (spiritual discipline)... Do you know why you have such a tight schedule in the hostel? This schedule is not structured by the Trust. Swami has personally structured this schedule. I have ordered the syllabus to be tight. Why is it so? The minds of today's children, if given time, will turn into a devil's workshop. When the daily routine is tight, your mind cannot wander here and there."

This University is a Modern Gurukula, a place where teachers and students live and grow together in love and wisdom. The teacher-student interaction occurs in the backdrop of the process of

Integral Education that includes the five dimensions of: Intellectual, Cultural, Physical, Service and Devotional.

Adherence to discipline and appropriate behaviour are two important aspects that encompass these interactions. The five human values of Truth, Right Conduct, Peace, Love and Non-violence form the undercurrent of all the dimensions of integral education.

The inputs on all these dimensions along with the unique ambience of the Modern Gurukula brings to the fore the human values latent in the students and teachers. Following this way of life on a day-to-day basis transforms the student into a wholesome personality: professionally sound, socially responsible and spiritually aware.



Activities within the Integral Education Dimensions

The following activities within the five dimensions is representative of the major activities that students participate in, during their time at SSSIHL.

| | | | | |
|---|---|---|---|---|
| | | | | |
| Devotional Dimension | Cultural Dimension | Intellectual Dimension | Physical Dimension | Service Dimension |
| Bhajans (Sankeertan) Vedic chants Stotrams Meditation & Silent sitting Suprabhatam (Prayer at dawn) Assembly (College prayer) Brahmaarpanam (Food prayer) Kshama Prarthana (Prayer before sleep) | Celebration of festivals Brass Band Nadaswaram ensemble Panchavadyam ensemble Annual Sports & Cultural Meet Performing Arts: Music programmes Drama Dance Fine Arts: Rangoli Card making Photography Altar making Public Speaking Debates Elocution | Academic studies Research Workshops & conferences Colloquiums Symposiums Talks and discussions during Assembly Awareness class Moral class Study circles Annual Summer Course in Indian Culture and Spirituality | Sports Games Jogging Exercises Yogasanas Annual Sports & Cultural Meet | Self-Reliance departments: Electricals Plumbing Audio-visual General store Dispensary Dietary services Hostel mess Arts & Crafts Costumes & props Community living Social Work Voluntary work Grama Seva (Annual village service) Prasadam distribution |
| | | | | |

FACILITIES & RESOURCES

The Institute, though having a rural setup in three of its campuses, houses advanced infrastructural facilities that contribute to both the academic and co-curricular domain of the students' personal development process.

Each campus is equipped with complex facilities for students, faculty members, administrators and other staff, all of which present a holistic environment, conducive for a high quality education and all-around student development. These standards are reflected in all its campuses.

Buildings and Grounds

All the campuses of the University have spacious, beautiful and artistically designed buildings which stand out for their simplicity and elegance. The classrooms are designed to handle an optimal size of 30 students for a course to facilitate effective teacher-student interaction. Supplementing these are the seminar halls and conference rooms with multi-media facilities. The sprawling lawns and well-maintained grounds give each campus its own character and feel.

Auditoriums

Each campus of SSSIHL has an auditorium that can accommodate about 900 people. The auditoriums are used for daily prayers, Moral Class sessions on Thursdays, speeches and cultural events.

Labs and Computer Centres

The University has well-equipped laboratories in the fields of Physics, Chemistry, Biosciences, Nanosciences, Artificial Intelligence and Information Technology; and a Green House for off-season cultivation of floricultural and medicinal plants. It also has a leased line which provides high-speed broadband internet connectivity to students and staff for academic pursuits. It is one of the few Universities to have English Language Labs in all its campuses.

The Computer Centres at the campuses have been revamped and provide 362 computers for use by the students. As a result, the student to computer ratio of the University now stands at 2.5:1.

Multimedia Facilities

The Air-conditioned Multimedia Centres, with a seating capacity of over 100 participants at each campus, typically host national and international seminars, conferences and workshops. They are

equipped with the latest Audio / Video conferencing facilities which enable active and real-time collaborations among staff and students of the three campuses of the University.

Library Facilities

Each of the three campuses of the Institute has got a well-established library. The Central Library, located at the Prasanthi Nilayam Campus, with an initial collection of 15,000 volumes, has now swelled to over 150,000 across all three campuses. The libraries house latest books and journals in diverse academic fields and spacious facilities for reading.

The Libraries receive about 280 periodicals, both national and international, that include a good collection of the back volumes of Journals. Audio, Video and CD-ROM collections, as well as Theses, Dissertations, Quick Reference Books, and other materials (including maps) are available to students.

Other services offered in the University libraries include Referencing, Photocopying, Inter-library Loans, etc.

Sports Facilities

All campuses of the University are well equipped with sports facilities. From Cricket grounds to indoor stadiums to basketball courts, each campus has its own set of facilities to offer students.

Each campus has a Physical Instructor who oversees the sports activities for students at that campus.

Two of the main facilities available for



Sri Sathya Sai International Centre for Sports



Tennis Courts

students are:

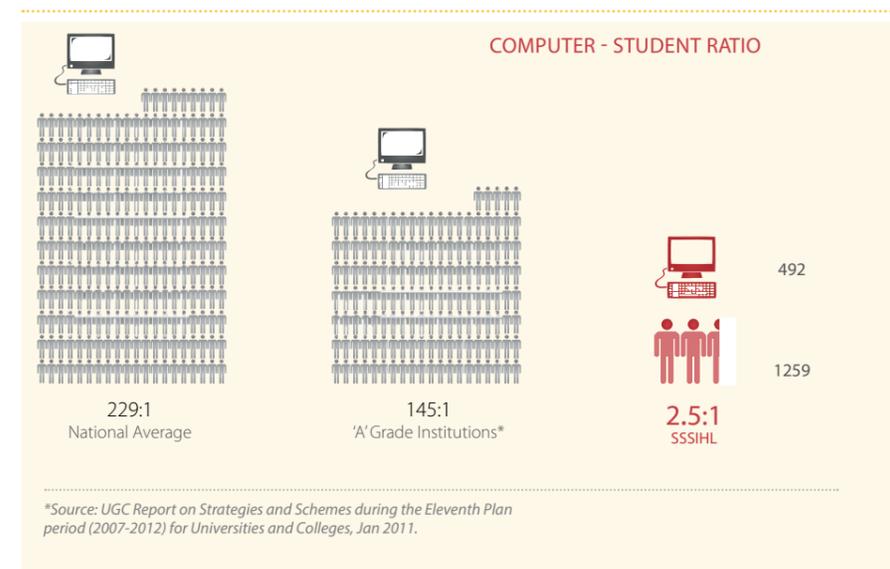
Sri Sathya Sai International Centre for Sports

A state of the art Olympic-standard multi-discipline indoor stadium was inaugurated on 22 November 2006, by the then President of India, Honourable Dr. A P J Abdul Kalam.

With facilities for Basketball, Volleyball, Tennis, Squash, Table-tennis, Badminton, Gymnastics and Yoga/Aerobics, this stadium - measuring 100 metres by 60 metres on a 4.8 acre site, is amongst the largest open-frame space domes in the country. It has a spectator capacity of 4,000.

Sri Sathya Sai Hill View Stadium

A multi-purpose outdoor stadium, the Sri Sathya Sai Hill View Stadium was constructed for the purpose of conducting the Annual Sports and Cultural meet of all Sri Sathya Sai Educational institutions (an annual event on 11 January). The stadium overlooks an array of imposing structures and statues symbolizing different faiths. On occasions, the stadium hosts International sports events. It boasts a viewers gallery that can accommodate over 25,000 people.



English Language Lab

Physics Lab

Auditorium



Sri Sathya Sai Hill View Stadium & Cricket Ground

Teaching Learning & Evaluation

TEACHING METHODS

Values-based teaching

All teaching at the University infuses values into the main curriculum of each course and subject. The goal of this is to foster character development along with academic excellence.

Sample: Awareness Courses

The Awareness courses are mandatory for all students at all levels of study. They aim at cultivating a broad view of the human condition. This holistic view includes the contributions from all cultures. The courses highlight the unity of all great world religions and provide an understanding of their underlying spirituality. They foster a yearning in students to alleviate human misery and distress.

The courses help trigger self-reflection and enquiry in students, sensitising them to the concerns of society and facilitate the formulation of practical solutions to these problems.

The Awareness courses, at the Undergraduate level, cover philosophy of education, unity of religions and faiths, ethos and values and their relevance in modern society, as well as the study of Indian classics such as Ramayana and Bhagavatam. At the Postgraduate

and Professional levels (Programmes in Management, Technology and Education) the focus is on introducing students to the practical aspects of spirituality, enabling them to apply the spiritual principles from the ancient scriptures for dealing with problems of modern society.

Student-Teacher Ratio

Bhagawan Baba has emphasised that the experiential learning model of education can only blossom when both the teacher and the taught learn and grow together. The teachers need to spend dedicated time with students for both academic and non-academic activities. This has resulted in SSSIHL having one of the best student to teacher ratios in the country. (See opposite page).

Mentoring

Unlike other Universities, where access to teachers (outside of class) is restricted to designated office hours, at SSSIHL, the environment is such that students can approach teachers at various times during the day and can freely discuss both academic issues and personal matters with them - ranging from spirituality to family issues back home - in confidence.

As facilitators and mentors, teachers set an example by following the values-

based education system as laid out by Bhagawan Baba.

Residential Teachers

Teachers of the University who reside in the hostels take this a step further. In addition to mentoring students, every teacher is expected to perform three fundamental tasks: ensuring the all-round welfare of students; discharging specific duties for the maintenance of the hostel daily routine and upkeep of general discipline in the hostel; and facilitating the smooth functioning of the hostel Self-reliance departments.

Distinguished Visiting Faculty

Inspired by the vision of Bhagawan Sri Sathya Sai Baba, eminent academicians and people from industry from across the globe visit the campuses every year, to share their vast teaching and industry experience with students. Thus, the teaching and research at the University is aided and enhanced on a continual basis.

Experiential Learning

The University is dedicated to the cause of transforming theoretical knowledge into skills. For students studying the Sciences, the afternoon classes are devoted to laboratory sessions. Those pursuing the Social Sciences, Arts, and Management disciplines dedicate 50% of their weekly class time learning to internalize the concepts studied. This is done through case-studies, self-feedback exercises, role-plays, management games, group discussions, outdoor exercises, etc.

Research with Social Relevance

Bhagawan Baba has emphasised that bookish knowledge must be translated into practical knowledge that ultimately benefits society. Consequently, all research projects at SSSIHL are of social relevance, and are useful in medical diagnostics, agricultural biotechnology, governance, social responsibility, sustainable development, etc.

Many of the research projects undertaken by the departments of the University are

multi-disciplinary in nature.

Semester System

The University follows a semester system where each Academic year (1 June to 15 April) at SSSIHL is divided into a summer Semester and a winter Semester, with a two-week vacation (typically last week of October and first week of November) separating them.

Holistic Evaluation

At SSSIHL, academics and non-academic activities go hand-in-hand. So much so, that each graduand, for his/her degree certificate, is awarded two final grades - one for their Cumulative Grade Point Average (CGPA) over the course of the degree, and the other for their cumulative performance in non-academic Integral Education-related activities such as sports, culture, service and spiritual activities.

This holistic evaluation system at the University is designed to foster unity, teamwork and a sense of service to others amongst both faculty members and students. As a result, students are consistently provided with opportunities to develop their potential for leadership, teamwork, ethical and moral behaviour. A disciplined routine (both academic and residential), which the teachers themselves follow, sets a precedent for students to emulate.

System of Assessment

The System of Assessment is designed to help in the learning process of the students by providing timely feedback to the students and the teachers regarding actual performance against set expectations through a combination of the Continuous Internal Evaluation (CIE) which spreads across the entire semester, and the End of Semester Examination (ESE), which is conducted at the conclusion of a semester.

CIE is a measure whereby students are evaluated on an ongoing basis throughout each semester of their studies. Unlike the End of Semester Examinations (ESE), CIE requires that students take a series of tests on a

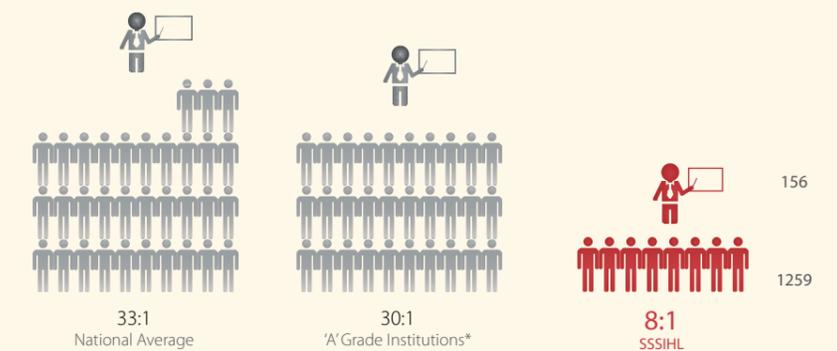
monthly basis. CIE comprises mid-semester/monthly tests, assignments, case studies, etc. The components of CIE are designed by the faculty to ensure that students have a sound and conceptual understanding of the subject.

The Institute has adopted an Absolute Grading System with a ten-point scale.

Electives

Students pursuing courses in the Sciences and Management have the opportunity to choose electives, which fosters their academic development.

STUDENT - TEACHER RATIO



*Source: UGC Report on Strategies and Schemes during the Eleventh Plan period (2007-2012) for Universities and Colleges, Jan 2011.

The above reflects full-time faculty.



Mentoring, Campus grounds



Gold Medal Awardee

Brass Band practice

Examinations



Volley Ball Match on Campus grounds

SSSIHL Student Life

Hostel Life

The Sri Sathya Sai System of Integral Education, mirrors to a large extent, the tried and tested ancient Indian *Gurukula* system of education, of which the Hostel forms a critical component. This residential component of student life is compulsory for every student admitted to SSSIHL.

A lot of thought and effort has gone into evolving this system at the University over the past three decades. The philosophy is based on the approach of community living wherein each one lives for the other and all live together for a common higher cause. Students hailing from different states of India, diverse cultures and varied economic and financial backgrounds live in dormitory-styled accommodation with 10-14 students staying together in a room. The Pan-Indian character of the University comes alive in the Hostel. The Hostel buildings too are aesthetically pleasing, thus creating a noble ambience for students to live in.

As a result, the Hostel is a miniature model of the world outside with people of different habits, temperaments, lifestyles, language and outlook staying together and working. This develops

the qualities of understanding, adjustment, sharing and caring amongst the students. It nurtures virtues like adaptability, tolerance and sacrifice; developing students into noble and responsible citizens.

The ambience in the hostel is suffused with both discipline and loving care. All research scholars and around one-third of the teaching faculty reside with the students in the Hostel. The relationship between the students and teachers is very cordial and warm, and the teachers pay personal attention to the problems of each and every student. The teachers are chosen with extreme care to play an important role in this process. Many of them are alumni of the Institute, dedicated and well versed in Integral Education. They take active part not only in classroom instruction but also by providing help, guidance and general counselling to students whenever needed. At the hostel, they serve as facilitators and are available at all times for mentoring the students on personal and academic matters.

Personal cleanliness, punctuality and regularity, general behaviour, personal etiquette and room cleanliness – these are the major components of the

discipline that is followed at SSSIHL hostels.

The Hostel is also a self-sufficient unit housing all the basic necessities of the students, thus avoiding unnecessary movement of students outside the Hostel premises. To minimise the possible negative influences, the students are encouraged to read inspiring literature, listen to elevating music and view meaningful audio visuals. Access to television is restricted primarily to news and informative documentaries. Weekly movie shows consist of themes such as patriotism, adventure, mythology, mystery, action and humour; and they are appropriately edited to suit the spirit of the system. The students are provided with nutritious vegetarian food.

Daily Routine

The daily routine at the Sri Sathya Sai Hostels is designed to keep students engaged in constructive and productive activities throughout the day. The day typically starts with a couple of hours spent in prayer, exercise and other vocational pursuits (such as practice sessions for music, band, traditional Indian instrumental music and the likes). Classes commence at 9:00am. After college ends at about 3:30pm,

students move to the Mandir for participation in congregational chanting (*Vedam*), devotional singing (*Bhajans*) and other spiritual activities. These also include talks by eminent speakers on a variety of spiritual topics. Post dinner, students usually spend time on their studies.

Hence, Hostel, College and Mandir – these three are the key areas that make up a student's daily routine at all the campuses of SSSIHL.

Self Reliance

A major portion of the functioning of the Hostel is taken care of by the students and resident staff members. The guiding principles of the Hostel are a simple life coupled with self-reliance. The students do their work with least dependence on external agencies. To inculcate the dignity of labour and respect for work, most functions and departments of the Hostel are run by students under the able guidance of resident faculty.

The self-reliance departments include:

House Keeping (Maintenance, Electrical, Carpentry, Plumbing, Landscaping, Drinking Water Plant)

Academic support (Library, Computer Centre, Photocopying, Tutorials)

Health care (Paramedical and First aid

assistance, General hygiene, Dietary Services)

Entertainment (Multimedia and Audio-visuals for in-house entertainment, Sound engineering and Recording)

Support Services (General Stores, Transport services)

Culinary (Catering Services, Dietetics, Fruits and Snacks, Bakery)

Fine Arts (Arts, Crafts, Instrumental Music, Vocal Music, Brass Band, Photography)

Performing Arts (Dance, Dramatics and Costumes, Theatre, Public Speaking, Quiz)

Publications (Books and Newsletters – relating to the education system and interaction with and messages of the Revered Founder Chancellor)

Spiritual Activities (Festivals, select Ceremonies and Rituals to encourage the spirit of traditional Indian culture and heritage)

These self-reliance activities enable students to become self-confident and independent, and also contribute to leadership and entrepreneurial development. The distinctive feature of these self-reliance departments is the aspect of continuity, in spite of batches of final year students graduating and passing out of the University every year.

This is facilitated through an effective succession planning in the traditional gurukula style; wherein the senior students train their junior successors before graduating.

The involvement of students in self-reliance activities, trains them in time management, enhances their skill sets, fuels their latent talents and creativity – channelising them into productive activities. Other benefits include spirit of teamwork, group dynamics, spirit of selfless-service and enhanced sensitivity. Above all, it builds self-confidence and yields self-satisfaction.

UGC Regulations on curbing the menace of Ragging in Higher Educational Institutions, 2009: (Under Section 26(1)(g) of the University Grants Commission Act, 1956) contained in their letter No.F.1-16/2007(CPP-II) dated 17 June 2009 and published in Gazette of India dated 4 July 2009. For details, please refer to the UGC website: www.ugc.ac.in.



Hostel Room



Sports Meet Practice



Hostel Dispensary



Prayer session



Eating together, Hostel Dining Hall



Morning Yoga



Arts & Crafts



Music



Drama



Summer Course in Indian Culture & Spirituality



Annual Sports & Cultural Meet



Annual Grama Seva

BEING A SAI STUDENT

Bhagawan Baba has expressed that students graduating from this University have:

- › the **“Head of Shankara”** that symbolizes knowledge leading to **wisdom**
- › the **“Hands of Janaka”** that symbolizes knowledge translated to **skills for societal benefit**
- › the **“Heart of Buddha”** that symbolizes love and compassion

As the diagram below depicts, a loving and compassionate heart influences the head - converting knowledge to wisdom - thereby influencing the way knowledge is applied, that is skills. Therefore, a harmonious balance of these three - the head, heart and hand - transforms mere ability to nobility.

In a nutshell, the aim of this University is to produce good human beings who are professionally sound and socially sensitive.

In keeping with Bhagawan Baba’s philosophy that ‘Education is for life and not merely for earning a living’, the University as a policy, does not organise placements on campus. The Alumni of the University assist in placement of graduating students after they complete

their academic programme at SSSIHL. This policy of SSSIHL is to enable the students to focus purely on learning and benefit from the unique ambience without distraction.

SSSIHL ALUMNI

The University and its system of integral education fully equip the students with the knowledge, skill sets and the self-confidence necessary to be self-sufficient in the outside world. Highlighting this role of SSSIHL, Bhagawan Baba has emphasized, “The Institute will confer on its alumni the courage and confidence, the knowledge and skill to shape their career by their own efforts, standing on their own legs and relying on their own strength”.

The alumni of SSSIHL are spread across the globe including North and South America, Europe, Africa, the Middle East, Australia and New Zealand and Asia. They hold prestigious positions in many organisations and have earned great appreciation from their employers.

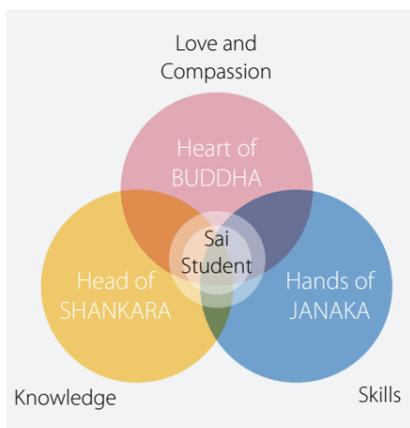
A sample of highly reputed Indian organisations/institutions where the alumni of SSSIHL are employed include Indian Institute of Sciences, Indian Institutes of Technology, Indian Institutes of Management, Government of India, Tata Institute of Fundamental Research, Raman Research Institute, Indian

Institute of Astrophysics. A sample of such reputed organizations where alumni are employed in other countries includes: University of Florida, University of Missouri, University of California, John Hopkins, Arizona State University, University of South Mississippi, University of Texas, University of Kentucky, Texas Tech University, The Pennsylvania State University, Northwestern University, Florida Institute of Technology, University of Minnesota, University of Tennessee, The Scripps Research Institute, Massachusetts Institute of Technology, University of Kansas, University of Edinburgh Management School, University of Glasgow, University of Nottingham, Karolinska Institute, Macquarie University and many others.

Some of the business organisations where the students are in very senior positions are HDFC Bank, Barclays Bank, Citibank, Standard Chartered Bank, ABN Amro Bank, HSBC Bank, ICICI Bank, Bank of America, Oracle, Microsoft, GE, HP, Accenture, TCS, Infosys, Wipro, Dun & Bradstreet, Siemens, Philips, TVS Motors, L&T, Reliance, the Tata group companies and some public sector organisations. Among the overseas organisations, students are employed in Walmart, Canaries, SAP America, Inc., Intel Corporation, Lucent Technologies, Citigroup, Nortel, Price water house Coopers, Microsoft, IBM, Ernst & Young LLP, McKinsey & Company, Perot Systems, Sun Microsystems Inc., Cognizant Technology Solutions, Symantec, Reuters, Motorola and many others.



Outgoing Batch, Gratitude Programme



Harmony of Head-Heart-Hand

- 1 Choose Programme
- 2 Eligibility & Descriptions
- 3 Application form
- 4 Documents checklist
- 5 Post Application
- 6 Await Test Confirmation
- 7 Attend Test & Interview
- 8 Await final decision
- 9 Join SSSIHL

9-Step Application Process



- Undergraduate
- Postgraduate
- Professional

Step 1 Choose your programme

STEP 1: CHOOSE YOUR PROGRAMME

The first step in the application process is to carefully select the programme the student wants to apply to.

There are separate programmes available for **WOMEN** and **MEN** applicants, as the University hosts separate campuses for Women and Men students. The University also offers **M.Phil.** and **Ph.D.** programmes for Women and Men students, as well as the Master in Financial Management and Master of Computer Applications Programmes for Men students. These are integrated programmes, unavailable for direct admissions.

The following are the **PROGRAMMES OPEN FOR ADMISSIONS**:

PROGRAMMES FOR WOMEN

| UNDERGRADUATE Programmes (Duration: 3 years) | Page Ref. |
|--|-----------|
| B.A. | 21 |
| <ul style="list-style-type: none"> › In the first two years, a student can choose to study any three subjects amongst: Economics, Political Science, Philosophy, History & Indian Culture, Optional English and Optional Telugu › In the third year, students study one major subject (along with the other two basic subjects) | |
| B.Com. (Hons.) | 22 |
| Bachelor of Business Management (B.B.M.) | 23 |
| B.Sc. in Food Science and Nutrition | 25 |
| B.Sc. in Food Technology | 25 |
| B.Sc. (Hons.) in Mathematics / Physics / Chemistry | 26 |
| <ul style="list-style-type: none"> › In the first two years of study, all three subjects (Mathematics, Physics and Chemistry) are taught › In the third year, the subject of specialization will determine the final degree awarded: <ul style="list-style-type: none"> B.Sc. (Hons.) in Mathematics, B.Sc. (Hons.) in Physics, or B.Sc. (Hons.) in Chemistry | |
| B.Sc. (Hons.) in Biosciences* / Chemistry | 28 |
| <ul style="list-style-type: none"> › In the first two years of study, both subjects (Biosciences and Chemistry) are taught. › In the third year, the subject of specialization will determine the final degree awarded: <ul style="list-style-type: none"> B.Sc. (Hons.) in Biosciences, or B.Sc. (Hons.) in Chemistry <p>*If awarded a B.Sc. in Biosciences, it can lead directly to an M.Sc. in Biosciences (subject to meeting the eligibility criteria)</p> | |

| POSTGRADUATE Programmes (Duration: 2 years) | Page Ref. |
|--|-----------|
| M.A. in English Language and Literature | 30 |
| M.Sc. in Biosciences (With an option to specialize in either Biotechnology or Mycology and Plant Pathology) | 35 |
| M.Sc. in Food Science and Nutrition | 36 |
| M.Sc. in Food Technology | 37 |

| PROFESSIONAL Programmes (Duration: 1 year) | Page Ref. |
|--|-----------|
| Bachelor of Education (B.Ed.) | 38 |
| Master of Education (M.Ed.) | 39 |

| PROFESSIONAL Programmes (Duration: 2 years) | Page Ref. |
|---|-----------|
| M.B.A. | 40 |

| | | | | | | | | |
|------------------|----------------------------|------------------|---------------------|------------------|-------------------------|-------------------------|----------------------|-------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Choose Programme | Eligibility & Descriptions | Application form | Documents checklist | Post application | Await Test confirmation | Attend Test & Interview | Await final decision | Join SSSIHL |

PROGRAMMES FOR MEN

| UNDERGRADUATE Programmes (Duration: 3 years) | Page Ref. |
|---|-----------|
| B.A. | 21 |
| <ul style="list-style-type: none"> › In the first two years, a student can choose to study any three subjects amongst: Economics, Political Science, History & Indian Culture and Optional English › In the third year, students study one major subject (along with the other two basic subjects) <p>Note: Students who meet the eligibility criteria at the end of the first two years of study will have the option to pursue the Honours Programme in Economics and will be awarded a B.A. (Hons.) in Economics as a result</p> | |
| B.Com. (Hons.) | 22 |
| › Can lead to Master of Financial Management (subject to meeting the eligibility criteria) | |
| Bachelor of Business Management (B.B.M.) | 23 |
| Bachelor of Computer Applications (B.C.A.) | 24 |
| › Can lead to Master of Computer Applications (subject to meeting the eligibility criteria) | |
| B.Sc. (Hons.) in Mathematics* / Physics* / Chemistry* | 26 |
| <ul style="list-style-type: none"> › In the first two years of study, all three subjects (Mathematics, Physics and Chemistry) are taught › In the third year, the subject of specialization will determine the final degree awarded: <ul style="list-style-type: none"> B.Sc. (Hons.) in Mathematics, B.Sc. (Hons.) in Physics, or B.Sc. (Hons.) in Chemistry | |
| B.Sc. (Hons.) in Biosciences* / Chemistry* | 28 |
| <ul style="list-style-type: none"> › In the first two years of study, both subjects (Biosciences and Chemistry) are taught › In the third year, the subject of specialization will determine the final degree awarded: <ul style="list-style-type: none"> B.Sc. (Hons.) in Biosciences, or B.Sc. (Hons.) in Chemistry | |
| B.Sc. (Hons.) in Mathematics* / Economics* / Statistics | 29 |
| <ul style="list-style-type: none"> › In the first two years of study, all three subjects (Mathematics, Economics and Statistics) are taught › In the third year, the subject of specialization (Mathematics or Economics only) will determine the final degree awarded: <ul style="list-style-type: none"> B.Sc. (Hons.) in Mathematics, or B.Sc. (Hons.) in Economics | |

*Can lead directly to a Postgraduate programme in their respective subjects (subject to meeting the eligibility criteria)

| POSTGRADUATE Programmes (Duration: 2 years) | Page Ref. |
|--|-----------|
| M.A. in Economics (With an option to specialize in Financial Economics) | 31 |
| M.Sc. in Mathematics (With an option to specialize in either Pure Mathematics, Applied Mathematics or Computer Science) | 32 |
| M.Sc. in Physics (With an option to specialize in either Photonics, Nuclear Physics or Electronics) | 33 |
| M.Sc. in Nanoscience and Nanotechnology | 34 |
| M.Sc. in Chemistry | 35 |
| M.Sc. in Biosciences (With an option to specialize in either Biotechnology or Mycology and Plant Pathology) | 35 |

| PROFESSIONAL Programmes (Duration: 2 years) | Page Ref. |
|---|-----------|
| M.B.A. | 40 |
| M.B.A. in Finance | 41 |
| M.Tech. in Computer Science | 42 |
| M.Tech. in Optoelectronics and Communications | 43 |
| M.Tech. in Analytical Methods and Chemical Instrumentation | 44 |
| M.Tech. in Nuclear Medicine | 45 |

Step 2 Eligibility requirements & Programme descriptions

STEP 2: ELIGIBILITY REQUIREMENTS & PROGRAMME DESCRIPTIONS

Now that you have decided the specific programme to apply for, you can go straight to the information for that particular program (refer to the page number next to the programme in Step 1). The information (for each individual programme) will highlight the length of the programme, whether it is applicable for women candidates or men or both, the eligibility criteria and a programme description, which includes the courses of study for each year (and semesters).

The minimum entrance requirements vary from programme to programme. Candidates who do not meet all the admissions criteria listed for the programme they want to apply to will not be eligible for admissions and their applications will not be processed by the Admissions Office. They will be sent a letter of rejection by the Admissions Office.

Candidates belonging to Scheduled Castes/Scheduled Tribes are entitled to a relaxation of 5% marks for ALL programmes.

UNDERGRADUATE Programmes (Duration: 3 years / 6 Semesters)

The following Courses are common to all Undergraduate Programmes:

1. LANGUAGES

For the first four semesters of all Programmes, each student must study English as a first language and one of Sanskrit, Hindi, Telugu or Additional English* as a second language.

*Additional English can be opted in exceptional cases, where the student does not have an adequate background in Hindi or Telugu or Sanskrit.

2. AWARENESS COURSES

A series of courses entitled 'Awareness' are taught for all six semesters of study.

| Year 1 | Year 2 | Year 3 |
|--|--|---|
| Semester 1 Philosophy of Education (Based on Bhagavan Baba's Life and Teachings) | Semester 3 Eternal Values for the changing world | Semester 5 Study of Classics: Ramakatha Rasavahini-Ramayana as narrated by Bhagawan Sri Sathya Sai Baba |
| Semester 2 Unity of Religions | Semester 4 Study of Classics: Bhagawat Vahini-Bhagawatam as narrated by Bhagawan Sri Sathya Sai Baba | Semester 6 Life and its Quest |

3. ENVIRONMENT COURSES

A course in Environment is also taught for the first two semesters.



| | | | | | | | | |
|------------------|----------------------------|------------------|---------------------|------------------|-------------------------|-------------------------|----------------------|-------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Choose Programme | Eligibility & Descriptions | Application form | Documents checklist | Post application | Await Test Confirmation | Attend Test & Interview | Await final decision | Join SSSIHL |

B.A.

Duration: 3 Years

For Women & Men Candidates

Admissions Test Syllabus: Page 57

Eligibility Requirements

- ✓ 10+2 years of schooling from a recognized board (CBSE or equivalent)
- ✓ Either passed or appeared for Final exams at XII level before Admissions Test
- ✓ XII Standard: 55% or more (English) and 60% (Aggregate including English) (If not appeared for XII Standard exams, X and XI Standard marks will be considered)
- ✓ Age: preferably below 19 years as of 31st May in the year of admission

Programme Description

- › In the first two years, a student can choose to study **any three subjects amongst:**
Women Students: Economics, Political Science, Philosophy, History & Indian Culture, Optional English and Optional Telugu
Men Students: Economics, Political Science, History & Indian Culture and Optional English
- › In the third year, students study one major subject (along with the other two basic subjects)

B.A. (Hons) in Economics (Men Students only): Men Students who meet the eligibility criteria at the end of the first two years of study will have the option to pursue the Honours Programme in Economics. They must study two additional courses of Economics in place of the basic subjects of the three-subject combination in Year 3 (Semesters 5 and 6).

Courses taught per Semester

| Year 1 | Year 2 | Year 3 |
|---|--|--|
| Semester 1 Economics: Economic Analysis- I Political Science: Elements of Political Science Philosophy: Introduction to Indian Philosophy History & Indian Culture: Ancient India- I (until 300 AD) Optional English: Prose Optional Telugu: Poetry, Prosody and Grammar | Semester 3 Economics: Mathematics for Economics Political Science: Modern Governments- I Philosophy: Twentieth Century Philosophers- Indian and Western History & Indian Culture: History of Medieval India- I (1206 AD to 1526 AD) Optional English: Drama Optional Telugu: Poetry and Grammar | Semester 5 Economics: Indian Economy: Structure and Development, Intermediate Micro Economic Theory and a practical course of Introduction to Computer Application-I Political Science: Principles of Public Administration and a major course to be chosen from Indian Political Thought and Western Political Thought Philosophy: The Philosophy of Upanishads and major course entitled Ethics- Normative and Applied. History & Indian Culture: History of Modern India-I (from advent of Europeans up to 1857 revolt) and a major chosen from a set of four electives Optional English: Study of Literary Forms- Short Story and one-act play and a major course entitled History of English Language Optional Telugu: History of Literature-I and the major course of Sanskrit- Poetry, Grammar and Translation |



Step 2 Eligibility requirements & Programme descriptions

| Year 1 | Year 2 | Year 3 |
|---|---|---|
| Semester 2 Economics: Economic Analysis- II Political Science: Elements of Government Philosophy: Introduction to Western Philosophy History & Indian Culture: Ancient India- II: North India (600 AD to 1206 AD), South India (600 AD to 1336 AD) Optional English: Poetry Optional Telugu: Novel | Semester 4 Economics: Statistics for Economics Political Science: Modern Governments- II Philosophy: Western Logic (Formal and Symbolic) History & Indian Culture: History of Medieval India- II (1526 AD to 1761 AD) Optional English: Novel Optional Telugu: Folk Literature and Alankaras | Semester 6 Economics: Public Finance and Fiscal Policy, Intermediate Macroeconomic Theory and a practical course entitled Introduction to Computer Application-II Political Science: Public Personnel Administration and a major course entitled International Politics Philosophy: General Psychology and a major course entitled Study of Classics- Eastern and Western History & Indian Culture: History of Modern India-I (from 1858 A.D. to 1950 A.D.) and a major chosen from a set of four electives. Optional English: History of English Literature and a major course entitled Literary Criticism Optional Telugu: Telugu Journalism and a major course of Sanskrit- Poetry, Grammar and Translation |
| Economics (Hons.) - Semester 5: Indian Economy: Structure and Development, Intermediate Micro Economic Theory, a practical course of Introduction to Computer Application-I, Indian Financial System and International Economics | | |
| Economics (Hons.) - Semester 6: Public Finance and Fiscal Policy, Intermediate Macroeconomic Theory and a practical course entitled Introduction to Computer Application-II, Development Economics and Basic Econometrics | | |

B.Com. (Hons.)

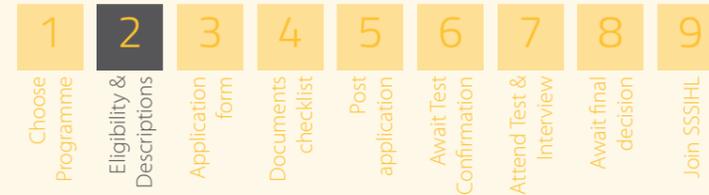
Duration: 3 Years For Women & Men Candidates Admissions Test Syllabus: Page 56

Eligibility Requirements

- ✓ 10+2 years of schooling from a recognized board (CBSE or equivalent)
- ✓ Either passed or appeared for Final exams at XII level before Admissions Test
- ✓ XII Standard: 55% or more (English) and 60% (Aggregate including English)
(If not appeared for XII Standard exams, X and XI Standard marks will be considered)
- ✓ Age: preferably below 19 years as of 31st May in the year of admission

Programme Description

The B.Com. (Hons.) Programme will impart basic knowledge and skills in all the important subjects in the field of commerce. It will equip students thoroughly in the field of accounting, finance and taxation. The programme will help students prepare for advanced studies in finance and management and also professional courses in accounting, costing, financial analysis, insurance and corporate secretary-ship. Significant amount of time will also be spent on fostering ethical and moral attitudes to help students become better professionals in the financial services sector and in conducting business and serving industry after graduation.



Courses taught per Semester

| Year 1 | Year 2 | Year 3 |
|--|---|---|
| Semester 1 Business Communication, Financial Accounting-I, Business Economics and Introduction to Quantitative Techniques | Semester 3 Company Law, Corporate Accounting, International Business and Quantitative Techniques-II | Semester 5 Elements of Income Tax, Banking Theory and Practice, Financial Management, two courses from a list of four electives and a practical course in Spreadsheet Applications |
| Semester 2 Principles of Management, Financial Accounting-II, Economic Environment of Business and Quantitative Techniques-1 | Semester 4 Business Statistics, Accounting for Financial Services, Elements of Costing and a practical course in Computer Theory and Accounting Package | Semester 6 Principles of Marketing, Commercial Law, Auditing, two courses from a list of four electives, a practical course in Presentation and Database applications (Optional) and a comprehensive Viva voce. |

Bachelor of Business Management (B.B.M.)

Duration: 3 Years For Women & Men Candidates Admissions Test Syllabus: Page 58

Eligibility Requirements

- ✓ 10+2 years of schooling from a recognized board (CBSE or equivalent)
- ✓ Either passed or appeared for Final exams at XII level before Admissions Test
- ✓ XII Standard: 55% or more (English) and 60% (Aggregate including English)
(If not appeared for XII Standard exams, X and XI Standard marks will be considered)
- ✓ Age: preferably below 19 years as of 31st May in the year of admission

Programme Description

A comprehensive introduction to Business Management at the Undergraduate level, the B.B.M. programme will equip the student with a thorough understanding of the theory and practice of Business Management via twenty core courses, taught over three years. What makes this programme unique from others is the focus on Values-based Management, Rural Development and Corporate Initiatives, Sales Management, National Perspectives and Entrepreneurial Development and Schemes – all of which are seamlessly integrated with the undercurrent of ethics and values.



Step 2 Eligibility requirements & Programme descriptions

Courses taught per Semester

| Year 1 | Year 2 | Year 3 |
|--|--|---|
| Semester 1 Values Oriented Management, Financial Accounting for Management, Business Communications and a practical course in Computer Theory and MS Office-Word | Semester 3 Human Resources Management, Financial Management, Office Management and Information Systems and a practical course in Computers (Office Management and Information Systems) | Semester 5 Taxation, Rural Development and Corporate Initiatives, Banking-Theory and Practice, Management of Operations, two elective courses from the streams of Marketing, Finance and Human Resources Management without necessarily confining to any single group, a practical course in e-Commerce and a Viva voce |
| Semester 2 Organisational Behaviour, Analytical Techniques for Management, Business Economics and a practical course in Computers (Accounting Package, MS Office-Powerpoint) | Semester 4 Selected Commercial Laws, Costing for Management, Principles of Marketing and a practical course in MS Office-Access | Semester 6 National Perspectives, Management Accounting, Sales Management, Entrepreneurial Development and Schemes, two elective courses from the streams of Marketing, Finance and Human Resources Management without necessarily confining to any single group and a practical course in ERP and CRM |

Bachelor of Computer Applications (B.C.A.)

Duration: **3 Years** For **Men** Candidates only Admissions Test Syllabus: **Page 59**

Eligibility Requirements

- ✓ 10+2 years of schooling from a recognized board (CBSE or equivalent)
- ✓ Either passed or appeared for Final exams at XII level before Admissions Test
- ✓ XII Standard: 55% or more (English) and 60% (Aggregate including English) (If not appeared for XII Standard exams, X and XI Standard marks will be considered)
- ✓ In XI / XII Standard, Mathematics (inc. Algebra, Geometry, Calculus and basic Statistics) must be studied
- ✓ Age: preferably below 19 years as of 31st May in the year of admission

Programme Description

The programme covers a wide spectrum of computer courses, including Computer Architecture, Algorithms, Operating Systems, Computer Network, Database Systems, Internet Programming, Linux environment and .NET. In the final year, students have a choice of eight electives. In order to supplement theoretical learning, related lab courses are conducted each semester. This enhances the application of the core principles of the course. Lastly, courses from mathematics and business will promote logical thinking and expose students to the nuances of the current world business environment.

Courses taught per Semester

| Year 1 | Year 2 | Year 3 |
|---|--|--|
| Semester 1 Linear Programming, Geometry, Calculus and Diff. Equations (Mathematics-I), Introduction to Computer Systems, Introduction to Computer Systems and first part of software Lab in C | Semester 3 Numerical Methods (Mathematics-III), Operating System, Software Lab in C++, Software Lab in Office Automation, Values Oriented Management and seminar | Semester 5 Database Management System, Network Essentials, System Software, Microprocessor, Software Lab in Java (Part-1, Software Lab in Office SQL, Fundamentals of Financial Accounting and seminar |

| | | | | | | | | |
|------------------|----------------------------|------------------|---------------------|------------------|-------------------------|-------------------------|----------------------|-------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Choose Programme | Eligibility & Descriptions | Application form | Documents checklist | Post application | Await Test Confirmation | Attend Test & Interview | Await final decision | Join SSSIHL |

| | | |
|--|---|---|
| Semester 2 Discrete Mathematics (Mathematics-II), Data Structures and Algorithms, Fundamentals of Computer Architecture, second part Software Lab in C and a Comprehensive Viva voce | Semester 4 Probability and Statistics (Mathematics-IV), Object-Oriented Programming, Linux Environment, Software Lab in Linux and a Comprehensive Viva voce | Semester 6 Two courses from a set of eight electives, Business Communications, Software labs in Java and Web Programming, a software project with a Viva voce and a Comprehensive Viva voce |
|--|---|---|

B.Sc. in Food Science and Nutrition

Duration: **3 Years** For **Women** Candidates only Admissions Test Syllabus: **Page 56**

Eligibility Requirements

- ✓ 10+2 years of schooling from a recognized board (CBSE or equivalent)
- ✓ Either passed or appeared for Final exams at XII level before Admissions Test
- ✓ XII Standard: 55% or more (English) and 60% (Aggregate including English) (If not appeared for XII Standard exams, X and XI Standard marks will be considered)
- ✓ Age: preferably below 19 years as of 31st May in the year of admission

Courses taught per Semester

- › In the first two years, students of both B.Sc. in Food Science and Nutrition and B.Sc. in Food Technology study the same courses.
- › (Unless otherwise stated, each of the courses below include both theoretical and practical assessment)

| Year 1 | Year 2 | Year 3 |
|--|---|---|
| Semester 1 Introductory Food Science, Applied Chemistry, Fundamentals of Nutrition | Semester 3 Biochemistry, Basic Food Chemistry, Food Preservation Technologies | Semester 5 Functional Foods and Nutraceuticals (Theory only), Institutional Food Management, Ergonomic Science, Improving Health and Nutrition: IEC Approaches, Women Nutrition, Sports Nutrition |
| Semester 2 Human Physiology, Microbiology, Principles of Culinary Science and Art | Semester 4 Human Nutrition, Normal and Therapeutic Nutrition, Food Quality Assurance and Evaluation, Computer Basics and Applications (Practicals only) | Semester 6 Pediatric and Geriatric Nutrition, Nutrition in Emergency and Disasters (Theory only), Dietetics, Community Nutrition, Nutrition and Metabolism |

B.Sc. in Food Technology

Duration: **3 Years** For **Women** Candidates only Admissions Test Syllabus: **Page 56**

Eligibility Requirements

- ✓ 10+2 years of schooling from a recognized board (CBSE or equivalent)
- ✓ Either passed or appeared for Final exams at XII level before Admissions Test
- ✓ XII Standard: 55% or more (English) and 60% (Aggregate including English) (If not appeared for XII Standard exams, X and XI Standard marks will be considered)
- ✓ Age: preferably below 19 years as of 31st May in the year of admission

Step 2 Eligibility requirements & Programme descriptions

Courses taught per Semester

- › In the first two years, students of both B.Sc. in Food Science and Nutrition and B.Sc. in Food Technology study the same courses.
- › (Unless otherwise stated, each of the courses below include both theoretical and practical assessment)

| Year 1 | Year 2 | Year 3 |
|--|---|--|
| Semester 1 Introductory Food Science, Applied Chemistry, Fundamentals of Nutrition | Semester 3 Biochemistry (Theory and Practicals), Basic Food Chemistry, Food Preservation Technologies | Semester 5 Functional Foods and Nutraceuticals (Theory only), Institutional Food Management, Ergonomic Science, Fruits and Vegetables Technology, Bakery and Confectionary Technology, Grain Science and Oil Seed Technology |
| Semester 2 Human Physiology, Microbiology, Principles of Culinary Science and Art | Semester 4 Human Nutrition, Normal and Therapeutic Nutrition, Food Quality Assurance and Evaluation | Semester 6 Food Fermentation and Biotechnology, Food Product Development, Milk and Milk Products Technology, Food Processing Operations (Theory only), Nutrition and Metabolism |

B.Sc. (Hons.) in Mathematics / Physics / Chemistry

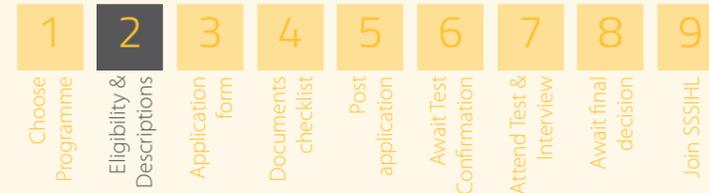
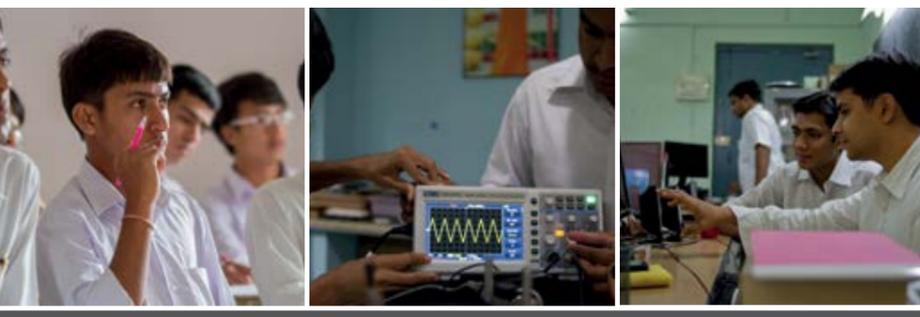
Duration: 3 Years For Women & Men Candidates Admissions Test Syllabus: Page 56

Eligibility Requirements

- ✓ 10+2 years of schooling from a recognized board (CBSE or equivalent)
- ✓ Either passed or appeared for Final exams at XII level before Admissions Test
- ✓ XII Standard: 55% or more (English) and 60% (Aggregate including English) (If not appeared for XII Standard exams, X and XI Standard marks will be considered)
- ✓ Age: preferably below 19 years as of 31st May in the year of admission

Courses taught per Semester

- › In the first two years of study, all three subjects (Mathematics, Physics and Chemistry) are taught.
- › In the third year, the subject (students will take courses in only that subject) of specialization will determine the final degree awarded:
- › B.Sc. (Hons.) in Mathematics, B.Sc. (Hons.) in Physics, or B.Sc. (Hons.) in Chemistry



| Year 1 | Year 2 | Year 3 |
|--|---|--|
| Semester 1 Mathematics: Multivariate Calculus and Linear Programming Physics: Electronics I: Analog and Digital and Practical Course in Electronics I Chemistry: Theoretical Chemistry and Analytical Chemistry and Laboratory course in Qualitative Inorganic Analysis | Semester 3 Mathematics: Real Analysis I and Boundary Value Problems Physics: Classical Mechanics and Practical course in Classical Mechanics Chemistry: : Inorganic, Organic and Physical Chemistry-II and Laboratory Course in Inorganic, Organic and Physical Chemistry-II | Semester 5 Mathematics: Discrete Mathematics, Algebraic Structures, Partial Differential Equations, two electives chosen from the streams of Pure Mathematics, Applied Mathematics and Computer Science and a software Lab Physics: Two courses of Mathematical Physics(Mathematical Physics-I and Mathematical Physics-II), Quantum Mechanics, Electronics comprising Operational Amplifiers, Computational Techniques in Physics and three practical courses out of which one will be general, one in Operational Amplifiers and one in software Chemistry: Analytical Chemistry and Nuclear Chemistry, Physical Chemistry, Dynamic Aspects of Organic Chemistry; one of the elective chosen from Chemistry of Biological Molecules, Theoretical Aspects of Spectroscopy and Microbial Physiology and Genetics; Practical courses in Computer applications in Chemistry, Physical Chemistry and in any of the elective chosen |
| Semester 2 Mathematics: Ordinary Differential Equations and Vector Analysis Physics: Optics and Practical course in Optics Chemistry: Inorganic, Organic and Physical Chemistry-I and Laboratory Course in Inorganic, Organic and Physical Chemistry-I | Semester 4 Mathematics: Real Analysis II and Linear Algebra Physics: Electromagnetism and Practical course in Electromagnetism Chemistry: Inorganic, Organic and Physical Chemistry-III and Laboratory Course in Inorganic, Organic and Physical Chemistry-III | Semester 6 Mathematics: Complex Analysis, Numerical Analysis, Topology; Two electives chosen from the streams of Pure Mathematics, Applied Mathematics and Computer Science; and Software Lab Physics: Solid State Physics, Nuclear Physics, Thermal Physics and Statistical Physics, Elements of Atomic and Molecular Spectroscopy and Lasers, Microprocessors; practical course in Microprocessors and software Lab and a Project work Chemistry: Spectroscopy, Advanced Inorganic Chemistry; one elective chosen from Synthetic Inorganic Chemistry or Pharmaceutical Chemistry and second elective chosen from Industrial Chemistry and Environmental Chemistry or Medicinal Chemistry; Practical courses in Computer Applications in Chemistry, Inorganic Chemistry and the electives chosen |



Step 2 Eligibility requirements & Programme descriptions

B.Sc. (Hons.) in Biosciences / Chemistry

Duration: 3 Years For Women & Men Candidates Admissions Test Syllabus: Page 56

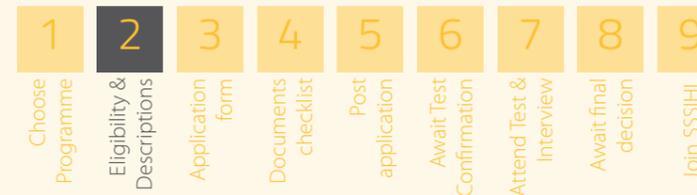
Eligibility Requirements

- ✓ 10+2 years of schooling from a recognized board (CBSE or equivalent)
- ✓ Either passed or appeared for Final exams at XII level before Admissions Test
- ✓ XII Standard: 55% or more (English) and 60% (Aggregate including English)
(If not appeared for XII Standard exams, X and XI Standard marks will be considered)
- ✓ Age: preferably below 19 years as of 31st May in the year of admission

Courses taught per Semester

- › In the first two years of study, both subjects (Biosciences and Chemistry) are taught
- › In the third year, the subject (students will take courses in only that subject) of specialization will determine the final degree awarded: B.Sc. (Hons.) in Biosciences or B.Sc. (Hons.) in Chemistry

| Year 1 | Year 2 | Year 3 |
|---|---|---|
| Semester 1 Biosciences: Algae and Fungi, Invertebrata Chemistry: Theoretical Chemistry and Analytical Chemistry (Theory), Laboratory course in Qualitative Inorganic Analysis (Practicals) | Semester 3 Biosciences: Taxonomy and Economic Importance of Angiosperms, Embryology of Animals Chemistry: Inorganic, Organic and Physical Chemistry-II | Semester 5 Biosciences: Plant Physiology, Animal Physiology, Cell Biology, Anatomy and Embryology of seed Plants and one course to be chosen from Microbial Physiology and Genetics and an Inter-Departmental Elective- Chemistry of Biological Molecules Chemistry: Analytical Chemistry and Nuclear Chemistry, Physical Chemistry, Laboratory course in Computer Applications in Chemistry (Practical only), Dynamic aspects of Organic Chemistry and one course chosen from three electives one of which will be an Inter- Departmental Elective. |
| Semester 2 Biosciences: Bryophytes and Pteridophytes, Chordata Chemistry: Inorganic, Organic and Physical Chemistry-I | Semester 4 Biosciences: Biostatistics and Information Technology, Bacteriology and Virology Chemistry: Inorganic, Organic and Physical Chemistry-III | Semester 6 Biosciences: Genetics and Evolution, Environmental Biology, Introductory Molecular Biology, Biological Chemistry, Biotechnology Chemistry: Spectroscopy (Theory only), Advanced Inorganic Chemistry, one course each to be chosen from two sets of two electives and a Laboratory course in Computer Applications in Chemistry (Practical only) Environmental Chemistry or Medicinal Chemistry; Practical courses in Computer Applications in Chemistry, Inorganic Chemistry and the electives chosen |



B.Sc. (Hons.) in Mathematics/ Economics/ Statistics

Duration: 3 Years For Men Candidates only Admissions Test Syllabus: Page 56

Eligibility Requirements

- ✓ 10+2 years of schooling from a recognized board (CBSE or equivalent)
- ✓ Either passed or appeared for Final exams at XII level before Admissions Test
- ✓ XII Standard: 55% or more (English) and 60% (Aggregate including English)
(If not appeared for XII Standard exams, X and XI Standard marks will be considered)
- ✓ Age: preferably below 19 years as of 31st May in the year of admission

Courses taught per Semester

- › In the first two years of study, all three subjects (Mathematics, Economics and Statistics) are taught
- › In the third year, the subject (students will take courses in only that subject) of specialization (Mathematics or Economics or Statistics) will determine the final degree awarded: B.Sc. (Hons.) in Mathematics, or B.Sc. (Hons.) in Economics or Statistics

| Year 1 | Year 2 | Year 3 |
|--|---|--|
| Semester 1 Mathematics: Multivariable Calculus, Linear Programming Economics: Economic Analysis - I Statistics: Introductory Statistics | Semester 3 Mathematics: Real Analysis-I, Boundary Value Problems Economics: Introduction to Mathematical Economics Statistics: Statistical Inference | Semester 5 Mathematics: Discrete Mathematics, Algebraic Structures, Partial Differential Equations, two electives chosen from the streams of Pure Mathematics, Applied Mathematics and Computer Science and a software Lab. Economics: Indian Economy: Structure and Development, Intermediate Micro Economic Theory, Indian Financial System, International Economics and a practical course of Introduction to Computer Application-I |
| Semester 2 Mathematics: Ordinary Differential Equations, Vector Analysis Economics: Economic Analysis - II Statistics: Probability Theory and Distributions | Semester 4 Mathematics: Real Analysis II, Linear Algebra Economics: Money and Banking Statistics: Applied Statistics | Semester 6 Mathematics: Complex Analysis, Numerical Analysis, Topology; Two electives chosen from the streams of Pure Mathematics, Applied Mathematics and Computer Science; a Software Lab. Economics: Public Finance and Fiscal Policy, Intermediate Macroeconomic Theory, Development Economics, Basic Econometrics and a practical course entitled Introduction to Computer Application-II |



Step 2 Eligibility requirements & Programme descriptions

POSTGRADUATE Programmes (Duration: 2 years / 4 Semesters)

The following course is common to all Postgraduate Programmes:

1. AWARENESS COURSES

A series of courses entitled 'Awareness' are taught for all four semesters of study.

| Year 1 | Year 2 |
|--|--|
| Semester 1 Education for Life- Individual Transformation | Semester 3 Guidelines for Life |
| Semester 2 God, Society and Man | Semester 4 My Life is My Message- Bhagawan Sri Sathya Sai Baba |

M.A. in English Language and Literature

Duration: 2 Years For Women Candidates only Admissions Test Syllabus: Page 60

Eligibility Requirements

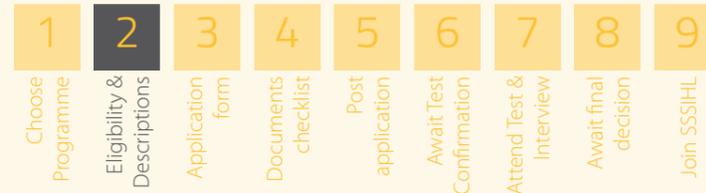
- ✓ 10+2 years of schooling and 3 years of university (total 15 years) as recognized by SSSIHL
- ✓ Either passed or appeared for Final exams at Bachelor's degree level before the date of Admissions Test
- ✓ Bachelor's degree: 50% or more (English) and 60% (Aggregate incl. English) or CGPA aggregate of 6 or more (10-point scale) /3.5 or more (5-point scale) with 50% or more in English
(If not appeared for Bachelor's degree final exams, aggregate marks in all the preceding Years/Semesters put together marks will be considered)
- ✓ Age: preferably below 23 years as of 31st May in the year of admission

Programme Description

The M.A. in English Language and Literature is designed to inspire students to appreciate first-hand, the varieties and shades of language and style and various kinds and trends of imaginative writing in Modern English Literature (1500 to the present day). Over the course of the programme, students will learn how to train their critical taste and judgment in such a way that they are able to respond sympathetically and imaginatively to diverse literary trends and movements. Concurrently, their ability to arrive at an impersonal and dispassionate evaluation of a given work of art and/or a given writer will be honed. They will gain the skills necessary to be aware of problems, limitations and strengths implicit in the appreciation of English language and literature, and learn how to write effectively and cogently while expressing themselves either in critical or in creative writing.

Courses taught per Semester

| Year 1 | Year 2 |
|--|---|
| Semester 1 English Literature: Chaucer and 1550-1660, Shakespeare, English Literature: 1660-1789, English Literature: 1789-1830 | Semester 3 American Literature, Literary Criticism, Structure of Modern English – I (Elements of Linguistics and Phonetics), Structure of Modern English – II (Grammar) |
| Semester 2 English Literature: 1830 – 1900, English Literature: 20 th Century, Indian Writing in English, Commonwealth Literature | Semester 4 English for the Media, two courses (chosen from two sets of electives) and a Dissertation / Open Course in World Drama |



M.A. in Economics

Duration: 2 Years For Men Candidates only Admissions Test Syllabus: Page 60

Eligibility Requirements

- ✓ 10+2 years of schooling and 3 years of university (total 15 years) as recognized by SSSIHL
- ✓ Either passed or appeared for Final exams at Bachelor's degree level before Admissions Test
- ✓ Bachelor's degree: 50% or more (English) and 60% (Aggregate incl. English) or CGPA aggregate of 6 or more (10-point scale) / 3.5 or more (5-point scale) with 50% or more in English
(If not appeared for Bachelor's degree final exams, aggregate marks in all the preceding Years/Semesters put together marks will be considered)
- ✓ Only candidates with a B.A./B.A. (Hons.) in Economics, B.Sc. (Hons.) in Economics or Mathematics, B.B.M. or B.Com./B.Com. (Hons.) are eligible to apply
- ✓ Age: preferably below 23 years as of 31st May in the year of admission

Programme Description

The M.A. Programme is designed to equip students with potential to serve in positions of responsibility with the government, the corporate sector, universities and research institutions. The set of courses offered fall into core courses and electives. The core courses are intended to provide well-balanced training in economic theory, contemporary economic problems and quantitative methodology so as to build the essential tools for economic analysis of problems arising in a variety of contexts. The elective courses from the economics stream deal with application of economic theory and econometrics to address practical issues in a range of fields like demography, labour, industry, agriculture, development, education and health economics. The elective courses from financial economics deal with the allocation and deployment of economic resources, both spatially and across time, in an uncertain environment. In both streams, the electives enable the students to acquire more advanced training in branches of their choice.

Courses taught per Semester

- > Students have an option to specialize in Financial Economics

| Year 1 | Year 2 |
|--|--|
| Semester 1 Microeconomic Theory, Macroeconomic Theory, Quantitative Methods for Economics, Public Economics, Financial Markets and Institutions and a practical course on Computer Applications In Economic Analysis-I | Semester 3 Monetary Theory and Policy, Time Series Modelling, Industrial Economics, two courses chosen from a list of electives taken from the streams of Economics and Financial Economics, a practical course entitled Computer Applications in Economic Analysis- III and a Dissertation review |
| Semester 2 Agricultural Economics, Ethics, Economics and Society, Econometrics, two elective courses chosen from a list of electives of Economics and Financial Economics and a practical course entitled Computer Applications in Economic Analysis- II | Semester 4 Indian Economy: Contemporary Issues and Policies, Energy and Resource Economics, two courses chosen from a list of electives taken from the streams of Economics and Financial Economics, a practical course entitled Computer Applications in Economic Analysis- IV and a Dissertation |



Step 2 Eligibility requirements & Programme descriptions

M.Sc. in Mathematics

Duration: 2 Years

For Men Candidates only

Admissions Test Syllabus: Page 60

Eligibility Requirements

- ✓ 10+2 years of schooling and 3 years of university (total 15 years) as recognized by SSSIHL
- ✓ Either passed or appeared for Final exams at Bachelor's degree level before Admissions Test
- ✓ Bachelor's degree: 50% or more (English) and 60% (Aggregate incl. English) or CGPA aggregate of 6 or more (10-point scale) / 3.5 or more (5-point scale) with 50% or more in English
(If not appeared for Bachelor's degree final exams, aggregate marks in all the preceding Years/Semesters put together marks will be considered)
- ✓ Only candidates with a B.Sc. in Mathematics or other B.Sc. programmes (M/P/C or M/E/S or M/P/CS) with a major/ specialization in Mathematics are eligible to apply
- ✓ Familiarity with the following is mandatory for admissions:
Mathematics: Calculus, Differential Equations, Probability Theory, Real Analysis, Group Theory, Ring Theory, Linear Algebra, Complex Analysis, Discrete Mathematics, and Numerical Analysis
Computer Science: C Language Programming
- ✓ Age: preferably below 23 years as of 31st May in the year of admission

Programme Description

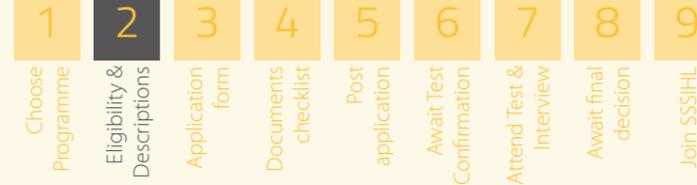
The M.Sc. Mathematics Programme provides a broad-based knowledge of mathematics to students through core courses that cover the areas of Analysis, Algebra, Geometry, Differential Equations, Mechanics, Statistics, Operations Research etc. The syllabus also provides one software laboratory course in each of the four semesters, which will enable hands-on experience with various programming languages, software packages and in working in different platforms. To develop a deep understanding in the fundamentals of one area, students can specialize in Pure Mathematics, Applied Mathematics or Computer Science.

Courses taught per Semester

- › Students have an option to specialize in either Pure Mathematics, Applied Mathematics or Computer Science*

*Subject to passing a test on Computer Science and Programming skills after admission to the Programme.

| Year 1 | Year 2 |
|--|--|
| Semester 1 Advanced Real Analysis, Advanced Algebra, Differential Geometry, two courses chosen from a list of electives taken from the streams of Pure Mathematics, Applied Mathematics and Computer Science and a practical course in software Lab. | Semester 3 Theory of Partial Differential Equations, Theory of Probability, Numerical Linear Algebra, two courses chosen from a list of electives taken from the streams of Pure Mathematics, Applied Mathematics and Computer Science, a practical course in software Lab, a seminar and a Dissertation Interim Review in lieu of one elective course or software Lab |
| Semester 2 Measure Theory, Functional Analysis, Theory of Ordinary Differential Equations, two courses chosen from a list of electives taken from the streams of Pure Mathematics, Applied Mathematics and Computer Science, a practical course in software Lab and year-end Viva voce | Semester 4 Mathematical Modeling, Optimization Techniques, Theory of Statistics, two courses chosen from a list of electives taken from the streams of Pure Mathematics, Applied Mathematics and Computer Science, a practical course in software Lab, Comprehensive Viva voce and a Dissertation Work in lieu of one elective course or software Lab |



M.Sc. in Physics

Duration: 2 Years

For Men Candidates only

Admissions Test Syllabus: Page 60

Eligibility Requirements

- ✓ 10+2 years of schooling and 3 years of university (total 15 years) as recognized by SSSIHL
- ✓ Either passed or appeared for Final exams at Bachelor's degree level before Admissions Test
- ✓ Bachelor's degree: 50% or more (English) and 60% (Aggregate incl. English) or CGPA aggregate of 6 or more (10-point scale) / 3.5 or more (5-point scale) with 50% or more in English
(If not appeared for Bachelor's degree final exams, aggregate marks in all the preceding Years/Semesters put together marks will be considered)
- ✓ Candidates with a **B.Sc. (Hons.)**: Physics as a main subject along with Mathematics and either Chemistry, Statistics, Electronics or Computer Science as additional subjects are eligible to apply
- ✓ Candidates with a **B.Sc. without Honours**: 3-subject combination with Physics, Mathematics and either Chemistry, Statistics, Electronics or Computer Science are eligible to apply
- ✓ Age: preferably below 23 years as of 31st May in the year of admission

Programme Description

The Masters Programme in Physics is designed to equip the students with strong fundamentals of physics. Specialization in Photonics, Nuclear Physics or Electronics is offered in the second year of study. Students get adequate exposure to theory and experimental methodology of Modern Physics along with requisite computational techniques. A project work is designed to cater to the research potential of the students wherein they are exposed to gain experience in handling sophisticated equipment and are exposed to advanced concepts in Physics.

Courses taught per Semester

- › Students have an option to specialize in either Photonics, Nuclear Physics or Electronics

| Year 1 | Year 2 |
|---|---|
| Semester 1 Classical Mechanics, Mathematical Physics, Classical Electrodynamics, Quantum Mechanics-I, Laboratory course in General Physics and Software and a Comprehensive Viva voce | Semester 3 Molecular Spectroscopy, Quantum Mechanics-II, one course to be chosen from the streams of Photonics, Nuclear Physics and Electronics, one course from a set of twelve electives, a Specialization Laboratory, a Project Work Review and a Comprehensive Viva voce |
| Semester 2 Statistical Physics, Nuclear and Particle Physics, Condensed Matter Physics, Applied Optics, Laboratory course in General Physics and Software and a Comprehensive Viva voce | Semester 4 Semiconductor Device Physics, Advanced Computational Techniques in Physics, one course to be chosen from the streams of Photonics, Nuclear Physics and Electronics, one course from a set of twelve electives, a Specialization Laboratory, Project Work and a Comprehensive Viva voce |



Eligibility requirements & Programme descriptions

Step 2

M.Sc. in Nanoscience and Nanotechnology

Duration: **2 Years** For **Men** Candidates only Admissions Test Syllabus: **Page 62**

Eligibility Requirements

- ✓ 10+2 years of schooling and 3 years of university (total 15 years) as recognized by SSSIHL
- ✓ Either passed or appeared for Final exams at Bachelor's degree level before Admissions Test
- ✓ Bachelor's degree: 50% or more (English) and 60% (Aggregate incl. English) or CGPA aggregate of 6 or more (10-point scale) / 3.5 or more (5-point scale) with 50% or more in English
(If not appeared for Bachelor's degree final exams, aggregate marks in all the preceding Years/Semesters put together marks will be considered)
- ✓ Only candidates with a B.Sc. or B.Sc. (Hons) in Physics, Biosciences or Chemistry are eligible to apply
- ✓ Age: preferably below 23 years as of 31st May in the year of admission

Programme Description

This multi-disciplinary programme has been designed for students with an academic background in fundamentals of physics, chemistry or biology at the undergraduate level. The students should have minimum background in mathematics as well. The programme includes topics related to the theory and application of nanoscience and nanotechnology and focuses on emerging areas in the fields. Laboratory courses deal with the synthesis and applications of nanomaterials.

Courses taught per Semester

| Year 1 | Year 2 |
|--|---|
| Semester 1 Introduction to Nanoscience, Mathematical Methods for Nanoscience, Quantum Mechanics, one course to be chosen from various topics of Nanoscience and Nanotechnology, one course to be chosen depending on the Honours subject at the Undergraduate level (Physics, Chemistry or Bioscience), Laboratory in Nanoscience and Software, a Term Seminar and a Viva voce | Semester 3 Nanomaterials: Applications and Devices, Advanced Instrumentational Techniques, two elective courses to be chosen from various topics Nanoscience and Nanotechnology, one course to be chosen depending on the Honours subject in under graduation (Physics, Chemistry or Bioscience), a Term Seminar, a Viva voce and Project Work (Review) |
| Semester 2 Nanomaterials: synthesis and characterization, Bio-Chemistry of Macro Molecules, Biophysics, one course to be chosen from varied topics of Nanoscience and Nanotechnology, one course to be chosen depending on the Honours subject in at the Undergraduate level (Physics, Chemistry or Bioscience), two courses of Nanoscience Laboratory, a Term Seminar and Viva voce | Semester 4 Nanoscale Mechanics and Tribiology, Computational methods for nanoscience, two elective courses to be chosen from various topics Nanoscience and Nanotechnology, one course to be chosen depending on the Honours subject in under graduation (Physics, Chemistry or Bioscience), Project Work, Term Seminar and Viva voce |

M.Sc. in Chemistry

Duration: **2 Years** For **Men** Candidates only Admissions Test Syllabus: **Page 62**

Eligibility Requirements

- ✓ 10+2 years of schooling and 3 years of university (total 15 years) as recognized by SSSIHL
- ✓ Either passed or appeared for Final exams at Bachelor's degree level before Admissions Test
- ✓ Bachelor's degree: 50% or more (English) and 60% (Aggregate incl. English) or CGPA aggregate of 6 or more (10-point scale) / 3.5 or more (5-point scale) with 50% or more in English
(If not appeared for Bachelor's degree final exams, aggregate marks in all the preceding Years/Semesters put together marks will be considered)
- ✓ Only candidates with a B.Sc. or B.Sc. (Hons) in Chemistry are eligible to apply
- ✓ Age: preferably below 23 years as of 31st May in the year of admission

| | | | | | | | | |
|------------------|----------------------------|------------------|---------------------|------------------|-------------------------|-------------------------|----------------------|-------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Choose Programme | Eligibility & Descriptions | Application form | Documents checklist | Post application | Await Test Confirmation | Attend Test & Interview | Await final decision | Join SSSIHL |

Programme Description

The Masters Programme in Chemistry covers all aspects of the different branches of chemistry and lays emphasis on detailed understanding of the fundamental principles and on training in appropriate computational and experimental methods. This rigorous training in all the major branches of chemistry - theoretical, applied, instrumental, computational and experimental – sets the stage for electives in interdisciplinary areas as well as for an introduction to advanced emerging fields of research in the final semester.

Courses taught per Semester

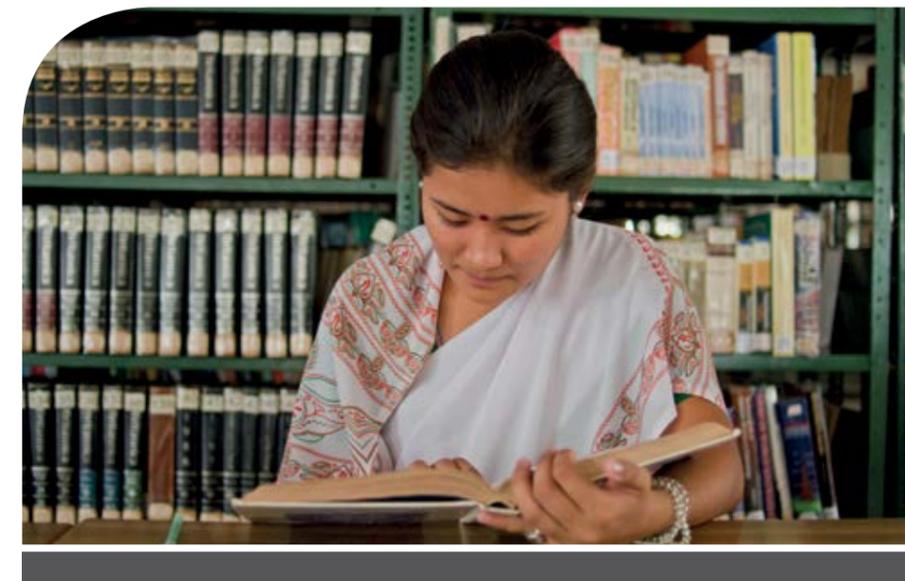
| Year 1 | Year 2 |
|--|--|
| Semester 1 Quantum Chemistry and Group Theory (Theory only), Mathematics for Chemistry (Theory only), Analytical Chemistry (Theory and Practicals), Coordination Chemistry (Theory and Practicals), Advanced aspects of Organic structure and Stereochemistry (Theory only), Organic Qualitative Analysis (Practicals only) | Semester 3 Organometallic Chemistry, Polymer Chemistry and Special Topics from Physical Chemistry, one elective course to be chosen from Chemistry and one inter- departmental elective, a practical course in Computational and Statistical tools for Chemistry and Project Work (Review) |
| Semester 2 Structural Inorganic and Bio- Inorganic Chemistry, Chemical Kinetics and Surface Chemistry, Thermodynamics and Electrochemistry, Physical and Mechanistic aspects of Organic Chemistry and practical courses in Inorganic Chemistry, Chemical Kinetics and Electrochemistry and Organic Synthesis and Spectral Analysis | Semester 4 Solid State Chemistry and Nano Materials, Special Topics from Bio-organic Chemistry, Medicinal Chemistry, two inter- departmental electives, a practical course in Computational and Statistical tools for Chemistry and Project Work |

M.Sc. in Biosciences

Duration: **2 Years** For **Women and Men** Candidates Admissions Test Syllabus: **Page 63**

Eligibility Requirements

- ✓ 10+2 years of schooling and 3 years of university (total 15 years) as recognized by SSSIHL
- ✓ Either passed or appeared for Final exams at Bachelor's degree level before Admissions Test
- ✓ Bachelor's degree: 50% or more (English) and 60% (Aggregate incl. English) or CGPA aggregate of 6 or more (10-point scale) / 3.5 or more (5-point scale) with 50% or more in English
(If not appeared for Bachelor's degree final exams, aggregate marks in all the preceding Years/Semesters put together marks will be considered)
- ✓ Only candidates with a B.Sc. or B.Sc.(Hons) in Biosciences, Botany or Zoology are eligible to apply
- ✓ Age: preferably below 23 years as of 31st May in the year of admission



Step 2 Eligibility requirements & Programme descriptions

Programme Description

The curriculum of M.Sc. in Biosciences is designed to provide an in-depth understanding of the major sub-disciplines of lifesciences such as Molecular biology, Microbiology, Biochemistry, Developmental biology, Immunology and Genetics. Strengthening the foundations in these aspects sets the stage for elective courses offered in advanced topics in the domains of Biotechnology and Systems Biology. Laboratories with state-of-the-art equipment provide students with hands-on training in Animal and Plant Cell Culture, Microbiology, Molecular biology, Biochemistry and Bioinformatics. A dissertation project spanning the final two semesters of the programme equips students with essential laboratory techniques and trains them to design and conduct in vitro and in silico studies in topics aligned to the thrust areas of the Department of Biosciences. Weekly colloquia and lab meetings require students to make presentations on their progress to the faculty members and research scholars of the department thereby honing their communication skills and building confidence.

Courses taught per Semester

- Students have an option to specialize in either Biotechnology or Mycology and Plant Pathology

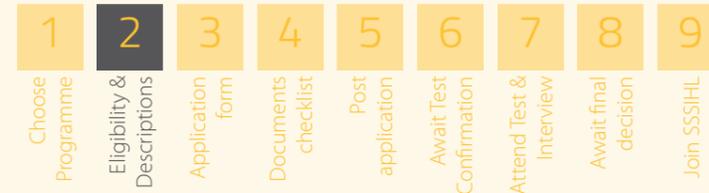
| Year 1 | Year 2 |
|--|---|
| Semester 1 Molecular Cell Biology, Molecular Biology, Plant Systematics and Conservation, Instrumentation and two practical courses | Semester 3 Intermediary metabolism, Cytogenetics and Plant Breeding, two electives from the streams of Biotechnology / Mycology & Plant Pathology, two practical courses and Project Work (Review) |
| Semester 2 Biostatistics and Bioinformatics, Molecular Developmental Biology, Genetic Engineering, Biochemistry of Macro molecules and two practical courses | Semester 4 Immunology/ Biocatalysis for Industry and Development, Environmental Biotechnology/ Biomolecular Structure and Function, two electives from the streams of Biotechnology / Mycology & Plant Pathology, two practical courses and Project Work in lieu of the two practical courses |

M.Sc. in Food Science and Nutrition

Duration: **2 Years** For **Women** Candidates only Admissions Test Syllabus: **Page 64**

Eligibility Requirements

- 10+2 years of schooling and 3 years of university (total 15 years) as recognized by SSSIHL
- Either passed or appeared for Final exams at Bachelor's degree level before Admissions Test
- Bachelor's degree: 50% or more (English) and 60% (Aggregate incl. English) or CGPA aggregate of 6 or more (10-point scale) / 3.5 or more (5-point scale) with 50% or more in English
(If not appeared for Bachelor's degree final exams, aggregate marks in all the preceding Years/Semesters put together



marks will be considered)

- Only candidates with a B.Sc. in Home Science or Biosciences, or Mathematics / Physics / Chemistry are eligible to apply
- Age: preferably below 23 years as of 31st May in the year of admission

Courses taught per Semester

- The syllabus for both, the M.Sc. in Food Science and Nutrition and M.Sc. in Food Technology programmes is common for the first year of study. At the end of the first year, the Head of Department (along with the student) will decide the specialization (Food Science and Nutrition or Food Technology) to be pursued by the student in the second (final) year.
- (Unless otherwise stated, each of the courses below include both theoretical and practical assessment)

| Year 1 | Year 2 |
|--|---|
| Semester 1 Concepts in Food Science and Technology, Advanced Nutritional Biochemistry, Research Methodology and Applied Statistics and Food Microbiology | Semester 3 Macro Nutrients, Maternal and Child Nutrition, Diet Engineering, Clinical Biochemistry (Practicals only), Experimental Methods (Practicals only) |
| Semester 2 Design & Formulation of Foods, Food Chemistry, Instrumentation Techniques and Food Standard and Quality Management | Semester 4 Micro Nutrients, Public Nutrition, Toxic Constituents of Foods, Dissertation Project and Comprehensive Viva voce |

M.Sc. in Food Technology

Duration: **2 Years** For **Women** Candidates only Admissions Test Syllabus: **Page 64**

Eligibility Requirements

- 10+2 years of schooling and 3 years of university (total 15 years) as recognized by SSSIHL
- Either passed or appeared for Final exams at Bachelor's degree level before Admissions Test
- Bachelor's degree: 50% or more (English) and 60% (Aggregate incl. English) or CGPA aggregate of 6 or more (10-point scale) / 3.5 or more (5-point scale) with 50% or more in English
(If not appeared for Bachelor's degree final exams, aggregate marks in all the preceding Years/Semesters put together marks will be considered)
- Only candidates with a B.Sc. in Home Science or Biosciences, or Mathematics / Physics / Chemistry are eligible to apply
- Age: preferably below 23 years as of 31st May in the year of admission

Courses taught per Semester

- The syllabus for both, the M.Sc. in Food Science and Nutrition and M.Sc. in Food Technology programmes is common for the first year of study. At the end of the first year, the Head of Department (along with the student) will decide the specialization (Food Science and Nutrition or Food Technology) to be pursued by the student in the second (final) year.
- (Unless otherwise stated, each of the courses below include both theoretical and practical assessment)

| Year 1 | Year 2 |
|--|--|
| Semester 1 Concepts in Food Science and Technology, Advanced Nutritional Biochemistry, Research Methodology and Applied Statistics and Food Microbiology | Semester 3 Food Grain & Oil Technology, Dairy Technology, Packaging Technology, Entrepreneurship & Food Plant Management (Theory only), Experimental Methods (Practicals only) |
| Semester 2 Design & Formulation of Foods, Food Chemistry, Instrumentation Techniques and Food Standard and Quality Management | Semester 4 Food Processing Unit Operation (Theory only), Food Product Development and Evaluation, Horticultural Products Technology and Comprehensive Viva voce |

Step 2 Eligibility requirements & Programme descriptions

PROFESSIONAL Programmes (Duration: 1 year / 2 Semesters or 2 years / 4 Semesters)

The following Course is common to all Professional Programmes:

1. AWARENESS COURSE

A course entitled 'Awareness' is taught for all four semesters of study for all Professional Programmes with the exception of the B.Ed. and M.Ed. programmes, where it is incorporated in the course structure.

The following topics are covered in this Awareness course over the four semesters:

| Year 1 | Year 2 |
|--|--|
| Semester 1 Education for Life- Individual Transformation | Semester 3 Guidelines for Life |
| Semester 2 God, Society and Man | Semester 4 My Life is My Message- Bhagawan Sri Sathya Sai Baba |

Bachelor of Education (B.Ed.)

Duration: 1 Year For Women Candidates only Admissions Test Syllabus: Page 66

Eligibility Requirements

- ✓ 10+2 years of schooling and 3 years of university (total 15 years) as recognized by SSSIHL
- ✓ Either passed or appeared for Final exams at Bachelor's degree level before the date of Admissions Test
- ✓ Bachelor's degree: 50% or more (English) and 60% (Aggregate incl. English) or CGPA aggregate of 6 or more (10-point scale) /3.5 or more (5-point scale) with 50% or more in English
(If not appeared for Bachelor's degree final exams, aggregate marks in all the preceding Years/Semesters put together marks will be considered)
- ✓ Only Candidates who have studied any two of the following subjects at the Bachelor's level are eligible to apply: English, History, Civics, Mathematics, Physics, Chemistry and Biology
- ✓ Age: preferably below 25 years as of 31st May in the year of admission

Programme Description

A one-year professional programme, B.Ed. is intended to impart teacher training, with due emphasis on human values. Equipped with courses ranging from current trends in India and the psychological foundations of education to supervision and management-related issues, it will help students to develop confidence when they step into the shoes of a teacher. The unique aspect of this programme is that it stresses on the importance of imparting values-based education to children and the wholesome and balanced development of students as a result.

Courses taught per Semester

| Year 1 |
|--|
| Semester 1 Teacher and Education in Emerging Indian Society, Psychological Foundations of Education, Technology of Teaching and Learning, Educational Evaluation and Elementary Statistics, two courses in Methods of Teaching to be chosen from different subjects like English, Mathematics, Civics, Economics etc., Students Practice Teaching, Sessional Work (Experiments and tests in Psychology and a course in Information and Communication Technology) |
| Semester 2 School Administration Supervision and Management, Broad Trends in Indian Education, Education in Human Values, one course to be chosen from a set of electives, two courses in Methods of Teaching to be chosen from different subjects like English, Mathematics, Civics, Economics etc., Students Practice Teaching and Work Experience (OR Socially Useful Productive Work) |

| | | | | | | | | |
|------------------|----------------------------|------------------|---------------------|------------------|-------------------------|-------------------------|----------------------|-------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Choose Programme | Eligibility & Descriptions | Application form | Documents checklist | Post application | Await Test Confirmation | Attend Test & Interview | Await final decision | Join SSSIHL |

Master of Education (M.Ed.)

Duration: 1 Year For Women Candidates only Admission Tests Syllabus: Page 66

Eligibility Requirements

- ✓ 10+2 years of schooling, 3 years of university and 1 year of a B.Ed. degree (total 16 years) as recognized by SSSIHL
- ✓ Either passed or appeared for Final exams at Bachelor's degree level before the date of Admissions Test
- ✓ Only Candidates with a B.Ed. degree (with 60% Aggregate) and 50% in General English in their Undergraduate degree are eligible to apply.
The admissions test will comprehensively evaluate aptitude in General English and courses studied at the B.Ed. level.
- ✓ Age: preferably below 27 years as of 31st May in the year of admission

Programme Description

M.Ed. is a professional programme that focuses on comprehensive and integrated professional development of teachers. Its purpose is to turn out fully equipped, professionally trained and deeply value-oriented teachers, teacher educators and other specialists. This professional course will help students to become Teacher- Educators / Principal's in schools, Lecturers in colleges of Education, Teachers at the +2 level and Degree Colleges/Universities.

Courses taught per Semester

| Year 1 |
|--|
| Semester 1 Philosophical and Sociological Foundations of Education, Advanced Educational Psychology, Research Methodology in Education, one course to be chosen from four Area of Specialization, Internship and Dissertation Review |
| Semester 2 Educational Leadership and Management, Educational Statistics and Methods of Data Analysis, Education in Human values, one course to be chosen from four Area of Specialization, Dissertation and Dissertation Viva voce |



Step 2 Eligibility requirements & Programme descriptions

M.B.A.

Duration: **2 Years** For **Women and Men** Candidates Admissions Test Syllabus: **Page 66**

Eligibility Requirements

- ✓ 10+2 years of schooling and 3 years of university (total 15 years) as recognized by SSSIHL
- ✓ Either passed or appeared for Final exams at Bachelor's degree level before Admissions Test
- ✓ Bachelor's degree: 50% or more (English) and 60% (Aggregate incl. English) or CGPA aggregate of 6 or more (10-point scale) / 3.5 or more (5-point scale) with 50% or more in English
(If not appeared for Bachelor's degree final exams, aggregate marks in all the preceding Years/Semesters put together marks will be considered)
- ✓ Master's degree: 60% (Aggregate incl. English) or CGPA aggregate of 6 or more (10-point scale) / 3.5 or more (5-point scale) with 50% or more in English at the Bachelor's level
- ✓ Age: preferably below 27 years as of 31st May in the year of admission

Programme Description

The Management Programme has been structured in a balanced manner providing equal importance to the development of managerial skills and capabilities and the inculcation of healthy attitudes and values, thus enabling the student to grow into a proficient manager and a responsible member of society. It has four components. The Foundation Courses have special focus on universal human values and cover subjects such as: Self-Development, Values-based Management, Values-Centered Leadership, National Perspectives and Rural Development. The Core and Functional Courses cover concepts and techniques connected with functional management in Marketing, Operations, Finance, and Human Resources. The Integrative Courses cover subjects that span across the different functions and disciplines such as: Management Information Systems, Total Quality Management, and Management Strategies among others. Electives are offered in streams such as Marketing, Finance, Operations, Systems, Human Resources and International Business.

Courses taught per Semester

| Year 1 | Year 2 |
|---|--|
| Semester 1 Self-Development, Values Based Management, Financial and Cost Accounting, Financial Management, Quantitative Methods, Marketing Management, Production and Operations Management and a practical course in Computer Applications | Semester 3 Total Quality Management, Business Laws, Management Information and Control Systems, three electives to be chosen from the streams of General Management, Finance, Human Resources Management, International Business, Marketing, Production and Systems, a practical course in Computer Applications and Project Work (Review) |
| Semester 2 Communication Skills, Human Resources Management, Research Methods for Managers, Economics for Managerial Decision making, Management Accounting, Management Science, Banking, a practical course in Computer Applications and Internal Viva- Voce | Semester 4 Values-Centered Leadership, Strategic Management, Group Dynamics for Teams, National Perspectives and Rural Development, three electives chosen from the streams of General Management, Finance, Human Resources Management, International Business, Marketing, Production and Systems, a practical course in Computer Applications, Project Work, Integrated Games and Comprehensive Viva voce |



M.B.A. in Finance

Duration: **2 Years** For **Men** Candidates only Admissions Test Syllabus: **Page 66**

Eligibility Requirements

- ✓ 10+2 years of schooling and 3 years of university (total 15 years) as recognized by SSSIHL
- ✓ Either passed or appeared for Final exams at Bachelor's degree level before Admissions Test
- ✓ Bachelor's degree: 50% or more (English) and 60% (Aggregate incl. English) or CGPA aggregate of 6 or more (10-point scale) / 3.5 or more (5-point scale) with 50% or more in English
(If not appeared for Bachelor's degree final exams, aggregate marks in all the preceding Years/Semesters put together marks will be considered)
- ✓ Master's degree: 60% (Aggregate incl. English) or CGPA aggregate of 6 or more (10-point scale) / 3.5 or more (5-point scale) with 50% or more in English at the Bachelor's level
- ✓ Age: preferably below 27 years as of 31st May in the year of admission

Programme Description

The M.B.A. in Finance Programme is similar to the M.B.A. programme. It too comprises of four components. Foundation papers, core papers, Integrative papers and Electives. The Foundation Courses have special focus on universal human values and cover subjects such as: Self-Development, Values-based Management, Values-Centered Leadership, National Perspectives and Rural Development. The core papers cover concepts and techniques connected with functional areas in Marketing, Operations, Finance, and Human Resources so as to enable the student to develop the bigger picture before drilling down into finance. Areas specifically relevant to a finance manager from a broad perspective are covered in the integrative courses such as corporate financial strategy, short-term financial management, rural finance and management control systems. The elective papers offer the advantage of a deeper focus in specialised areas in finance such as banking, insurance, equity and derivatives markets, project financing and many others.

Courses taught per Semester

| Year 1 | Year 2 |
|--|--|
| Semester 1 Self-Development, Values Based Management, Financial Applications, Financial Management, Quantitative Methods, Marketing Management, Financial Services and Instruments and a practical course in Computer Applications | Semester 3 Total Quality Management, Corporate and Tax Laws, Management Control and Decision Systems, three electives to be chosen from Finance and Non-Finance streams, a practical course in Computer Applications and Project Work (Review) |
| Semester 2 Communication Skills, Human Resources Management, Research Methods for Managers, Operations Management – Financial Services, Management Accounting, Management Science, Banking, a practical course in Computer Applications and Internal Viva voce | Semester 4 Values-Centered Leadership, Corporate Financial Strategy, Group Dynamics for Teams, National Perspectives and Rural Development, three electives to be chosen from Finance and Non-Finance streams, a practical course in Computer Applications, Project Work, Integrated Games and Comprehensive Viva voce |



Step 2 Eligibility requirements & Programme descriptions

M.Tech. in Computer Science

Duration: **2 Years** For **Men** Candidates only Admissions Test Syllabus: **Page 67**

Eligibility Requirements

- ✓ The candidate must have either passed or appeared for final exams of one of the following:
 - a) M.Sc. in Mathematics or M.Sc. in Physics or M.Sc. in Computer Science or M.C.A., or
 - b) B.E. in Computer Science / B.Tech. in Computer Science
- ✓ Candidates with a Bachelor's degree (B.E. / B.Tech.) in Computer Science, Computer Science and Engineering, Electronics & Communications Engineering (with Computer Science background*) and Information Technology (with Mathematics background) are eligible to apply.
- ✓ Bachelor's degree: 60% (Aggregate incl. English) or CGPA aggregate of 6 or more (10-point scale) / 3.5 or more (5-point scale)
(If not appeared B.E./B.Tech./M.Sc. final exams, aggregate marks in all the preceding Years/Semesters put together marks will be considered)
- ✓ Master's degree: 60% (Aggregate incl. English) or CGPA aggregate of 6 or more (10-point scale) / 3.5 or more (5-point scale) with 50% or more in English at the Bachelor's level
- ✓ Familiarity with the following is mandatory for admissions:

Mathematics: Calculus of one and several variable, Sequence and Series, Linear Algebra and Matrix Theory, Differential equations and Laplace Transforms, Mathematical logic.

Computer Science: Data Structures and Simple Algorithms, Computer Organization and Architecture, Data communications and Networks, Data base Systems, Languages Translators
- ✓ Age: preferably below 27 years as of 31st May in the year of admission

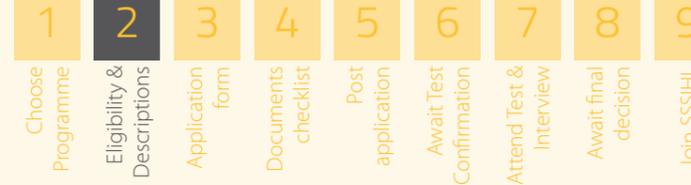
*Implies an adequate, formal training and qualification from a recognized institution or relevant Computer/IT industry/academic experience for a minimum period of 5 years

Programme Description

A masters programme for students with a background in science and engineering alike, the M.Tech. in Computer Science provides students the theoretical foundations of Computer Science as well as the practical knowledge regarding computer systems. This is achieved primarily through core theoretical courses. In the first year of study, students take software laboratory courses which assist in learning a variety of programming languages, operating environments, software packages, and development tools. Students can choose to specialize in different areas of computer science, such as Artificial intelligence, Software Systems and Hardware. A comprehensive viva voce and project work in the second year prepares graduating students with the necessary knowledge and skills for the next stage of their career upon graduation.

Courses taught per Semester

| Year 1 | Year 2 |
|--|---|
| Semester 1 Design and Analysis of Algorithms, Operating Systems, Parallel Processing, two electives to be chosen from the streams of Intelligent Systems and Knowledge Engineering, Advanced Computer Networks, Human Computer Interaction, Theoretical Computer Science, Computer Systems, Multi Core and Parallel Computing, Software Engineering and Mathematical Methods in Computer Science, two courses in Software Lab, a seminar, a Departmental Colloquium and a Semester End Viva voce | Semester 3 Software Engineering, one elective to be chosen from the above mentioned streams and a Project Work Review |
| Semester 2 Theory of Computation, Compiler Design, Distributed Systems, two electives to be chosen from the streams of Intelligent Systems and Knowledge Engineering, Advanced Computer Networks, Human Computer Interaction, Theoretical Computer Science, Computer Systems, Multi Core and Parallel Computing, Software Engineering and Mathematical Methods in Computer Science, two courses in Software Lab, a seminar, a Departmental Colloquium and a Semester End Viva voce | Semester 4 Project work, Viva voce and Comprehensive Viva voce |



M.Tech. in Optoelectronics and Communications

Duration: **2 Years** For **Men** Candidates only Admissions Test Syllabus: **Page 68**

Eligibility Requirements

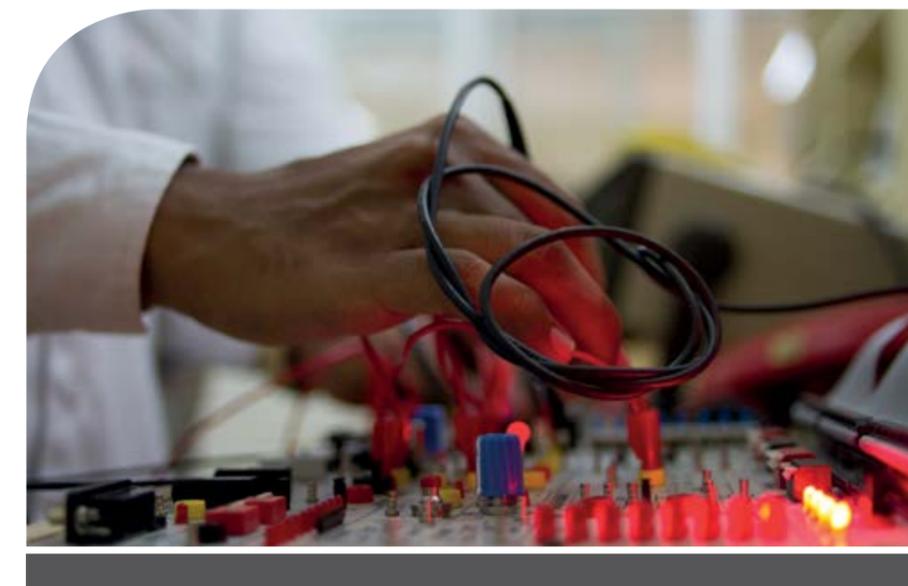
- ✓ The candidate must have either passed or appeared for final exams of one of the following:
 - a) M.Sc. Physics, or
 - b) B.E. / B.Tech. with background in Optics and Electromagnetic Theory
- ✓ Master's degree: 60% (Aggregate incl. English) or CGPA aggregate of 6 or more (10-point scale) / 3.5 or more (5-point scale)
- ✓ Candidates with a Bachelor's degree in B.E. or B.Tech. (with background in Optics and Electromagnetic Theory) or a Master's Degree in Physics are eligible to apply
- ✓ Age: preferably below 27 years as of 31st May in the year of admission

Programme Description

Optoelectronics has been deemed as the 21st century revolutionary technology that will create as enormous an impact as electronics did in the 20th century. This interdisciplinary M.Tech programme aims to generate trained professionals in the broad areas of optoelectronics and communications with an emphasis on networking technologies. One half of the courses are core ones and the other half are electives, that enable students to pursue areas that have their academic interest. The core courses give a strong background of science and engineering. These are supplemented with laboratory courses, enabling the students to take up project work in the second year. Graduates with training in optoelectronics and related communication technologies will be useful in industries and R&D organizations involved in the areas of Optoelectronics, telecommunication & networks.

Courses taught per Semester

| Year 1 | Year 2 |
|--|--|
| Semester 1 Fiber Optic Components, Optical communication systems, Optoelectronics, two elective courses from the streams of Optoelectronics, Network and Communications and Open Electives, a Laboratory course in Optoelectronics and Software and a Viva voce | Semester 3 Two elective courses from the streams of Optoelectronics, Network and Communications and Open Electives, a Comprehensive Viva voce and Project Interim Review |
| Semester 2 Digital Communication and Information System, Opto-Electronic sensors, Optical Networks, two elective courses from the streams of Optoelectronics, Network and Communications and Open Electives, a Laboratory course in Network and Software and Viva voce | Semester 4 Project work and Viva voce |



Step 2 Eligibility requirements & Programme descriptions

M.Tech. in Analytical Methods and Chemical Instrumentation

Duration: 2 Years For Men Candidates only Admissions Test Syllabus: Page 69

Eligibility Requirements

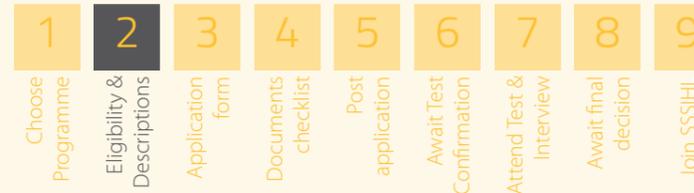
- ✓ The candidate must have either passed or appeared for final exams of one of the following:
 - a) M.Sc. in Chemistry or M.Sc. in Organic Chemistry or M.Sc. in Applied Chemistry or M.Sc. in Industrial Chemistry or M.Sc. in Biosciences or M.Sc. in Nanoscience & Nanotechnology
 - b) B.E. / B.Tech. in Chemical Technology
- ✓ Either passed or appeared for Final exams at Bachelor's degree level before Admissions Test
- ✓ Master's degree: 60% (Aggregate incl. English) or CGPA aggregate of 6 or more (10-point scale) / 3.5 or more (5-point scale)
- ✓ Candidates with a Bachelor's degree in B.E. or B.Tech. (with background in Chemical Technology) or a Master's Degree in either Chemistry, Organic Chemistry, Applied Chemistry, Industrial Chemistry, Nanoscience & Nanotechnology or Biosciences are eligible to apply
- ✓ Age: preferably below 27 years as of 31st May in the year of admission

Programme Description

M.Tech. in Analytical Methods and Chemical Instrumentation is an interdisciplinary programme that marries the principles of Analytical and Environmental Chemistry along with Electronics and Instrumentation. It deals with the development of sophisticated analytical techniques along with chemical analysis which uses instrumentation to solve an analytical problem. The use of instrumentation has now become a part of chemical analysis just as it is applied in virtually all areas of pure and applied science. Instrumentation plays an important role in the production and evaluation of new products and in the protection of consumers and the environment. Hence, the goal of this course is to teach principles of Instrumentation followed by the various instrumental techniques for the development of better and novel analytical methods that yield societal benefits.

Courses taught per Semester

| Year 1 | Year 2 |
|--|---|
| Semester 1 Instrumental Methods-1, Environmental Analytical Chemistry, Chromatographic and Electrochemical Techniques, Sensors & Sensing Technology, practical courses in Chemometrics & Data Analysis and Analytical & Instrumentation-I, Viva voce and Colloquium | Semester 3 On-line Methods of Chemical Analysis, Nanotechnology and surface analytical methods, Regulatory Issues and Management of Industrial R&D, Viva- voce, Project Interim Review and Colloquium |
| Semester 2 Instrumental Methods-2, Basic Electronics and Instrumental Engineering, Analytical Techniques and Instrumentation in Clinical Biochemistry and Basic Principles in Drug Action, Industrial Product Analysis, two laboratory courses in Computational Chemistry and one in Analytical & Instrumentation-II, Viva voce and Colloquium | Semester 4 Project work and Viva voce |



M.Tech. in Nuclear Medicine

Duration: 2 Years For Men Candidates only Admissions Test Syllabus: Page 69

Eligibility Requirements

- ✓ The candidate must have either passed or appeared for final exams of M.Sc. in Physics or M.Sc. in Chemistry or M.Sc. in Biology or M.Sc. in Nanoscience & Nanotechnology
- ✓ Master's degree: 60% (Aggregate incl. English) or CGPA aggregate of 6 or more (10-point scale) / 3.5 or more (5-point scale)
- ✓ Only candidates with a Master's Degree in either Physics, Chemistry, Biology or Nanoscience & Nanotechnology are eligible to apply
- ✓ Age: preferably below 27 years as of 31st May in the year of admission

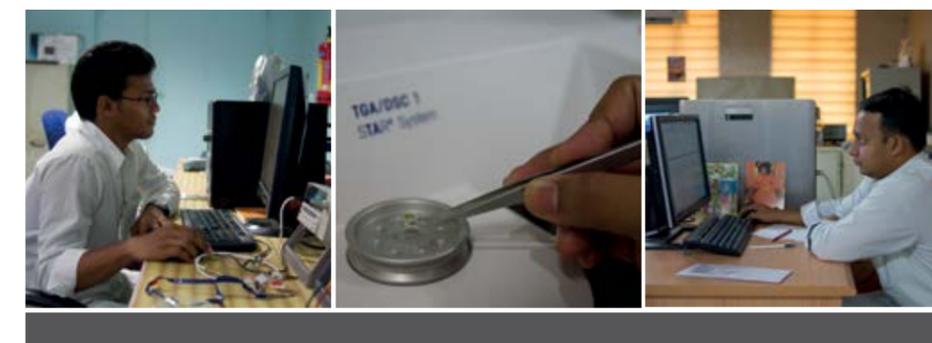
Programme Description

Nuclear Medicine, an established clinical speciality with wide ranging diagnostic and therapeutic techniques is a specialized branch of medicine and is multidisciplinary in nature. It requires skills of a trained specialist and technologist with basic knowledge of the nuclear medicine, radiation safety, radioisotope applications, radio-pharmacy, instrumentation and clinical applications. A postgraduate student in any basic science like physics, chemistry and biology can be trained to obtain the advanced knowledge, high standards of professional skills and leadership qualities required for a professional career in nuclear medicine.

This multidisciplinary academic program will be jointly handled by the Department of Physics of Sri Sathya Sai Institute of Higher Learning, Prasanthi Nilayam, Department of Nuclear Medicine, Sri Sathya Sai Institute of Higher Medical Sciences, Prasanthigram, Atomic Energy Regulatory Board (AERB), and Bhabha Atomic Research Centre (BARC), Mumbai.

Courses taught per Semester

| Year 1 | Year 2 |
|--|---|
| Semester 1 Mathematics, Statistics and Computer applications, Radiation Safety and Dosimetry, Nuclear Medicine and Allied Instrumentation, Radiopharmaceuticals and Radioisotope generators, Laboratory course in Radiation measurement and Instrumentation, Term Seminar and Viva voce | Semester 3 Radiological Safety and Regulatory Aspects (by AERB), RSO Certification (by AERB), Laboratory course Clinical Nuclear Medicine, Internship-Project-I and Comprehensive Viva voce |
| Semester 2 Clinical Applications: Nuclear Medicine Imaging and Therapy, Human Anatomy and Physiology, Radiation biology and Radioisotope Applications, Recent advances in Nuclear Medicine, Recent advances in Nuclear Medicine, Laboratory Course in Clinical Nuclear Medicine and Radiopharmaceuticals, Term Seminar and Viva voce | Semester 4 Internship-Project-II and Project Viva voce |



Step 3 Complete an Application form

STEP 3: COMPLETE AN APPLICATION FORM

SSSIHL offers all applicants TWO options of initiating the application process for admissions:

1. **Online** – via the online application portal, or
2. **Postal** – get a paper application form posted to you by the University

ONLINE APPLICATION

For students who choose this option, please visit the link for the online application portal. In this option, you will be guided step-by-step on how to fill in the form.

Note: It is mandatory that you have an email ID. If you do not have one yet, we suggest you create an online account with a popular service provider such as Google, Yahoo, Hotmail, etc. They are all free of charge.

Once you have completed filling in the form, you will be able to view the filled-in application form in PDF format and save it on your computer.

(You must have Adobe Reader to view PDFs on your computer. To download for free, visit <http://get.adobe.com/reader>).

POSTAL APPLICATION

If you prefer to get the application form by post, please write to:

The Admissions Office
Office of the Registrar
Sri Sathya Sai Institute of Higher Learning
Vidyagiri
Prasanthi Nilayam – 515 134,
Dist. Anantapur
Andhra Pradesh

What you must send with the written request:

1. **Indian Postal Order (IPO) or Demand Draft (DD) for Rs.100/-.** The Bank draft should be drawn in favour of Sri Sathya Sai Institute of Higher Learning, payable at SBI, Prasanthi Nilayam/Puttaparthi.

Note: Only one application per course of study is permitted. A candidate who wants multiple application forms for different courses of study needs to send separate written requests along with above-mentioned DD/IPO. In case you decide to apply online, you need to fill in separate forms for each online application.

You must send separate IPO/DDs per application.

2. Your name and complete postal address along with

programmes for which application form is required should be clearly stated in Block letters **on the reverse of the IPO/DD** and also in the requisition letter.

3. **Indication of which programme you would like to apply to** – whether you want to apply for an Undergraduate, Postgraduate or Professional programme for admission. This is very important, since there are **THREE separate application forms for admission** – one each for Undergraduate, Postgraduate and Professional Programmes. Incorrect forms will be rejected.

4. **Full return address.** Please indicate your full return address, clearly mentioned in your written request, so that we can post you the form and related Handbooks.

HOW DO I FILL AN APPLICATION FORM? APPLICATION FORM INSTRUCTIONS

If you choose to apply via the online portal, all instructions on filling the online form will be given on each page. Additionally, you may choose to refer to the instructions for filling in the form, given in the attachment below.

If you have received the application form by post, please make sure to read the full instructions for the programme you are applying to included below.

It is important that, if for any reason you are not able to comprehend the instructions, that you ask for help from someone, like an elder or a friend.

Candidates who are unable to comply fully with the instructions, and whose forms are incomplete in any way, (for example lacks signatures by both you and your parent/guardian) will be rejected and their applications will not be processed.

Only one programme per application will be accepted.

COMMON GUIDELINES FOR ALL FORMS

- › The Form must be completed only in ENGLISH.
- › Use blue or black ink only. Do not use a pencil.
- › Write neatly, only in CAPITAL LETTERS.
- › Your passport-sized photograph must be pasted on the first page of the form as indicated by gum/glue. Do NOT staple. Kindly attach the most recent photograph.
- › The photograph must be attested by the Head of the Institution last attended or by a Gazetted Officer. The Attesting officer must sign across the photograph and a rubber stamp must accompany the signature, just below it, so that it overlaps both the photo and the form.
- › Use one box for each letter or character and leave an empty

| | | | | | | | | |
|------------------|----------------------------|------------------|---------------------|------------------|-------------------------|-------------------------|----------------------|-------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Choose Programme | Eligibility & Descriptions | Application form | Documents checklist | Post application | Await Test confirmation | Attend Test & Interview | Await final decision | Join SSSIHL |

box between names or words.

Example: For the name V. P. Vivek Sharma, enter:

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|--|---|---|---|---|---|---|--|---|---|--|--|--|
| V | I | V | E | K | | S | H | A | R | M | A | | V | P | | | |
|---|---|---|---|---|--|---|---|---|---|---|---|--|---|---|--|--|--|

Example: For the date of birth August 31, 1993, enter:

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 3 | 1 | 0 | 8 | 1 | 9 | 9 | 3 |
|---|---|---|---|---|---|---|---|

Example: For the address,

'Kunj Vihar, 18/9
 9th Cross, II Main
 Tilak Marg
 Mumbai – 400 012

Landline: 022 – 24657801
 Mobile: 09934 33245

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|--|---|---|---|---|---|--|---|---|---|---|---|---|---|---|---|
| K | U | N | J | | V | I | H | A | R | | 1 | 8 | / | 9 | | | | | |
| 9 | T | H | | | C | R | O | S | S | | | | | I | I | M | A | I | N |

District

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Town or City

| | | | | | | | | | |
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| M | U | M | B | A | I | | | | |
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Pin Code

| | | | | | |
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| 4 | 0 | 0 | 0 | 1 | 2 |
|---|---|---|---|---|---|

Landline

| | | | | | | | | | | | |
|---|---|---|--|---|---|---|---|---|---|---|---|
| 0 | 2 | 2 | | 2 | 4 | 6 | 5 | 7 | 8 | 0 | 1 |
|---|---|---|--|---|---|---|---|---|---|---|---|

Mobile

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 9 | 9 | 3 | 4 | 3 | 3 | 2 | 4 | 5 |
|---|---|---|---|---|---|---|---|---|---|

INSTRUCTIONS: UNDERGRADUATE APPLICATION FORM

Most items on the form are self-explanatory. Only items that need emphasis are explained below.

PART A: INDICATE PROGRAMME OF STUDY & ADMISSIONS TEST SUBJECT COMBINATION

- › Indicate the Undergraduate Programme you want to apply to and tick (✓) ONLY ONE programme from the choices given in the left column.
- › Then, tick the choice of admissions test paper combinations you would like from the choice of corresponding boxes on the right. Tick only ONE test paper combination from the options.

Note: Certain programmes have no choice of admissions test paper (e.g. B.Sc. (Hons.) in Mathematics / Physics / Chemistry). In this case, just tick the choice of programme.

Example: You want to apply to the B.Com (Hons.) programme and want to take the admission test combination of Accountancy, Commerce, Statistics. In this case, enter:

| | | |
|---|----------------|-------------------------------------|
| ✓ | B.Com. (Hons.) | Accountancy, Commerce, Economics |
| | | Accountancy, Commerce, Mathematics |
| | | ✓ Accountancy, Commerce, Statistics |
| | | Accountancy, Economics, Mathematics |

PART B: Personal Information

Item #1: Name of Applicant

Kindly follow the instructions above (Common Guidelines) for this item.

Item #8: Permanent Address

- › It is compulsory to enter all the information on your address. Failing to enter any item (e.g. if you do not enter your PIN Code) may result in your application being rejected.

Rows 1-3: Use these for the street address.

- › Row 4: Enter both your District and your Town/City of residence
- › Row 5: Enter your PIN Code and State

Item #9: Mailing Address

- › If your Permanent address and mailing address (where you want us to post you admissions-related information) are the same, leave this item blank. Else, follow the instructions for Item #8.

Item #15: Annual Income

- › Include the correct amount in Indian Rupees, of the annual household income (father and mother combined). It should not be the figure on the ration card, for example. We require this information to assess if your parents / guardian can meet the hostel expenses.

PART C: Educational Information

Item # 21 and 27: Medium of Instruction

- › Enter the language in which you were taught at your Secondary School (Item 21) and Higher Secondary School (Item 27). For example, if you went to a school in West Bengal and were taught all the regular subjects in BENGALI, enter that.
- › **Note:** Do not enter VERNACULAR. You must specify the language you were taught in.

Step 3 Complete an Application form

Item #24 and 30: Statement of Marks

- › All the marks you enter here must correlate to the Attested photocopies of the Statement of Marks for X Std., XI Std. and XII Std.
- › Make sure you accurately fill the actual marks in the Marks Obtained column and maximum marks possible in the Out of Column. For example, in Mathematics, you got 93 out of 100 marks.
- › You must tally your marks and enter the percentage of General English and aggregate percentage of the Total (including English) marks in all instances.

Item #34: List of achievements

- › Enter here details of both academic (e.g. competitive exams) and non-academic achievements.

PARTS E and F: Declaration by Applicant and Parent/Guardian

- › Both parts must be signed by the applicant and parent/guardian only. Unsigned applications will not be processed.

INSTRUCTIONS: POSTGRADUATE APPLICATION FORM

Most items on the form are self-explanatory. Only items that need emphasis are explained below.

PART A: INDICATE PROGRAMME OF STUDY

- › Indicate the Postgraduate Programme you want to apply to and tick (✓) ONLY ONE programme from the choices given in the list.

PART B: PERSONAL INFORMATION

Item #1: Name of Applicant

- › Kindly follow the instructions above (Common Guidelines) for this item.

Item #9: Permanent Address

- › It is compulsory to enter all the information on your address. Failing to enter any item (e.g. if you do not enter your PIN Code) may result in your application remaining unfulfilled.
- › Rows 1-3: Use these for the street address.
- › Row 4: Enter both your District and your Town/City of residence
- › Row 5: Enter your PIN Code and State

Item #10: Mailing Address

- › If your Permanent address and mailing address (where you want us to post you admissions-related information) are the

same, leave this item blank. Else, follow the instructions for Item #9.

Item #13: Annual Income

- › Include the correct amount in Indian Rupees, of the annual household income (father and mother combined). It should not be the figure on the ration card, for example. We require this information to assess if your parents / guardian can meet the hostel expenses.

PART C: EDUCATIONAL INFORMATION

Item #22, 29 and 36: Medium of Instruction

- › Enter the language in which you were taught at your Higher Secondary School (Item 22), Bachelor's level (Item 29) and Master's level (Item 36). For example, if you went to a school in West Bengal and were taught all the regular subjects in BENGALI, enter that.
- › **Note:** Do not enter VERNACULAR. You must specify the language you were taught in.

Item #25, 32 and 40: Statement of Marks

- › All the marks you enter here must be identical to the Attested photocopies of the Statement of Marks for X Std., XI Std., XII Std., Bachelor's and Master's degrees.
- › Make sure you accurately fill the actual marks in the Marks Obtained column and maximum marks possible in the Out of Column. For example, in Mathematics, you got 93 out of 100 marks.
- › You must tally your marks and enter the percentage of General English and aggregate percentage of the Total (including English) marks in all instances.
- › For items 32 and 40, you can enter the marks either per year or per semester, depending on your institution of study and what is published on your marksheets.

Item #43: List of achievements

- › Enter here details of both academic (e.g. competitive exams) and non-academic achievements.

PARTS E AND F: DECLARATION BY APPLICANT AND PARENT/GUARDIAN

Both parts must be signed by the applicant and parent/guardian only. Unsigned applications will not be processed.

| | | | | | | | | |
|------------------|----------------------------|------------------|---------------------|------------------|-------------------------|-------------------------|----------------------|-------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Choose Programme | Eligibility & Descriptions | Application form | Documents checklist | Post application | Await Test confirmation | Attend Test & Interview | Await final decision | Join SSSIHL |

INSTRUCTIONS: PROFESSIONAL APPLICATION FORM

Most items on the form are self-explanatory. Only items that need emphasis are explained below.

PART A: INDICATE PROGRAMME OF STUDY & ADMISSIONS TEST SUBJECT COMBINATION

- › Indicate the Professional Programme you want to apply to and tick (✓) ONLY ONE programme from the choices given in the list.

PART B: PERSONAL INFORMATION

Item #1: Name of Applicant

- › Kindly follow the instructions above (Common Guidelines) for this item.

Item #9: Permanent Address

- › It is compulsory to enter all the information on your address. Failing to enter any item (e.g. if you do not enter your PIN Code) may result in your application remaining unfulfilled.
- › Rows 1-3: Use these for the street address.
- › Row 4: Enter both your District and your Town/City of residence
- › Row 5: Enter your PIN Code and State

Item #10: Mailing Address

- › If your Permanent address and mailing address (where you want us to post you admissions-related information) are the same, leave this item blank. Else, follow the instructions for Item #9.

Item #13: Annual Income

- › Include the correct amount in Indian Rupees, of the annual household income (father and mother combined). It should not be the figure on the ration card, for example. We require this information to assess if your parent / guardian can meet the hostel expenses.

PART C: EDUCATIONAL INFORMATION

Item #22, 29, 36 and 43: Medium of Instruction

- › Enter the language in which you were taught at your Higher Secondary School (Item 22), Bachelor's level (Item 29) and Master's level (Item 36). For example, if you went to a school in West Bengal and were taught all the regular subjects in BENGALI, enter that.
- › **Note:** Do not enter VERNACULAR. You must specify the language you were taught in.
- › Item 43 is to be filled in only by applicants for the M.Ed. programme.

Item #25, 32, 40 and 45: Statement of Marks

- › All the marks you enter here must be identical to the Attested photocopies of the Statement of Marks for X Std., XI Std., XII Std., Bachelor's and Master's degrees.
- › Make sure you accurately fill the actual marks in the Marks Obtained column and maximum marks possible in the Out of Column. For example, in Mathematics, you got 93 out of 100 marks.
- › You must tally your marks and enter the percentage of General English and aggregate percentage of the Total (including English) marks in all instances.
- › For items 32 and 40, you can enter the marks either per year or per semester, depending on your institution of study and what is published on your marksheets.
- › Item 45 is to be filled in only by applicants for the M.Ed. programme.

Item #49: List of achievements

- › Enter here details of both academic (e.g. competitive exams) and non-academic achievements.

PARTS E and F: DECLARATION BY APPLICANT and PARENT/GUARDIAN

- › Both parts must be signed by the applicant and parent/guardian only. Unsigned applications will not be processed.

STEP 4: DOCUMENTS CHECKLIST

Once you have filled in the application form in full – complete with signatures, attested photograph, etc. you will have to make sure that all the **supporting documents are included** with the form before posting the application to SSSIHL.

Online applicants will be able to view their form in full in PDF format after they go through the online application portal and will be able to print the same.

Note: All Mark sheets (and photographs), must be attested by the Head of the Institution last attended or by a Gazetted Officer. Attestation means that a person of responsibility actually signs across the photograph and that below the signature there is rubber stamp of the official who is attesting. The Official Stamp must be so imprinted that it overlaps both the photo and the form. Similarly, for mark sheets, the signature and rubber stamp go together.

THE COMPLETE LIST OF SUPPORTING MATERIALS TO INCLUDE IS:

- One additional passport-sized photograph**
 This is in addition to the one you have attested and stuck on the application form. On the reverse side of the photograph, please clearly write the following:
 Your name and applicant ID (online applications) or application number (paper applications)
- Statement of Marks**
 For Undergraduate Programmes applicants:
 Attested photocopies of the Statement of Marks for X Std. issued by your Higher Secondary School Board
 Attested photocopies of the Statement of Marks for XI Std. issued by your Higher Secondary School (only applicable to candidates who fall short marginally of the eligibility criteria based on X Std. marks).

Note: If you are successful and get admission, your final attested mark sheets for XII Std. will need to be submitted within a month after joining the institute.

For **Postgraduate / Professional Programmes applicants:**
 Attested photocopies of the Statement of Marks for X Std. issued by your Higher Secondary School Board
 Attested photocopies of the Statement of Marks for XII Std. issued by your Higher Secondary School Board
 Attested photocopies of the Statement of Marks (along with the final degree certificate) of all semesters/years issued by the authority (University/College/Institution) that conducted the Qualifying Examinations leading to your final degree.

Note: If you have just finished your final exams or are

about to take them, please send final mark sheets for all the years preceding the final year. If your institution follows a semester system, please send exam mark sheets for all semesters preceding the final semester.

- Co-curricular Achievements**
 This is optional. If you have certificates that highlight your involvement in co-curricular (non-academic) activities, please include attested copies of these with your application for consideration.

STEP 5: SUBMIT APPLICATION FORM WITH REQUIRED DOCUMENTS

Once you are satisfied that you have completed all the necessary requirements for the application form and the supporting materials, you will now be in a position to post the same to the Admissions office of the University.

Please follow these four steps to ensure your application will be processed and not rejected:

- Staple** the filled application form with all supporting materials. Then, seal them in an **A4-sized envelope**. This is important so you do not fold the form and certificates attached.

Note: ONLINE APPLICANTS ONLY - If you have chosen to pay online, kindly print and attach a copy of the electronic receipt. Otherwise, kindly send an **Indian Postal Order (IPO) or Demand Draft (DD) for ₹100/-** per application. The Bank draft should be drawn in favour of Sri Sathya Sai Institute of Higher Learning, payable at SBI, Prasanthi Nilayam/Puttaparthi.
- Write the **Applicant ID** (online applications) or **Application Number** (paper applications) and the course for which you have applied on the envelope that you are posting.
- Post the completed application so that it reaches the University **BEFORE** the **application deadline**: 28 February. On average, allow one week for applications posted within South India and two weeks for the rest of India. **Late Applications** reaching after this date **will be rejected**.
- It is **compulsory** that **all applications** are posted either by **Registered Post or via a courier service** to the address provided below. Should you opt for a courier service, it is advisable that you check with them if they have an office or delivery service at Puttaparthi, Andhra Pradesh. Two

examples include: DTDC or Professional Couriers, both of whom have offices at Puttaparthi.

The postal address to use is:

Admissions Office
 Office of the Registrar
 Sri Sathya Sai Institute of Higher Learning
 Vidyagiri
 Prasanthi Nilayam – 515 134
 Dist. Anantapur
 Andhra Pradesh

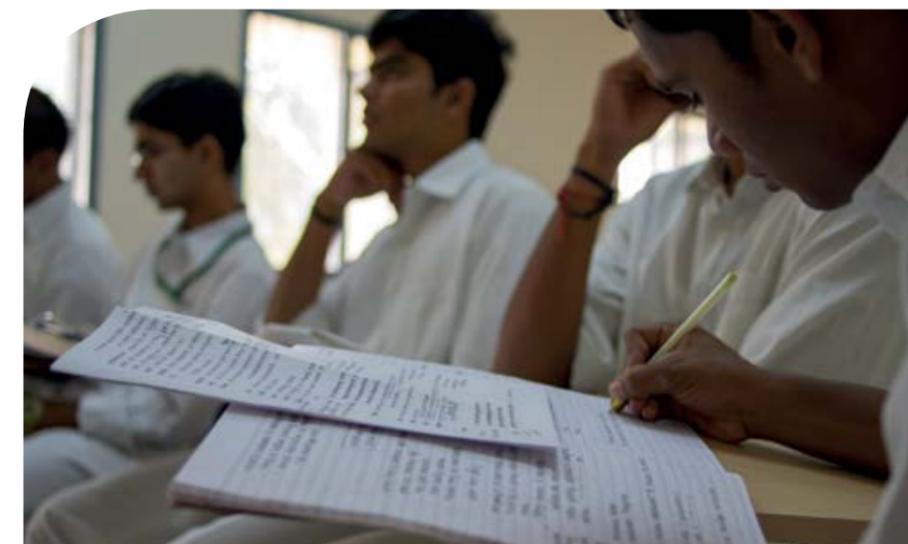
 Tel: +91 8555 287239

STEP 6: AWAIT CONFIRMATION ON ELIGIBILITY FOR WRITTEN TEST

Once the Admissions Office receives your application, it will be duly processed to make sure that you meet all the preliminary eligibility criteria and that all the supporting materials (including your application form) are accurate.

If you meet all these criteria, the University will write to you on the **mailing address** that you indicated in your application form. You will receive an **Admissions Entrance Test card**. This will allow you to sit for the Admissions Entrance Test.

If you do not meet the criteria, you will also hear in writing from the University, stating that your application has been rejected.



Step 7 Attend Written Test / Interview

STEP 7: ATTEND WRITTEN TEST / INTERVIEW

If your application is successful - meaning you have met the minimum eligibility criteria and submitted all the information to SSSIHL exactly as requested - the Admissions office will post you an Admissions Entrance Test Card. Once you receive this, you are required to **travel to Prasanthi Nilayam, Puttaparthi (in Andhra Pradesh) to take your admissions test**. If you clear the written test, you will have to attend an interview/group discussion. The interview is usually conducted on the very next day following the test.

What about the ADMISSIONS TESTS SCHEDULE?

Admissions Tests for 2014 entry will be held between **17-30 April 2014**. You must arrive at least the day before your test. Refer to the Admissions Test schedule below for exact dates.

DATES & DEADLINES

Admissions Test Results: **Thu, 1 May 2014**

Reporting date for selected candidates: **Sun, 1 June 2014**

Academic Year 2014/15 begins: **Mon, 2 June 2014**

ADMISSIONS TEST AND INTERVIEW SCHEDULE FOR **WOMEN**

Undergraduate Programmes

B.A. | B.Com. (Hons.) | B.B.M. | B.Sc. in Food Science and Nutrition | B.Sc. in Food Technology | B.Sc. (Hons.) in Mathematics / Physics / Chemistry | B.Sc. (Hons.) in Biosciences / Chemistry

| | | | |
|-------------------------------|---------------|---|------------------------|
| All Programmes, except B.B.M. | Written Tests | Thu 17 April | 9.00 A.M. – 12.15 noon |
| B.B.M. | Written Tests | Thu 17 April | 2.00 P.M. – 5.15 P.M. |
| All Programmes | Interviews | Fri 18 April, Sat 19 April and Sun 20 April | |

Professional Programmes

B.Ed. | M.Ed. | M.B.A.

| | | | |
|----------------|-------------------|--------------|------------------------|
| B.Ed. | Written Tests | Fri 18 April | 9.00 A.M. – 12.00 noon |
| M.Ed. | Written Tests | Fri 18 April | 2.00 P.M. – 4.00 P.M. |
| M.B.A. | Written Tests | Fri 18 April | 9.00 A.M. – 11.15 A.M. |
| | Group Discussions | Sat 19 April | 9.00 A.M. onwards |
| All Programmes | Interviews | Sun 20 April | |

Postgraduate Programmes

M.A. in English Language & Literature | M.Sc. in Biosciences | M.Sc. in Food Science and Nutrition | M.Sc. in Food Technology

| | | | |
|--|---------------------------------|--------------|-------------------------|
| All Programmes (common for all candidates) | Written Tests (General English) | Sat 19 April | 9.00 A.M. – 10.30 P.M. |
| M.Sc. in Food Science and Nutrition and M.Sc. in Food Technology | Written Tests (Subjects) | Sat 19 April | 10.45 A.M. – 12.45 P.M. |
| M.A. in English Language & Literature and M.Sc. in Biosciences | Written Tests (Subjects) | Sat 19 April | 2.15 P.M. – 4.15 P.M. |
| All Programmes | Interviews | Sun 20 April | |

| | | | | | | | | |
|------------------|----------------------------|------------------|---------------------|------------------|-------------------------|-------------------------|----------------------|-------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Choose Programme | Eligibility & Descriptions | Application form | Documents checklist | Post application | Await Test confirmation | Attend Test & Interview | Await final decision | Join SSSIHL |

ADMISSIONS TEST AND INTERVIEW SCHEDULE FOR **MEN**

Undergraduate Programmes

B.A. | B.Com. (Hons.) | B.B.M. | B.C.A. | B.Sc. (Hons.) in Mathematics / Physics / Chemistry | B.Sc. (Hons.) in Biosciences / Chemistry | B.Sc. (Hons.) in Mathematics / Economics / Statistics

| | | | |
|--|---------------|---|------------------------|
| All Programmes, except B.C.A. and B.B.M. | Written Tests | Mon 21 April | 9.00 A.M. – 12.15 P.M. |
| B.C.A. | Written Tests | Tue 22 April | 9.00 A.M. – 12.15 P.M. |
| B.B.M. | Written Tests | Tue 22 April | 2.00 P.M. – 5.15 P.M. |
| All Programmes | Interviews | Tue 22 April, Wed 23 April and Thu 24 April | |

Professional Programmes

M.B.A. | M.B.A. in Finance | M.Tech. in Computer Science | M.Tech. in Optoelectronics and Communications | M.Tech. in Analytical Methods and Chemical Instrumentation | M.Tech. in Nuclear Medicine

| | | | |
|--|------------------------|---|------------------------|
| M.B.A. and M.B.A. in Finance | Written Tests | Thu 24 April | 9.00 A.M. – 11.15 A.M. |
| | Group Discussions | Fri 25 April | 9.00 A.M. onwards |
| | Interviews | Sat 26 April, Sun 27 April and Mon 28 April | |
| M.Tech. in Computer Science | Written Tests | Sat 26 April | 9.00 A.M. – 12.00 noon |
| | Oral / Practical Tests | Sun 27 April | 9.00 A.M. onwards |
| | Interviews | Tue 29 April | |
| M.Tech. in Optoelectronics and Communications | Written Tests | Sun 27 April | 9.00 A.M. – 12.00 noon |
| | Subject Vivas | Mon 28 April | 9.00 A.M. onwards |
| | Interviews | Tue 29 April | |
| M.Tech. in Analytical Methods and Chemical Instrumentation | Written Tests | Sun 27 April | 9.00 A.M. – 12.00 noon |
| | Subject Vivas | Mon 28 April | 9.00 A.M. onwards |
| | Interviews | Tue 29 April | |
| M.Tech. in Nuclear Medicine | Written Tests | Sun 27 April | 2.00 P.M. – 5.00 noon |
| | Subject Vivas | Mon 28 April | 9.00 A.M. onwards |
| | Interviews | Tue 29 April | |

Postgraduate Programmes

M.A. in Economics | M.Sc. in Mathematics | M.Sc. in Physics | M.Sc. in Nanoscience & Nanotechnology | M.Sc. in Chemistry | M.Sc. in Biosciences

| | | | |
|--|---------------------------------|--------------|-------------------------|
| All Programmes (common for all candidates) | Written Tests (General English) | Mon 28 April | 9.00 A.M. – 10.30 P.M. |
| M.A. in Economics, M.Sc. in Mathematics, M.Sc. in Physics, M.Sc. in Chemistry and M.Sc. in Biosciences | Written Tests (Subjects) | Mon 28 April | 10.45 A.M. – 12.45 P.M. |
| M.Sc. in Nanoscience & Nanotechnology | Written Tests (Subjects) | Mon 28 April | 2.15 P.M. – 4.15 P.M. |
| All Programmes | Interviews | Wed 30 April | |

Step 7 Attend Written Test / Interview

WHAT DO I DO ON THE MORNING OF THE ADMISSIONS TEST?

All admissions tests will be held at the Prasanthi Nilayam Campus of the University. The building is located 200 meters from the Ganesh Gate of the ashram. (Take a right once you exit the ashram and walk past the bus stand, the police station and the shops. The college building will be on your left). It is a five minutes walk.

You are required to report to the premises 45 minutes prior to your scheduled test time. For example, if your test begins at 9 a.m., reach the college building at 8:15 a.m.

When you reach the main entrance of the building, various instructions and announcements pertaining to the tests, interviews etc. will be displayed on the notice board at the entrance of the college building.

Do I need to bring anything with me to the Entrance Test?

All candidates need to bring:

1. **Two HB pencils**
2. **An eraser and sharpener for the admissions test.**
3. **A pen (preferably blue ink).**

Electronic Calculators are strictly NOT allowed.

Other test-specific instructions will be sent to you via post along with your Admissions Test Entrance card.

WHAT ABOUT THE INTERVIEW?

Only candidates who pass the written test will be invited for an interview. Candidates are shortlisted for an interview on the basis of their performance in General English and the total aggregate of other tests, both of which have a minimum cut-off point.

The interview process evaluates the suitability of the candidates keeping in view the unique requirements of the fully residential, values-based system of education at SSSIHL.

The interview is usually conducted on the very next day following the written test.

Candidates who pass written tests for the MBA and MBA (Finance) programmes, will have a group discussion in addition to an interview, as part of the admissions procedure. Also, those candidates successful in passing the written test for the M.Tech. programmes, will have to attend a practical and oral test in addition to the written test.

Admission Test results are published on the same day of the test (late evening/night) or early morning of the following day.

They will be posted on notice boards at the following two places:

1. **Opposite the Accommodation Office in the ashram**
2. **Prasanthi Nilayam Campus**

The above notice will also contain details regarding the date and the time of Interviews.

If you are selected for the interview stage, and other tests (such as practical tests or group discussions), you will be required to spend more time at Prasanthi Nilayam.

HOW DO I REACH PRASANTHI NILAYAM?

Prasanthi Nilayam is the name of the ashram established by Bhagawan Sri Sathya Sai Baba. It is also the name of the main campus of Sri Sathya Sai Institute of Higher Learning. It is located in Puttaparthi, in the district of Anantapur, Andhra Pradesh.

By train:

Prasanthi Nilayam has a railway station by the name Sri Sathya Sai Prasanthi Nilayam (station code: SSPN). The campus and ashram are located at about 10 km from the railway station. Several trains come directly to Sri Sathya Sai Prasanthi Nilayam. Auto rickshaws will charge around ₹80 for a one-way fare to the main entrance of the ashram.

Alternatively, you can reach Puttaparthi by taking a train to the Dharmavaram Junction (station code: DMM). Dharmavaram is about 40 km from Puttaparthi and is on the Guntakal-Bangalore section of the South-Central Railway.

Those alighting at Dharmavaram Railway Station may board direct buses from the railway station to Prasanthi Nilayam. If direct buses are not available from the station, you can take an auto rickshaw to the Dharmavaram Bus Stand, from where buses to Puttaparthi are available for a nominal charge. Private taxis and vans may also be available in the vicinity of the Dharmavaram Bus Stand.

A computerized Railway Reservation facility is available at the Puttaparthi bus stand for those who wish to book return tickets.

By bus:

Puttaparthi may be reached directly by bus from Chennai, Bangalore, Hyderabad, and major towns of Andhra Pradesh. Buses alight at the Puttaparthi Bus Stand which is conveniently located directly opposite to the entrance gate of the ashram.

| | | | | | | | | |
|------------------|----------------------------|------------------|---------------------|------------------|-------------------------|-------------------------|----------------------|-------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Choose Programme | Eligibility & Descriptions | Application form | Documents checklist | Post application | Await Test confirmation | Attend Test & Interview | Await final decision | Join SSSIHL |

By car:

Puttaparthi is located off National Highway (NH) 7, which connects Bangalore to Hyderabad. Look out for signs to Puttaparthi or visit Google Maps for point-to-point directions.

By flight:

The nearest airport to Puttaparthi is Bangalore International airport. Once you exit the terminal building, you can negotiate a taxi to take you to Puttaparthi. On average, expect to pay ₹1800 to ₹2000 for a one-way taxi fare. It takes less than three hours to reach Puttaparthi from Bangalore airport.

When should I arrive?

We strongly recommend that you arrive in Prasanthi Nilayam the day prior to the Written Test.

To ensure that you get accommodation in the ashram, we strongly suggest that you arrange your travel plans so that you arrive at the ashram accommodation office before 8 p.m. (latest) on the day of your arrival.

How can I get accommodation?

The entrance of the ashram (Ganesh Gate) is located opposite the bus stand. Following a brief security check (of your luggage), you may proceed directly to the accommodation office. For any help or directions, just ask a sevadal (women or men volunteers with yellow or blue scarves) to assist you.

Accommodation

All candidates (and their accompanying parents/wards) visiting Prasanthi Nilayam for entrance tests will be provided accommodation at nominal prices inside the ashram. However,

it is mandatory that you have your Admission Test Entrance card at hand and produce it to the Accommodation Officer on arrival.

The accommodation office is located inside the ashram opposite the South Indian canteen and is open from 6:15 a.m. to 8 p.m. everyday. You cannot get accommodation in the ashram outside of these hours. Entry to the Ashram – via car or by foot (Ganesh Gate) is between 4 a.m. and 9:30 p.m., everyday.

WHAT ABOUT THE ADMISSIONS TESTS SYLLABUS?

It is advisable that you prepare well in advance to better your chances of passing the admissions tests. Given below are the admissions test syllabus for all programmes.

Please note that it is compulsory to write a test in General English along with subject-related tests.

The admissions tests are largely objective multiple-choice questions that are evaluated by an Optical Mark Recognition (OMR) system. The OMR system is foolproof and 100% accuracy is guaranteed during evaluation. **Negative marks are awarded for every incorrect answer.** This is usually 25% of the total marks allocated for that particular question.



Map of SSSIHL Campuses

UNDERGRADUATE PROGRAMMES

Candidates can refer to the various syllabi, depending on the subject combination they have chosen for the Entrance Test, as indicated in their application forms.

ADMISSIONS TEST SYLLABUS

The admission test syllabus is based on XI/XII std of CBSE. The question paper will be of Multiple Choice type. There will be proportionate negative marking.

GENERAL ENGLISH – Compulsory for all Undergraduate Programmes

- › Comprehension of Unseen Passage: Prose and Poetry.
- › **Vocabulary:** Antonyms, Synonyms, One-word Substitutes, Pairs of Words Often Confused
- › **Grammar:** Tenses, Prepositions, Phrasal Verbs, Voice(s), 'too – enough,' 'since' and 'for'
- › **Structure:** Reported Speech, Spellings, Punctuation, Correction of Sentences
- › **Composition:** Re-ordering or re-arranging of sentences to form a coherent whole, guided composition, paragraph writing, letter writing.

MATHEMATICS

- › **Algebra and Trigonometry:** Sets, Relations and functions; Complex Numbers; Matrices and Determinants; Quadratic Equations; Permutations and Combinations; Mathematical Induction and its applications; Binomial theorem and its applications; Sequences and Series; Trigonometry.
- › **Calculus:** Differential Calculus; Integral Calculus; Differential Equations.
- › **Two Dimensional Geometry.**
- › **Statistics:** Measures of Central tendency and Dispersion; Probability.

PHYSICS

- › **Mechanics:** Units and Measurement; Description of Motion in one dimension; Description of Motion in two and three dimensions; Laws of Motion; Work, Energy and power; Rotational Motion and Moment of Inertia; Gravitation; Solids and Fluids, Elasticity, Surface tension
- › **Oscillations, Waves, Heat & Thermodynamics and Optics:** Oscillations; Waves, Sound; Heat & Thermodynamics; Transference of Heat; Ray Optics; Wave Optics; Electromagnetic Waves.
- › **Electricity and Magnetism:** Electrostatics; Current Electricity; Thermal and Chemical effects of Currents; Magnetic effects of Currents; Magneto statics; Electromagnetic Induction and Alternating Currents.
- › **Modern Physics:** Electrons and Photons; Atoms, Molecules and Nuclei; Solids and Semi-Conductor Devices.

CHEMISTRY

- › **General and Physical Chemistry:** Some basic concepts of chemistry-structure of atom-acids and bases-pH-buffers-buffer action-buffer capacity-hydrolysis of salts-solubility product-states of matter (gases and liquids)-solutions-thermodynamics-electrochemistry-chemical equilibrium redox reactions-solid state-chemical kinetics and surface chemistry.

- › **Inorganic Chemistry:** Periodic table-chemical bonding and molecular structure – hydrogen-s-block elements-p-block elements-d-and f-block elements-coordination chemistry and organometallics-importance of coordination compounds in qualitative inorganic analysis principles and processes of isolation of elements-nuclear chemistry.
- › **Organic and Applied Chemistry:** Purification and Characterization of Organic Compounds; Some basic principles-Hydrocarbons-haloalkanes and haloarenes-organic compounds containing oxygen (alcohols, phenols, carbonyl compounds, carboxylic acids), Organic Compounds containing Nitrogen (aliphatic and aromatic amines – primary, secondary and tertiary amines) – diazonium salts-synthetic and natural polymers-biomolecules - chemistry in action-environmental chemistry.

BOTANY

- › **Plant Kingdom:** Five kingdom classification major groups and their salient features. Bacteria, Fungi, Bryophytes, Pteridophytes, Gymnosperm.
- › **Morphology:** Structural organization of stem, leaf and root and their modifications (Stem-climber, Rhizome, tuber, bulb, corm; leaf - foliage, scale and bract; root - tap and adventitious roots) in dicot and monocot plants.
- › **Anatomy:** Tissues - Parenchyma, collenchymas, sclerenchyma, xylem, phloem. Anatomy of root, stem and leaf of monocot and dicot plants.
- › **Embryology:** Structure and function of flower, Inflorescence, (Racemose, cymose and special types) Androecium (Anther structure, microsporogonium, microsporogenesis and male gametophyte), Gynoecium (Ovule - structure, mega sporangium, megasporogenesis, female gametophyte), Pollination, (Self and cross pollination), Anemophily, Entomophilies, Hydrophily, Zoophily, Fertilization, Fruits (Simple, aggregate and multiple fruits).
- › **Physiology:** Water absorption, Ascent of sap, Transpiration (Exchange of gases, stomatal mechanism), Respiration (Glycolysis, Krebs cycle, electron transport system), Photosynthesis (Light reaction, Dark reaction (Calvin cycle), factors affecting photosynthesis - light, temperature and Carbon dioxide), Growth (Plant hormones and growth regulation) and movements (Turgor and growth movements), Mineral nutrition (essential and non-essential elements) in plants.
- › **Applied Botany:** Plant breeding - mutation, hybridization, polyploidy. Use of fertilizers and pesticides (advantages and hazards).
- › **Cell Biology:** Cell theory, Prokaryotic, Eukaryotic cell, Cell wall, cell membrane and cell organelles, Plastids, mitochondria, endoplasmic reticulum, golgi bodies, ribosome, lysosome, nucleus and chromosomes, Mitosis, Meiosis.
- › **Ecology:** Organism and population, Ecological adaptation, Ecosystem: Components, types, energy flow, nutrient cycling.

ZOOLOGY

- › **Diversity of living organisms:** Classification of animals, salient features of non-chordata upto phyla level, chordate to class level.
- › **Anatomy, histology and physiology (Earthworm, cockroach, Frog and Human):** Integumentary system, digestive system, respiratory system, circulatory system, excretory system, Muscular system, nervous system, endocrine system and reproductive system, connective tissue, epithelial tissue, small intestine, Histology of stomach, bone, blood, lymph, liver, pancreas, lung, spleen, kidney, skin, testis and ovary.
- › **Developmental Biology:** Basic features of vertebrate development, Gametogenesis, fertilisation, cleavage, blastulation.
- › **Genetics:** Mendel's laws of inheritance, Chromosome theory of inheritance, incomplete dominance, co-dominance, deviations

- › from Mendelian ratios, multiple alleles, sex determination, linkage or crossing over, Mendelian disorder, chromosomal disorders, DNA and RNA replication, transcription genetic code, gene expression, regulation and human genome project, DNA finger print.
- › **Evolution of life:** Morphological, embryological and paleontological evidences for evolution. Theories of evolution: Lamarck, Darwin and De Vries. Human evolution: Paleontological evidence, elementary knowledge on Dryopithecus, Australopithecus, Homo erectus, H.neanderthalensis, Cro-Magnon and Homo-sapiens.
- › **Applied Zoology:** Major animal diseases caused by bacteria, viruses, protozoans and helminthus and their control. Domestication and introduction of animals: Livestock, poultry, fisheries. Understanding human diseases: Body's defense mechanism (immunity).

COMMERCE

Business Organization and Principles of Management:

- › Economic activities and business
- › Formation of business units
- › Corporate Organization – Types
- › Stock exchange
- › Transport and storage/warehousing
- › Banking and financial institutions
- › Evolution and growth of management
- › Organization of modern business office.
- › Nature and purpose of business
- › Structural aspects of business
- › Business and sources of finance
- › Trade: Internal and external
- › Elements of insurance/types
- › Nature and significance of management
- › Planning, organizing, staffing, directing and controlling

ACCOUNTANCY (Including Quantitative Aptitude)

- › Basic Accounting theory
- › Recording of transactions: Subsidiary books - Journal - Ledger
- › Trial balance, rectification of errors
- › Financial statements, trading and profit and loss account (with adjustments) and balance sheet
- › Final accounts for non-trading concerns
- › Bills of exchange
- › Partnership accounting: Admission, retirement, death and dissolution
- › Company accounts: Issue of shares, forfeiture, re-issue, issue and redemption of debentures, final accounts - classification of assets and liabilities of presenting balance sheet
- › Depreciation Accounting: Straight line and Diminishing value methods; Provision for Depreciation
- › Single entry: Statement of affairs and determination of profit.

Quantitative Aptitude:

- › Basic arithmetical operations - Basic properties of numbers - HCF & LCM - Fractions - Decimals - Percentages - Ratio & proportions - Power & groups - Simple Interest & Compound Interest - Mensuration - Problem solving in Algebra - Elementary Geometry - Statistical tables & averages.

STATISTICS

- › **Statistical data:** Definition and scope of the Statistics - collection and organisation of data, frequency distributions - diagrams and graphical representation of data.
- › Measures of Location: Arithmetic mean - Median, Quartiles, Deciles

- › and Percentiles - Mode - Weighted arithmetic mean, Geometric mean and Harmonic mean - Simple problems.
- › Measures of Dispersion: Range - Quartile deviation - Mean deviation - Variance and Standard - Coefficient of variation - simple problems.
- › Correlation: Concept of bivariate distributions - Scatter diagram, Karl Pearson's co-efficient of correlation - Spearman's rank correlation (without ties) - Simple Problems.
- › Data interpretation: Interpretation of quantitative variables from tables and from diagrams.
- › Index Numbers: Meaning- types- Wholesale Price Index- Consumer Price Index- Inflation and Index Numbers- Uses of Index Numbers.

ECONOMICS

- › Basic concepts: What is an economic problem? - Meaning of economy - Goods and Services - Economic systems (Capitalism, Socialism and Mixed Economy)- Economic Methods (deductive and inductive)- Micro and Macroeconomics.
- › Consumption: Meaning of wants - Utility - Laws of demand - Elasticity of demand- Indifference Curve Analysis-Consumer equilibrium.
- › Production: Supply- Law of variable proportions - Cost and Revenue concepts- Economies of scale (large scale and small scale production)- Returns to Scale.
- › Value and Exchange: Determination of price - Market price and normal price- Market structure-features - nature of demand curves- Perfect competition, Imperfect competition and Monopoly.
- › Distribution: Factor Pricing-derived demand-The concepts of Rent, Wages, Interest and Profit.
- › Macro economics: Aggregate demand – Aggregate supply- Effective demand- Equilibrium level of income - Propensity to consume- Propensity to save and invest - MEC – MEI- Multiplier-Accelerator (only concepts).
- › Indian Economic Problems: Nature of Indian Economy- Basic structure - Poverty and unemployment in India - Problem of Population - Regional disparities - India's national Income- Inequality- Indian Planning – The effect of Economic Reforms.

CIVICS

- › Civics - Meaning and scope; Aims and value of its study; its relationship with History, Political Science, Economics and Ethics.
- › Individual and his relationship with family and society, Society - meaning and advantages of social life; Role of various Associations, eg., Religious, Political, Economic and Cultural.
- › Citizenship - meaning and importance: Single and dual citizenship - advantages and disadvantages; Rights and Duties of Citizens; Hindrances to good citizenship.
- › Nation - meaning and importance: Nationality, meaning and elements, India as a Nation.
- › State and its essential elements; Population; Territory; Government and Sovereignty. Definition of the term sovereignty - nature, characteristics and coercive nature of the State.
- › Individual and the Modern State (Basic concepts):
- › (a) Law - meaning, characteristics, sources - law and morality, (b) Liberty - meaning and kinds; Law and Liberty, (c) Equality - meaning and kinds; Relation between liberty and equality, (d) Fraternity - meaning - need for co-operation and co-existence of individuals for common good.
- › Liberty - meaning and kinds; Law and Liberty
- › Forms of Government; Unitary and Federal, Parliamentary and Presidential - characteristics - merits and demerits. (Provide stress on the functions of the Legislature, Executive and Judiciary)
- › Spheres of State activity, Individualism, socialism, communism, capitalism and dictatorship.
- › Democracy: meaning - kinds - features - merits and demerits of direct and indirect democracy, conditions necessary the success of

- democracy; role of parties and public opinion in democracy.
- › Constitution of India: Brief study of the features as given below:
- › (a) Preamble, (b) Fundamental rights, (c) Directive principles of State Policy, (d) Federal System, (e) Parliamentary features.
- › Govt. of India:
- › (a) Parliament, (b) Cabinet, (c) All India Services, (d) State Legislatures and Cabinet, (e) Centre-State relations - Administrative, Legislative and Financial.
- › Structure and working of Local Governments (Brief Study)
- › (a) Corporations and Municipalities, (b) Panchayat Raj, (c) Zilla Parishads and Mandala Parishads, (d) The role of District Collectors.
- › Adult Franchise: Meaning and working. Advantages and disadvantages; Development of Weaker Sections.

- › National Integration and its need:
- (a) Communalism, (b) Casteism, (c) Linguism, (d) Regionalism.
- › United Nations - Its aims and principal organs. Its role in promoting international peace and understanding.

POLITICAL SCIENCE

- › Political Science - meaning, nature and scope
- › Citizen - State and Society; Citizenship - Rights and duties of citizens (a brief study of the fundamental rights and fundamental duties of Indian citizens).
- › State and Government: Nature and definition of State; Elements of state; State and Society; State and Associations.
- › Nation and Nationality: Meaning of the terms Nation and Nationality, Elements of Nationality; Nationalism - meaning, importance, merits and demerits.
- › Sovereignty - meaning, characteristics and kinds of sovereignty, legal, political and popular sovereignty.
- › Law, Liberty and equality: Meaning of the terms Law and Liberty, Law and morality. Liberty and Law, Sources of Law, Kinds of Law; Definition of the term Liberty, Kinds of liberty; Equality - Definition of the term, kinds - liberty and equality.
- › Forms of Government: Unitary and Federal - meaning, merits and demerits, Parliamentary and Presidential - explanation - merits and demerits of both systems.
- › Spheres of State activity: Individualism, Socialism, Communism, Capitalism and Dictatorship, Gandhism and Sarvodaya.
- › Constitution: Classification - Written and Unwritten; Rigid and Flexible - meaning - merits and demerits.
- › Indian Constitution: Salient Features - Indian National Movement: Main events 1857, 1919, 1935, 1942 and 1945.
- › Legislature: Organization, powers and functions of the legislature; A brief study of the organization, functions and working of Indian Parliament.
- › Executive in India: President - election, powers and functions; Vice-President, Prime Minister and the Council of Ministers; Governor - appointment - powers and functions, Chief Minister and the Council of Ministers.
- › Judiciary: Role and importance, Independence of Judiciary, Supreme Court and the High Courts in India.
- › Civil Services: Nature - importance and functions of Civil Services; Bureaucracy, U.P.S.C., Organization and functions.
- › Electorate: Types of franchise, Merits and Demerits, Direct Democratic Devices.
- › Party system: Political parties, their role and functions, Role of opposition in democracy.
- › Public Opinion: Meaning - Agencies of public opinion, role and importance of Public Opinion.
- › Local Self Government: Panchayat Raj, Municipal Govt., planning - importance - socio economic development - rural and urban development; development of scheduled castes and tribes.
- › Factors conditioning Indian Democracy: Inequality - social and economic; Regional imbalance, communalism and casteism, Regionalism and Linguism.

- › Internationalism: Meaning and importance - United Nations - Aims - Objectives, Organs and functions.

HISTORY

- › Introduction: Pre-history - The Stone Age:
- › (a) The Harappan Culture (b) The Vedic Period (c) Jainism and Buddhism
- › (a) The rise of the Magadha
- › (b) Age of the Mauryas: i) Chandragupta ii) Ashoka iii) Mauryan Administration
- › (a) Age of the Guptas: i) Samudragupta, ii) Chandragupta - II, iii) The Golden Age of the Guptas, (b) The Kushanas - Kanishka
- › The Deccan:
- › (a) The Satavahanas - Gautamiputra Satakarni, (b) The Chalukya of Badami - Pulikesi II (c) The Rashtrakutas - Dhruva; Nripatunga
- › (d) The Pallavas - Narasimhavarman, (e) The Cholas - Chola Administration
- › Harshavardhana and his time - Medieval India
- › 6. (a) Arabs in India - Muhammed-bin-Qasim
- › (b) Invasion of Mahmud Ghazni and Mahmud Ghori
- › (c) The Rajputs - Prithviraj
- › 7. The Age of Vijayanagara Empire - Krishnadevaraya - The battle of Talikota
- › 8. India under the Mughals:
- › a) Sher Shah - Administration, b) Age of Akbar, c) Aurangzeb and the decline of the Mughal Empire d) Mughal contribution to: (i) Art and Architecture (ii) Literature
- › 9. Rise of the Marathas - Shivaji - The Peshwas
- › (a) Baji Rao (b) Baalaji Baji Rao
- › 10. Advent of Europeans in India - Portuguese, Dutch, Danes, English and French.
- › 11. Revolt of 1857 - Causes of Revolt - Causes of failure of Revolt - Effects of the Revolt.
- › 12. Rise of the British Power in India - Battles of Plassey, Buxar and three Carnatic wars.
- › 13. Nationalism Movement in India - Genesis of Indian National Congress - Moderates - Surat split - Rise of extremism - Home Rule Movement - Revolutionary and Terrorist movement - Jallian-Walabagu Tragedy, 1919 - Non Cooperation Movement - Civil Disobedience Movement - Quit India Movement - Indian Independence.

SPECIAL ENGLISH

- › Comprehension: Literary Prose and Poetry
- › Vocabulary: Affixes, One-Word Substitutes, Sentence completion
- › Grammar: Parts of Speech, Gender, Phrases / Clauses, Reported Speech
- › Usage: Idioms, Proverbs, Figures of Speech, Correction of Sentences
- › Guided Composition- Reordering Jumbled Sentences into a Narrative

B.B.M.

General English:

- › Comprehension of Unseen Passage: Prose and Poetry.
- › Vocabulary: Antonyms, Synonyms, One-word Substitutes, Pairs of Words Often Confused
- › Usage: Idioms
- › Grammar: Tenses, Prepositions, Phrasal Verbs, Voice(s), 'too - enough,' 'since' and 'for'
- › Structure: Reported Speech, Spellings, Punctuation, Correction of Sentences
- › Composition: Re-ordering or re-arranging of sentences to form a coherent whole, guided composition, paragraph writing, letter writing.

Numerical skills and Reasoning skills:

- › Basic arithmetical operations
- › Basic properties of numbers
- › HCF & LCM
- › Fractions
- › Decimals
- › Percentages
- › Ratio & proportions
- › Power & groups
- › Simple Interest & Compound Interest
- › Mensuration - Problem solving in Algebra
- › Elementary Geometry
- › Statistical tables & averages and logical reasoning.

B.C.A.

General English:

- › Comprehension of Unseen Passage: Prose and Poetry.
- › Vocabulary: Antonyms, Synonyms, One-word Substitutes, Pairs of Words Often Confused
- › Usage: Idioms
- › Grammar: Tenses, Prepositions, Phrasal Verbs, Voice(s), 'too - enough,' 'since' and 'for'
- › Structure: Reported Speech, Spellings, Punctuation, Correction of Sentences
- › Composition: Re-ordering or re-arranging of sentences to form a coherent whole, guided composition, paragraph writing, letter writing.

Mathematics:

Part A: Algebra, Vectors, Linear Programming

- › Real Numbers, Complex Numbers
- › Polynomials, Linear Equations in one and two variables, Quadratic Equations in one variable, Permutations and Combinations, Binomial Theorem, Arithmetic Progression, Geometric Progression, Standard Progressions and Series
- › Types of Vectors, Vector addition, Scalar multiplication, Scalar and Vector products of 2, 3 and 4 vectors
- › Linear Inequalities, Linear Programming - Graphical Method

Part B: Mensuration, Geometry, Analytical Geometry

- › Areas, Surface Areas and Volumes of standard plane and solid regions
- › Euclid's Axioms and Postulates, Lines, Angles, Triangles, Congruent Triangles, Quadrilaterals, Area, Circles, Similar Triangles
- › Cartesian coordinate system for a plane, Distance formula, Section formula, Area of Triangle, Equations of a straight line, Equations of a plane, Conic Sections
- › Cartesian coordinate system for space, Direction Cosines, Direction Ratios, Lines and Planes in Space

Part C: Trigonometry, Calculus and Differential Equations

- › Trigonometric Ratios, Identities, Trigonometric Functions of sum and difference of Angles, Trigonometric Equations
- › Sets, Relations, Functions, Simple problems on Limits, Continuity, Derivatives of First and Higher Order, Rules of Differentiation, Bernoulli Rule, Partial Derivatives of First order
- › Indefinite Integral, Definite Integral, Rules of Integration, Applications of Integrals
- › Ordinary Differential Equations, General and Particular Solutions, First Order Differential Equations - Classification and Solution, Second Order Homogeneous Differential Equations

Part D: Statistics and Probability

- › Introduction to Statistics, Data Collection & presentation, Mean, Median, & Mode, Cumulative Frequency Distribution, Measures of Dispersion, Range, Mean Deviation, Standard Deviation,
- › Sets and Relations, Empirical Probability, Theoretical Approach

Random Experiments, Events, Axiomatic Approach to Probability, Conditional Probability, Independent Events, Bayes's Theorem, Random Variable & its distribution, Bernoulli's trials, Binomial Distribution.

POSTGRADUATE PROGRAMMES

Candidates can refer to the various syllabi, depending on the course they have applied for, as indicated in their application forms.

COMPULSORY FOR ALL M.A. / M.Sc. PROGRAMMES

GENERAL ENGLISH

Question Paper Format:

1. Comprehension (Unseen Passage)
2. Vocabulary: Pair of words often confused or word substitutes
3. Grammar: Propositions, tenses, structural items, voices etc., reported speech, phrasal verbs, word formation.
4. Compositions: Expansion of a proverb or paragraph writing (150-200 words).
5. Spelling.

M.A. in ENGLISH LANGUAGE AND LITERATURE

QUESTION PAPER FORMAT:

- › Five short answer type: Comprehension of unseen passage, prose, poetry (100 words).
- › Long Answer (essay) type: Testing the knowledge and understanding of literary background (400 words).
- › Set on major literary forms (150 words).
- › Multiple choice type: a) Vocabulary testing b) Common literary terms c) Rewriting a passage: to correct grammatical mistakes - in verbs, spelling or of a similarly type.

Prescribed texts:

- › A short history of English Literature by Evans.
- › A background to the study of English Literature - for Indian students by B. Prasad, Macmillan.

M.A. in ECONOMICS

The test is designed to ensure that selected candidates are able to cope with the requirements of the M.A. (Economics) programme at the University. This programme is designed to enable students to handle issues within an analytical frame, argue logically and articulate their views clearly. They are also expected to undertake processing of data to derive meaningful conclusions and to make empirical judgments consistent with social realities and ethical values.

QUESTION PAPER FORMAT:

The question paper of two hours duration and carrying 100 marks, is divided into three sections:

Section A- Objective type questions
Section B- Short answer questions
Section C- One essay type question

Level and coverage of questions is comparable to those of a good undergraduate programme in economics. Topics covered are as follows:

1. Economic Theory:

Consumer behaviour: preference ordering, utility, budget sets and demand functions; Theory of the firm; Costs, supply and factor demand; Market structure: pricing and production under perfect and imperfect competition, General equilibrium and welfare; Taxation; Elements of national income accounting; Level of economic activity under classical assumptions; Keynesian theory of effective demand and employment; Monetary and fiscal policies; International trade.

2. Quantitative Methods:

Functions of one variable; Linear and quadratic equations; Derivatives and rules of differentiation; Measures of central tendency and dispersion; Correlation and regression with two variables; Index numbers; Elements of probability theory; Random variables and common distributions.

3. Indian Economy and Development:

Basic issues and indicators of economic development; Economic growth; Aspects of development policy: Population growth and employment; Strategies and theories of development; Human values and economic development; Structure of the Indian economy; Human resource development; Persistence of poverty and inequality; New economic policy regime; Indian ethos and policies for all round development; Aspects of the International Economy.

M.Sc. in MATHEMATICS

M.Sc.(Mathematics) program is an intense 2 year PG program with avenues for obtaining anyone of the three possible specializations viz. Pure Mathematics, Applied Mathematics, and Computer Science if candidates wish to choose a specific domain of expertise. Applicants who wish to enter this BSc-MSc Integrated Program at MSc level must satisfy the pre-requisite qualification criteria. Those who are found suitable will be tested for their competence in General English, Mathematics and Computer Science.

QUESTION PAPER FORMAT:

Test on Mathematics and Programming skills including English (as described earlier) will be of 3 hours duration with the following pattern:

Section A- 60 multiple choice questions- 60 marks- 1 ½ hours
Section B- 6 problem solving type questions- 5 marks each- internal choice- 50 minutes
Section C- Short C-Programming Test- 10 Marks- 20 minutes

Viva-Voce: 30 marks- Those who are qualified in English and Written Test will undergo a technical Viva-voce.

The candidate must be familiar with the following topics of Mathematics and Computer Science.

Mathematics: Calculus, Differential Equations, Probability Theory, Real Analysis, Group Theory, Ring Theory, Linear Algebra, Complex Analysis, Discrete Mathematics, and Numerical Analysis. The detailed syllabus is as follows:

Calculus: Higher Order Partial Derivatives, Differentiability, Gradient, the Chain Rule, Directional Derivative, Total Differential and Approximation, Constrained Extrema and Lagrange Multipliers, Double and Triple Integration.

Differential Equations: Classification of Ordinary and Partial Differential Equations, Types of Solutions, Existence and Uniqueness of Solution for an Initial Value Problem, Bernoulli Equation, Exact Differential Equations and Integrating Factors, Cauchy-Euler Equation, Method of Variation Of Parameters, Method of Undetermined Coefficients, Wronskian, Method of Separation of Variables for solving Boundary Value Problems

Probability Theory: Conditional Probability-Bayes's Formula, Independent Events, Discrete and Continuous Random variables, Expected Value, Variance, Covariance, Variance of sums and Correlations, Moment generating functions.

Real Analysis: Logic, Sets and Relations, Functions, Cardinality, Natural Number and Induction, Ordered Field, Completeness

Axiom, Topology of the Reals and Compactness, Convergence, Sequences and Series, Convergence Tests, ϵ - δ definition, Limit theorems, Continuous Function and Uniform continuity, Intermediate Value Theorem, Mean Value Theorem, L'Hospital's rule, Point-wise and Uniform Convergence, Taylor's Theorem, Riemann Integration, Radius and Interval of Convergence for Power Series.

Group Theory: Groups, Subgroups, Cyclic Groups, Normal and Quotient Subgroups, Permutation Groups, Homomorphism, Automorphism, Cayle's and Sylow's Theorem.

Ring Theory: Rings, Integral Domain, Division Rings, Ideals, Quotient Rings, Euclidean Rings, Polynomial Rings, Field of Quotients, Polynomials over Rational Fields.

Linear Algebra: Vector Spaces, Linear Independence and Dependence, Bases and Dimension, Linear Transformations, Systems of Linear Equations, Eigenvalue and Eigenvector Theory.

Complex Analysis: Algebra of Complex Numbers, Analyticity - Harmonic Functions, Elementary Functions, Cauchy Integral Formula, Convergence of Sequence and Series, Taylor Series - Laurent Series, Types of Isolated Singularities, Residue Theorems.

Discrete Mathematics: Logic, Counting, Graphs and Trees.

Numerical Analysis. Bisection Method, Newton Method, Secant Method, Polynomial Interpolation, Simpson Rule, Trapezoidal Rule, LU Factorization, Residual Correction Method, Method of Least Squares, Power Method, Taylor's Method, Euler's Method, Runge-Kutta Method.

Computer Science:

C Language Programming: A minimal exposure to programming is expected from the students. Nevertheless, those qualified for the M.Sc. (Maths) programme and desirous of opting for computer science specialization will be tested in fundamentals of Computer Science and Programming once they are enrolled for the course.

M.Sc. in PHYSICS

QUESTION PAPER FORMAT

Written Test: Objective Type questions- 70 % weightage
Paper 1: General English (as already explained above)
Paper-2: Subject Paper will contain two sections A & B:
Section A- 40 marks- to test the basic understanding in Mathematics, Electronics, Chemistry & Computer Science at the under graduate level
Section B- 60 marks- to test the depth of knowledge in the under graduate level physics
Technical Interview: 30% weightage- Subject to qualification in the written test
Final Personality Interview: Subject to clearing the Technical Interview

Admission Test syllabus for Written Test (Paper-2) & Technical Interview

SECTION A - 40 MARKS

Mathematics: Calculus of single and multiple variables, partial derivatives, Matrices and determinants, Algebra of complex numbers; Taylor expansion, Fourier series; Vector algebra, Vector Calculus, Multiple integrals, Divergence theorem, Green's theorem, Stokes' theorem. First order equations and linear second order differential equations with constant coefficients.

Integral Calculus: Integration as the inverse process of differentiation, definite integrals and their properties, Fundamental theorem of integral calculus. Double and triple integrals, change of order of

integration. Calculating surface areas and volumes using double integrals and applications. Calculating volumes using triple integrals and applications. Vector Calculus: Scalar and vector fields, gradient, divergence, curl and Laplacian. Scalar line integrals and vector line integrals, scalar surface integrals and vector surface integrals, Green's, Stokes and Gauss theorems and their applications.

Linear Algebra: Vector spaces, Linear dependence of vectors, basis, dimension, linear transformations, matrix representation with respect to an ordered basis, Range space and null space, rank-nullity theorem; Rank and inverse of a matrix, determinant, solutions of systems of linear equations, consistency conditions. Eigenvalues and eigenvectors. Cayley-Hamilton theorem. Symmetric, skewsymmetric, hermitian, skew-hermitian, orthogonal and unitary matrices.

Probability: Basic concepts of probability theory. Binomial, Poisson & Normal distributions.

Numerical Analysis: Solution of non-linear equations using iterative methods. Interpolation Lagrange's formula and Newton's formula for equidistant points). Numerical differentiation and integration Trapezoidal and Simpson's rules.

Electronics: Boolean algebra: Binary number systems; conversion from one system to another system; binary addition and subtraction. Logic Gates AND, OR, NOT, NAND, NOR exclusive OR; Truth tables; combination of gates; de Morgan's theorem; Zener diode and its applications, BJT: characteristics in CB, CE, CC modes. Single stage amplifier, two stage R-C coupled amplifiers. Simple Oscillators: OP AMP and applications: Inverting and non-inverting amplifier. 8085 or 8086 Microprocessor architecture and knowledge of assembly language programming.

Chemistry: Periodic Table: Periodic classification of elements and periodicity in properties; general methods of isolation and purification of elements. Chemical Bonding and Shapes of Compounds: Types of bonding-ionic and covalent bonding, M.O. and V.B. approaches for diatomic molecules, VSEPR theory and shape of molecules, hybridisation; Chemical Thermodynamics: Reversible and irreversible processes; First law and its application to ideal and nonideal gases; Thermochemistry; Second law; Entropy and free energy, Criteria for spontaneity. Chemical and Phase Equilibria: Law of mass action; K_p , K_c , K_x and K_f ; Effect of temperature on K ; Ionic equilibria in solutions; pH and buffer solutions; Chemical Kinetics- Reactions of various order; Basis of Organic Reactions Mechanism: Elementary treatment of SN1, SN2, E1 and E2 reactions; Acids and Bases: Arrhenius, Lowry-Bronsted concepts of acids and bases - Strengths of acids and bases.

Computer Science: Basic knowledge of computer systems, software and programming; Number systems. Basic electronic gates. Algorithmic approach to solve problems. Fundamentals of C language.

SECTION B (PHYSICS) - 60 MARKS

Mechanics and General Properties of Matter: Newton's laws of motion and applications, Velocity and acceleration in Cartesian, polar and cylindrical coordinate systems, uniformly rotating frame, centrifugal and Coriolis forces, Motion under a central force, Kepler's laws, Gravitational Law and field, Conservative and non-conservative forces. System of particles, Centre of mass, equation of motion of the CM, conservation of linear and angular momentum, conservation of energy, variable mass systems. Elastic and inelastic collisions. Rigid body motion, fixed axis rotations, rotation and translation, moments of Inertia and products of Inertia, parallel and perpendicular axes theorem. Principal moments and axes. Kinematics of moving fluids, equation of continuity, Euler's equation, Bernoulli's theorem.

Oscillations, Waves and Optics: Differential equation for simple harmonic oscillator and its general solution. Superposition of two or more simple harmonic oscillators. Damped and forced oscillators, resonance. Wave equation, traveling and standing waves in one dimension. Energy density and energy transmission in waves. Group velocity and phase velocity. Sound waves in media. Doppler Effect. Fermat's Principle. General theory of image formation. Thick lens, thin lens and lens combinations. Interference of light, optical path retardation. Fraunhofer diffraction. Rayleigh criterion and resolving power. Diffraction gratings. Polarization: linear, circular and elliptic polarization. Double refraction and optical rotation.

Electricity and Magnetism: Coulomb's law, Gauss's law. Electric field and potential. Electrostatic boundary conditions, Solution of Laplace's equation for simple cases. Conductors, capacitors, dielectrics, dielectric polarization, volume and surface charges, electrostatic energy. Biot-Savart law, Ampere's law, Faraday's law of electromagnetic induction, Self and mutual inductance. Alternating currents. Simple DC and AC circuits with R, L and C components. Displacement current, Maxwell's equations and plane electromagnetic waves, Poynting's vector, Lorentz Force and motion of charged particles in electric and magnetic fields.

Kinetic theory, Thermodynamics: Elements of Kinetic theory of gases. Velocity distribution and Equipartition of energy. Specific heat of Mono-, di- and tri-atomic gases. Ideal gas, van-der-Waals gas and equation of state. Mean free path. Laws of thermodynamics. Zeroth law and concept of thermal equilibrium. First law and its consequences. Isothermal and adiabatic processes. Reversible, irreversible and quasi-static processes. Second law and entropy. Carnot cycle. Maxwell's thermodynamic relations and simple applications. Thermodynamic potentials and their applications. Phase transitions and Clausius-Clapeyron equation. Ideas of ensembles, Maxwell-Boltzmann, Fermi-Dirac and Bose-Einstein distributions.

Modern Physics: Inertial frames and Galilean invariance. Postulates of special relativity. Lorentz transformations. Length contraction, time dilation. Relativistic velocity addition theorem, mass energy equivalence. Blackbody radiation, photoelectric effect, Compton effect, Bohr's atomic model, X-rays. Wave-particle duality, Uncertainty principle, the superposition principle, calculation of expectation values, Schrödinger equation and its solution for one, two and three dimensional boxes. Solution of Schrödinger equation for the one dimensional harmonic oscillator. Reflection and transmission at a step potential, Pauli exclusion principle. Structure of atomic nucleus, mass and binding energy. Radioactivity and its applications. Laws of radioactive decay. Nuclear reactions, Nuclear model- liquid drop model.

Solid State Physics and Devices: Crystal structure, Bravais lattices and basis. Miller indices. X-ray diffraction and Bragg's law; Intrinsic and extrinsic semiconductors, variation of resistivity with temperature. Fermi level. p-n junction diode, I-V characteristics.

Atomic and Molecular Spectroscopy: Atomic Spectra: Spin and orbital angular momenta and related quantum numbers, Elements of Molecular Spectroscopy: quantization of energy; representation of spectra; elements of practical spectroscopy.

Lasers: Quantum theory of radiation; Einstein A and B coefficients, Essential elements of a laser; laser operation; characteristics of laser light.

M.Sc. in NANOSCIENCE & NANOTECHNOLOGY

As the M.Sc. (Nanoscience and Nanotechnology) is an inter disciplinary course, the aspiring students are tested for the knowledge and familiarity in all the four basic science courses. The following is the question paper model and syllabus for the admission test.

QUESTION PAPER FORMAT: The question paper is of two hours duration, it is divided into two parts:

SECTION A - 50 MARKS- common to all the students of different disciplines (for Bioscience, Chemistry, Physics and Mathematics) - 10th / 12th CBSE syllabus level

Section B- 50 marks- Discipline specific - B.Sc. level syllabus- 1st section for B.Sc.(Biosciences), 2nd section for B.Sc.(Chemistry) and 3rd section for B.Sc.(Physics & Mathematics).

M.Sc. in CHEMISTRY

QUESTION PAPER FORMAT: (Maximum Marks – 100)- 2 hours
Section – A: (40 marks maximum) Objective type – 40 questions
Section – B: (8×5=40 marks) Short answer type. 8 questions out of 10 questions- Global choice.
Section – C: (1×20=20 marks) Essay type – long answer type- One out of two questions

GENERAL CHEMISTRY:

Electronic structure of atoms: Atomic spectra - H-spectrum.

Wave Mechanics: De Broglie matter waves- Heisenberg uncertainty principle, Schrödinger's wave equation. Hydrogen atom-

Theories of chemical bonding: Valence bond theory-various types of hybridization and shapes of simple inorganic and organic molecules/ ions- sp^2 , sp^3d , sp^3d^2 , d^2sp^3 and sp^3d^3 ; VSEPR theory – applications to NH_3 , H_3O^+ , SF_4 , ClF_3 , ICl_2 , H_2O , $SnCl_2$, XeF_2 , XeF_4 , IF_5 ; MO theory- homonuclear and heteronuclear diatomic molecules;- dipole moment- electronegativity- Fajan's rules – Resonance - Delocalized bonding - 1, 3 butadiene and benzene; Electronic displacements: inductive, resonance and hyper conjugative effects. Bonding in metals; Intermolecular forces: Molecular crystals, hydrogen bond; vander Waals forces, Debye, Keesom & London forces.

ANALYTICAL CHEMISTRY:

Solvents: Non aqueous solvents

Solubility of substances: activity, activity coefficients, ionic strength of electrolytes, electrolytic dissociation - acids & bases.

Aqueous equilibria: Weak electrolytes - Oswald's law, common ion effect - Neutralization reactions - Sparingly soluble salts - solubility product. Complex ions. Salt hydrolysis & Buffers.

Quantitative analysis: Titrimetry - Basic principle, types of reactions - Theoretical principles involved in titrimetric analysis using neutralization and redox reactions - Potentiometric titration curves; Theory of pH indicators; Theory of redox indicators.

INORGANIC CHEMISTRY:

Group I: General characteristics - Alkali metals in liquid ammonia-alkali metal complexes, crown ethers and cryptands;

Group II A: General characteristics - Diagonal relationships - complexes of Be & Ca;

Noble gases: Uses, general characteristics - Fluorides of Xenon-Clathrates;

Group III A: General properties - Oxidation states and types of bonds- oxygen compounds of boron - Diborane and Boron - Nitrogen compounds;

Group IV A: Physical properties, inert pair effect, multiple bonding, graphite compounds Carbides. Classification of silicates: Silicones - preparation and application - hydrides of silicon Carbon allotropes;

Group V A: Electronic structure and oxidation states - Oxoacids of nitrogen - Oxoacids of phosphorous;

Group VI A: Electronic structure and oxidation states - oxoacids of

sulphur;

Group VII A: Electronic structure, oxidation states and general characteristics - Oxoacids of halogens - Interhalogen compounds, Polyhalogen compounds - pseudo halogens and pseudo halides.

Chemistry of transition elements: General characteristics - periodic trends; Magnetic properties; Metallic nature- oxidation states, catalytic properties, complexes.

Coordination chemistry: Werner's theory - Nomenclature of coordination compounds -Isomerism – EAN (effective atomic number) rule - Crystal field theory - Applications of crystal field theory. Periodicity: Basic trends - First and second row anomalies.

Nuclear chemistry: Composition of the nucleus - radioactive decay modes - law of radioactivity, natural and artificial disintegration series - Nuclear reactions, Applications of radioisotopes as tracers; Counting statistics - Counting techniques.

ORGANIC CHEMISTRY:

Aliphatic hydrocarbons: Nomenclature; chain and conformational isomerism; General methods of preparations, reactions of alkanes/ alkenes/alkynes; Geometric isomerism in alkenes-sequence rules.

Cycloalkanes: Nomenclature - General methods of preparation - Geometrical Isomerism - conformational analysis.

Aromatic Hydrocarbons: Chemical criteria for aromaticity - Aromatic sextet - Substitution reactions of Aromatic compounds - Substituent effects- Reactions of Polycyclic benzenoid aromatic hydrocarbons: Naphthalene, Anthracene & Phenanthrene:

Stereochemistry: Absolute configuration – assignment of R&S - Optical activity - concept of dissymmetry (chirality) - optical isomers of tartaric acid.

Halogen derivatives: Methods of preparation and reactions of alkyl and aryl halides. SN^2 , SN^1 reactions, rearrangements - E_1 & E_2 reactions. Organometallic compounds: Organomagnesium compounds - Grignard reagents.

Alcohols: Nomenclature, physical properties - preparation, and reactions.

Phenols: Acidity and structure -Synthesis and Reactions.

Ethers: Nomenclature, synthesis and reactions.

Carbonyl compounds: Nomenclature - preparation of aldehydes and ketones. General mechanism of nucleophilic addition reactions.

Carboxylic acids and their derivatives: General methods of preparation - Mechanism of ester hydrolysis (acid catalyzed and base catalyzed A_{AC}^2 , B_{AC}^2) - Reactions of Carboxylic acids. Dicarboxylic acids: Hydroxy acids (lactic acid and salicylic acid).

Reactive methylene compounds: Diethylmalonate and ethylacetoacetate.

Organic compounds of nitrogen, Amines: Effect of structure on basicity, preparation and reactions of amines - synthetic applications of azo compounds.

PHYSICAL CHEMISTRY:

Chemical kinetics: The rate of reactions - rate laws - rate constants - reaction order - Methods of determining reaction orders and rate laws - Radioactive decay - Half life.

Complex reactions: Parallel, consecutive and reversible reactions.

Theory of chemical kinetics: Arrhenius equation - Collision theory, Transition state theory. Surface Chemistry: Adsorption, physisorption & chemisorptions - adsorption isotherms. Catalysis - heterogeneous catalysis.

Chemical thermodynamics: Thermodynamics of closed systems - 1st law of thermodynamics. Heat and enthalpy: Relation between DH and DU - Kirchoff's law - Joule-Thomson effect. Work of adiabatic expansion: adiabatic - reversible expansion of a perfect gas - Applications of 1st law concepts: Joule-Thomson expansion - characteristics. 2nd law of thermodynamics: Carnot cycle - Clausius inequality - Spontaneous, nonspontaneous changes - Combined equations of I & II laws of thermodynamics - Maxwell relations

- Helmholtz and Gibbs energy - Phase transition processes. 3rd law of thermodynamics: Nernst theorem - Internal pressure - Gibbs -

Helmholtz Equation.

Electrochemistry- Electrochemical cells: Galvanic and electrolytic cells. Electrode types. Chemical cells: Liquid junction potential- Nernst equation - Application of standard reduction potentials - electrochemical series - potentiometric titrations - Fuel cells.

Ionics: Electric properties of ionic solutions, Equivalent conductance - molar conductivity. Strong electrolytes - Kohlrausch's law - applications.

Weak electrolytes: Ostwald's dilution law- hydrodynamics, conductivity of H^+ and OH^- ions. Phase rule and phase diagram: Basic concepts - Derivation of Gibbs phase rule - phase diagram of one component system - H_2O and sulphur.

BIOCHEMISTRY:

Carbohydrates: Introduction, classification, nomenclature, monosaccharides-structure and reactions, disaccharides, oligosaccharides, polysaccharides ; Aminoacids and Proteins.

SPECTROSCOPY:

UV-Vis spectroscopy: Theory-instrumentation – Woodward-Fieser rules for calculation of λ_{max} of dienes, Fieser-Kuhn rules for determining λ_{max} and ϵ_{max} of polyenes;

Infrared spectroscopy: Theory-instrumentation - Sampling techniques; Analysis of IR spectral data- identification of functional groups.

INDUSTRIAL CHEMISTRY:

Surface coatings: Paints and varnishes - Pigments: classification and applications.

Petroleum Refining: Occurrence - composition - processing - applications; Fuels from petroleum - raw materials (chemicals) from petroleum for industrial applications.

Polymers: Importance of polymers - basic concepts - Types of polymers - Structure and properties. Polymer processing, classification based on methods of preparation.

Dyes: Definition - classification based on method of application, color and structure - Classification based on chemical constitution - Methods of application.

Fertilizers: Classification - organic fertilizers, inorganic/commercial fertilizers.

M.Sc. in BIOSCIENCES

QUESTION PAPER FORMAT: (Maximum Marks – 100)- 2 hours
Section – A: (40 marks maximum) Objective type – 40 questions
Section – B: (8×5=40 marks) Short answer type. 8 questions out of 10 questions- Global choice.
Section – C: (1×20=20 marks) Essay type – long answer type- One out of two questions

BOTANY:

Cryptogams and Phanerogams: Important features (habit, morphology and reproduction) and General classification of Virus, Bacteria, Algae and Fungi. Common Viral, fungal and Bacterial diseases in Plants, Animals and Man. Economic importance of Bacteria, Algae and Fungi.

Evolutionary trends among Bryophytes, Pteridophytes and Gymnosperms and their economic importance systems of classification, Binomial nomenclature and modern trend in taxonomy. Economic importance of Brassicaceae, Melliaceae, Leguminaceae, Solanaceae and Poaceae.

Plant Anatomy: Types of meristematic and other tissue systems in Plants Anatomy of root, stem and leaf in Dicots and monocots. Micro and Macro Sporogenesis, Endosperm, Polyembryony and embryogenesis in Dicots and Monocots.

Plant Physiology:

Osmosis, Active Transport, Physiology of Photosynthesis Respiration, Transpiration and translocation, flowering, growth dormancy and Mineral nutrition in plants.

ZOOLOGY:

Non-Chordates & Chordates: Classification of Non-Chordates, Prochordates and Chordates Nutrition, Locomotion and reproduction in Protozoa Protozoan and Helminthes Parasites of Man, Comparative anatomy of Chordates, flight adaptations and migration in Birds. Poisonous and Non-Poisonous snakes of India. Dentition in Mammals, Apiculture, Sericulture, Pearl, Prawn and Fish culture techniques.

Animal Histology & Physiology: Epithelial, Connective, Muscular and Nervous tissues. Physiology of Digestion, Osmoregulation, Respiration, Circulation, Excretion and Reproduction in mammals. Muscle contraction Impulse conduction. Blood composition, Blood groups, Endocrine glands and Hormonal action, Thermoregulation in Animals.

CELL BIOLOGY, GENETICS & EVOLUTION:

Structure of cell, Cell organelles, Types of Chromosomes Mitosis and Meiosis, Gametogenesis, mechanism of fertilization, cleavage patterns, Gastrulation, Placentation and Menstruation in Mammals, Extra foetal membranes.

Mendel's laws of inheritance, Multiple alleles, linkage and crossing over, sex determination. Sex-linked inheritance Mutations, Operon concept, genetic code Eagenics, Principles of Plant and Animal Breeding; Evidences of evolution Darwin's and Lamarckian Theories of Evolution, Darwin's and Lamarckian Theories of Evolution origin and evolution of Man, Isolation and Speculation.

ENVIRONMENTAL BIOLOGY:

Abiotic and **BIOTIC** factors of environment, Biogeochemical cycles, Ecological Succession, Ecosystem, Population ecology, Arboreal, Volcanic, Deepsea, Xerophytic, Hydrophilic and epiphytic adaptations, Environmental pollutions, wild Life-conservation.

MICROBIOLOGY:

Classification and characteristics of microorganisms Physiology and Cultivation of microbes. Microbes in water, soil, air food and sewage.

Air, Water, Soil, food and Vector borne diseases prophylactic measures Antigen, Antibody reactions and Principles of immunization.

BIOCHEMISTRY & BIOTECHNOLOGY:

Classification of enzymes, coenzymes and vitamins, structure functions and classification of carbohydrates, proteins and lipids and their energy metabolism.

Plant and Animal tissue culture techniques, Micro-Propagation, Monoclonal Antibodies, Protoplast culture, DNA sequencing, Recombinant DNA, Applied aspects of Biotechnology in Agriculture, Animal Husbandry, Medicine, disease, diagnosis and Therapy.

M.Sc. in FOOD SCIENCE AND NUTRITION / M.Sc. in FOOD TECHNOLOGY**QUESTION PAPER FORMAT**

The question paper has two sections with time duration of 2 hours: Section A- 50 marks- common to B.Sc. Home Science, B.Sc. Biosciences and B.Sc. (M.P.C) students
Section B- 25 marks- specific to B.Sc. Home Science, B.Sc. Biosciences and B.Sc. (M.P.C) students

For B.Sc. in Home Science students

Food Science, Nutrition and Dietetics: Food as a source of nutrients, composition, properties, characteristics, and nutritive value of different foods (cereal grains, millets, pulses, nuts and oil seeds, fruits and vegetables, milk and milk products, meat, egg, poultry, fish, spices and condiments. Chemistry and biochemical roles of fat soluble vitamins, water soluble vitamins, inorganic elements. 1. Energy requirement: Basal metabolism, total energy requirements. 2. Study of Nutrients: (a) Carbohydrates, proteins, fats - chemistry, biochemistry and nutritional aspects such as digestion, absorption, metabolism, functions, sources and requirements. (b) Vitamins and minerals - functions, sources, requirements, and deficiencies. 3. Water balance. 4. Methods of assessing the nutritional status. 5. Principles involved in adoption of normal diet for formulating therapeutic diet - use of food exchange groups. 6. Diets during pregnancy, lactation, infancy, school age, adolescent, adulthood and old age. 7. Nutritional deficiency diseases. 8. Diet in diseases (metabolic disorders, febrile conditions, surgical & other stress conditions) - causes, symptoms, physiological changes and dietary management. 9. National and International agencies and programmes in the betterment of Nutritional status.

Human Development: 1. Principles of child development. 2. Prenatal development and care - postnatal care - neonate - 1st four weeks of life. 3. Infancy - 1 to 2 years: physical, motor, emotional and social development care during infancy; 4. Pre-school years (2 to 6 years); Physical growth and sequence, of motor skills, social behaviour, importance of children's motor activities, intellectual development, oral development; 5. Significance of preschool education; 6. Preschool education: Essentials, Programmes, values of play - parent education; 7. Child from 6 through 12 years: Aspects given under 4th topic; 8. Adolescence: Physical changes, needs, interests, problems and adjustments, social and personality development; 9. Adulthood: Vocational, Marital and Social adjustments; 10. Old Age: Areas of adjustments; Inter-generational conflict.

Home Management: 1. Principles of Home Management of resources; 2. Interior decoration and furnishing: Art elements, principles of design, colour, functions and types of lighting, selection, use and care of household equipments.

Textile and Clothing: 1. Textile fibres, classification: Cellulose fibres, protein fibres and synthetic fibres, properties and uses of fibres; 2. Classification of traditional textiles - woven, dyed, embroidered and tie and dye; 3. Khadi and handloom: Evolution, national and economic significance; 4. Selection of fabrics: Clothing needs of the family, buying for different age groups, self-help garments, selection of fabrics for household linens; 5. Application of principles of clothing construction, drafting of basic blocks, adaptations and modifications.

Extension Education: 1. Extension Education: Meaning, principles and objectives; 2. Integration and extension of Home Science Research to rural and slum areas; 3. Communication in extension education; 4. Extension teaching methods; 5. Audio-visual aids in communication: Planning, preparation and use of the aids; 6. Programme planning and evaluation.

For B.Sc. in Biosciences students

I. Botany: Cryptogams and Phanerogams: General classification of Virus and Bacteria Common Viral and Bacterial diseases in Plants, Animals and Man. Classification, Reproduction and Economic importance of Algae and Fungi Common fungal diseases. Evolutionary trends among Bryophytes, Pteridophytes and Gymnosperms and their economic importance systems of classification, Binomial nomenclature and modern trend in taxonomy. Economic importance of Brassicaceae, Melliaceae, Leguminaceae, Solanaceae and Poaceae. Plant Anatomy: Types of meristematic and other tissue systems in Plants Anatomy of root, stem and leaf in Dicots and monocots.

Micro and Macro Sporogenesis, Endosperm, Polyembryony and embryogenesis in Dicots and Monocots. Plant Physiology: Osmosis, Active Transport, Physiology of Photosynthesis Respiration, Transpiration and translocation, flowering, growth dormancy and Mineral nutrition in plants.

II. Zoology: Non-Chordates & Chordates: Classification of Non-Chordates, Prochordates and Chordates Nutrition, Locomotion and reproduction in Protozoa Protozoan and Helminthes Parasites of Man, Comparative anatomy of Chordates, flight adaptations and migration in Birds. Poisonous and Non-Poisonous snakes of India. Dentition in Mammals, Apiculture, Sericulture, Pearl, Prawn and Fish culture techniques. Animal Histology & Physiology: Epithelial, Connective, Muscular and Nervous tissues. Physiology of Digestion, Osmoregulation, Respiration, Circulation, Excretion and Reproduction in mammals. Muscle contraction Impulse conduction. Blood composition, Blood groups, Endocrine glands and Hormonal action, Thermoregulation in Animals.

III. Cell Biology, Genetics & Evolution: Structure of cell, Cell organelles, Types of Chromosomes Mitosis and Meiosis, Gametogenesis, mechanism of fertilization, cleavage patterns, Gastrulation, Placentation and Menstruation in Mammals, Extra foetal membranes. Mendel's laws of inheritance, multiple alleles, linkage and crossing over, sex determination. Sex-linked inheritance Mutations, Operon concept, genetic code Eagenics, Principles of Plant and Animal Breeding; Evidences of evolution Darwin's and Lamarckian Theories of Evolution, Darwin's and Lamarckian Theories of Evolution origin and evolution of Man, Isolation and Speculation.

IV. Environmental Biology: Abiotic and Biotic factors of environment, Biogeochemical cycles, Ecological Succession, Ecosystem, Population ecology, Arboreal, Volcanic, Deepsea, Xerophytic, Hydrophilic and epiphytic adaptations, Environmental pollutions, wild Life-conservation.

V. Microbiology: Classification and characteristics of microorganisms Physiology and Cultivation of microbes. Microbes in water, soil, air food and sewage. Air, Water, Soil, food and Vector borne diseases prophylactic measures Antigen, Antibody reactions and Principles of immunization.

VI. Biochemistry & Biotechnology: Classification of enzymes, coenzymes and vitamins, structure functions and classification of carbohydrates, proteins and lipids and their energy metabolism. Plant and Animal tissue culture techniques, Micro-Propagation, Monoclonal Antibodies, Protoplast culture, DNA sequencing, Recombinant DNA, Applied aspects of Biotechnology in Agriculture, Animal Husbandry, Medicine, disease, diagnosis and Therapy.

Food Science, Nutrition and Dietetics:

Food as a source of nutrients, composition, properties, characteristics, and nutritive value of different foods (cereal grains, millets, pulses, nuts and oil seeds, fruits and vegetables, milk and milk products, meat, egg, poultry, fish, spices and condiments. Chemistry and biochemical roles of fat soluble vitamins, water soluble vitamins, inorganic elements. 1. Energy requirement: Basal metabolism, total energy requirements. 2. Study of Nutrients: (a) Carbohydrates, proteins, fats - chemistry, biochemistry and nutritional aspects such as digestion, absorption, metabolism, functions, sources and requirements. (b) Vitamins and minerals - functions, sources, requirements, and deficiencies. 3. Water balance. 4. Methods of assessing the nutritional status. 5. Principles involved in adoption of normal diet for formulating therapeutic diet - use of food exchange groups. 6. Diets during pregnancy, lactation, infancy, school age, adolescent, adulthood and old age. 7. Nutritional deficiency diseases. 8. Diet in diseases (metabolic disorders, febrile conditions, surgical & other stress conditions) - causes, symptoms, physiological changes and dietary management. 9. National and

International agencies and programmes in the betterment of Nutritional status.

For B.Sc. in Mathematics / Physics / Chemistry students

Organic Chemistry: Electronic displacement - inductive, resonance & hyper conjugative effects. Hydrocarbons - aliphatic hydrocarbons - nomenclature; alkanes - conformational isomerism; cycloalkanes - conformational analysis (chair and boat form); disubstituted cyclohexanes; aromatic hydrocarbons - general characteristics and chemical criteria for aromaticity. Stereochemistry - absolute configuration - R&S nomenclature, optical activity - chirality, enantiomers, epimers, diastereomers and meso compounds, racemisation and optical resolution substitution reaction - mechanism of SN1 and SN2, stereochemistry, elimination reactions - mechanism of E1 and E2 reactions. Alcohols - physical properties, hydrogen bonding, reactivity of different classes of alcohols. Carbonyl compounds - Nomenclature and general characteristics, reactive methylene compounds - synthetic application of dimethylmalonate and ethyl acetoacetate, keto-enol-tautomerism. Amines - effects of structure on basicity, reactions of amines-alkylation, acylation, carbylamine reactions, differentiation of 1^o, 2^o and 3^o amines. Diazotisation of aromatic amines. Bioorganic chemistry - Nomenclature and classification of carbohydrates, aminoacids, lipids and nucleic acid - classification and kinetics of enzymes.

Analytical Chemistry: Solvents - types, acids and bases, buffers - components, mechanism of action, types. Titrimetry - Basic principles, characteristics of primary and secondary standards, indicators-types (neutralization and redox). Theory of gravimetric analysis.

Physical Chemistry: Chemical kinetics - rates of reaction, complex reactions - reversible, parallel and consecutive, factors affecting reaction rates. Surface chemistry - types of adsorption (physisorption, chemisorption), catalysis - types and examples. Thermodynamics - laws, thermochemistry. Solutions - Raoult's law, Henry's law, colligative properties, Nernst equation, relation between cell potential and free energy. Electrolytes - types and conductance. Colloids - classification, methods of preparation, purification and properties. Medicinal Chemistry: Introduction and classification of drugs based on site of action (CNS drugs, CVS drugs), site, mode and mechanism of action. Chemotherapy - definition and characteristics (Sulpha drugs and Antibiotic).

Food Science, Nutrition and Dietetics:

Food as a source of nutrients, composition, properties, characteristics, and nutritive value of different foods (cereal grains, millets, pulses, nuts and oil seeds, fruits and vegetables, milk and milk products, meat, egg, poultry, fish, spices and condiments. Chemistry and biochemical roles of fat soluble vitamins, water soluble vitamins, inorganic elements. 1. Energy requirement: Basal metabolism, total energy requirements. 2. Study of Nutrients: (a) Carbohydrates, proteins, fats - chemistry, biochemistry and nutritional aspects such as digestion, absorption, metabolism, functions, sources and requirements. (b) Vitamins and minerals - functions, sources, requirements, and deficiencies. 3. Water balance. 4. Methods of assessing the nutritional status. 5. Principles involved in adoption of normal diet for formulating therapeutic diet - use of food exchange groups. 6. Diets during pregnancy, lactation, infancy, school age, adolescent, adulthood and old age. 7. Nutritional deficiency diseases. 8. Diet in diseases (metabolic disorders, febrile conditions, surgical & other stress conditions) - causes, symptoms, physiological changes and dietary management. 9. National and International agencies and programmes in the betterment of Nutritional status.

PROFESSIONAL PROGRAMMES

Candidates can refer to the various syllabi, depending on the course they have applied for, as indicated in their application forms.

There will be negative marking for all multiple choice questions.

B.Ed. (BACHELOR OF EDUCATION)

Admission to B.Ed. programme of the Institute will be based on the performance in admission test and interview.

QUESTION PAPER FORMAT:

General English and Aptitude Test

Test 1: This will consist of two sub-tests of 80 minutes duration and for 65 marks.

Sub-test 1(a): General English – 30 marks - 40 minutes: This sub-test is designed to test the candidate's knowledge and her command over English language and language skills.

Sub-test 1(b): Situation Analysis - 35 marks - 40 minutes: The purpose of this sub-test is to assess the candidate's ability to analyse a given situation in all its implications and, her capacity to respond to different problems and value issues raised.

Test 2: This test will consist of two papers on the core subjects studied in the qualifying degree.

The test will be of 100 minutes duration and for 100 marks (50+50): This test is designed to assess and evaluate candidate's knowledge in two specific subjects in teaching methodology. For this purpose, candidates have to choose any two papers from the following which they have studied in the qualifying degree:

Students with Postgraduate qualification:

Mathematics and Physics; Mathematics and Chemistry; Physics and Chemistry; Biology and Chemistry; English and Social Studies; English and History; English and Civics; English and Geography.

Students with Undergraduate qualification:

Mathematics and Physical Sciences; Biological Sciences and English; Social Studies and English.

M.Ed. (MASTER OF EDUCATION)

Admission to M.Ed. programme of the Institute will be based on the performance in admission test and interview.

QUESTION PAPER FORMAT: There will be two papers which are compulsory viz., Paper-I – General English of 50 marks for one hour duration, and Paper-II – related to B.Ed curriculum consisting of objective questions of 100 marks for 1½ hours duration. Total duration of the test is 2 and ½ hours with 150 marks.

Syllabus:

Paper-I: General English (One hour) – 50 marks.

Paper-II: Education (One and half hours) – 100 marks.

- › Philosophical & Sociological foundations of Education (20 marks)
- › Psychological foundations of Education (20 marks)
- › Educational Technology (20 marks)
- › School Administration, Planning & Management (20 marks)
- › Educational Evaluation & Elementary Statistics (20 marks)

M.B.A. / M.B.A. (FINANCE)

Admission to M.B.A./M.B.A.(Finance) Programme of the Institute will be based on performance in the Admission Test, Group Discussion and Interview.

QUESTION PAPER FORMAT:

There will be three written tests of 3 hours total duration. They would be of a pattern similar to CAT, GMAT and MAT. The details of various tests are as follows:

English: This test is designed to test the candidate's command over English and Grammar, his vocabulary, and his ability to use words and phrases effectively. This test is also designed to test the ability of the candidate to read and rapidly digest literature, his ability to extract qualitative and quantitative information, and his ability to communicate precisely.

Quantitative Analysis & Logical Reasoning: This test is intended to assess the candidate's ability to handle quantitative information with speed and accuracy. This test is also designed to determine the candidate's ability to draw valid inferences from available information, using logical reasoning and simple mathematical formulae.

Management Aptitude: The purpose of this test is to assess the candidate's aptitude for Management profession and his ability to comprehend facts, and analyze given situation. The purpose of this test is also to assess the awareness of the candidate pertaining to national and international issues.

NOTE: The Institute reserves the right to allocate successful candidates of these two courses as it deems fit, notwithstanding the preference indicated by the applicant.

Reference Books: Standard books used for CAT/MAT/GMAT Entrance Examinations.

ADMISSION TEST AND RESPONSE SHEET

› Each candidate will have to answer the following Tests:

| | | |
|--|-------------------------------------|-------------------|
| Sub-test I: English | 60 questions | 1 hour |
| Sub-test II: Quantitative Analysis & Logical Reasoning | 30 questions | 45 min. |
| Sub-test III: Aptitude Test | 30 questions | 30 min. |
| Written English | A short write upon a specific theme | Time: 15 minutes. |

- › The University uses an Optical Mark Recognition (OMR) system for evaluation. A sample OMR response sheet is exhibited on the reverse of this sheet to ensure that the candidate is familiar with it.
- › IMPORTANT: The candidate needs to carry two HB pencils along with an eraser and sharpener for the admission test. The candidate is also required to carry a pen (preferably blue ink).
- › The points to be noted with regard to use of the OMR response sheet are elucidated below:
 - › You are required to write your (i) Applicant Id and (ii) Question Paper Code no. and SHADE THE NUMERALS appropriately in the space provided on the RESPONSE SHEET. You are also required to write the (iii) Room number and (iv) Test Date in the space provided separately.
 - › The correct answer, chosen from the Question Paper, should be SHADED ON THE RESPONSE SHEET viz., A, B, C, D or E. The

method of shading the correct response is given in the enclosed sample copy.

- › Use of electronic calculator is strictly not permitted.

M.Tech. in COMPUTER SCIENCE

› Each candidate will have to answer the following Tests:

| | | |
|--------|-------------------------------|--------------------------|
| Part A | 80 Objective type items | 80 Marks (80 min.) |
| Part B | 9 Short Answer type Questions | 40 Marks (40 min.) |
| | Total Marks: 120 | Total Duration: 120 min. |

- › You will be given TWO sets of question papers, titled, PART-A & PART-B as per schedule.
- › Write your Applicant ID No, Room No, Date, Subject Title, and Subject Code on both the booklets only in the space provided for it.
- › PART-A will be given first. It contains 80 objective type items of one mark each. You must enter your answers in the Response Sheet provided. Please note multiple shading will be considered as wrong answer.
- › PART-B contains 9 short answer questions for a total of 40 marks. Part-B is to be answered within the space provided for in the question paper itself.
- › The University uses an Optical Mark Recognition (OMR) system for evaluation. A sample OMR response sheet is exhibited on the reverse of this sheet to ensure that the candidate is familiar with it.
- › IMPORTANT: The candidate needs to carry two HB pencils along with an eraser and sharpener for the admission test. The candidate is also required to carry a pen (preferably blue ink).
- › The points to be noted with regard to use of the OMR response sheet are elucidated below:
 - › (a) You are required to write your (i) Applicant Id and (ii) Question Paper Code no. and SHADE THE NUMERALS appropriately in the space provided on the RESPONSE SHEET. You are also required to write the (iii) Room number and (iv) Test Date in the space provided separately.
 - › (b) The correct answer, chosen from the Question Paper, should be SHADED ON THE RESPONSE SHEET viz., A, B, C, D or E. The method of shading the correct response is given in the enclosed sample copy.

NOTE: Calculators, mobile phones, digital devices will not be permitted in the examination hall.

QUESTION PAPER FORMAT

General English Aptitude Test: 20 marks- ½ hour- essay type questions- to test English language and communication skills

Written Test: 120 Marks- 2 hours- Computer Science (67%) and Mathematics (33%)- two parts:

Part A- 80 marks- 60 multiple choice questions of Computer Science- 20 multiple choice questions of Mathematics

Part B- 8 x 5 =40 marks- 4 short answer type questions of Computer Science- 4 short answer type questions of Mathematics-

Practical Programming Skills Test (subject to qualification in written test)- 80 Marks- 2 ½ hours- to test the proficiency in designing, coding and debugging abilities in C language- the coding language will be in Linux platform

Technical Viva-Voce (subject to qualification in first two components): 30 Marks- to test the comprehension of basics and analytical abilities

Final Interview: An Interview will be conducted for candidates who qualify in the Practical and Viva- voce for final selection.

The syllabi for the above written tests are as follows:

COMPUTER SCIENCE

The subjects to be covered under this area are: Data Structures & Algorithms, Computer Organization and Architecture, Data Communication and Networks, Database Systems, Operating system and System programming, and C, C++, & Java programming concepts. **Data Structures and Algorithms:** Asymptotic Relations, Sorting Algorithms, Searching Algorithms, Basic Data Structures like Linked List, Doubly Linked List, Circular Linked List and Binary Tree. Abstract Data Types like Stacks, Queues and Graphs.

Computer Organization and Architecture: Computer Arithmetic, Instruction Set Architecture Characteristics, Instruction Cycle, CISC, RISC, Super Scalars Architectures, Instruction Formats, Addressing Modes, Pipelining and Instruction Level Parallelism, Speed-up of a Processor, Control Hazards, Basics of Cache, Cache Coherence, Basics of I/O, Interrupts.

Data Communication and Networks: packet/circuit switching, loss, delay, throughput in a network, protocol layers, OSI & TCP/IP, HTTP/FTP, Electronic mail, DNS, Client server vs P2P architecture, Transport-layer Multiplexing and demultiplexing, sliding window protocols, TCP & UDP protocols, Principles of reliable data transfer, congestion control, Virtual circuit and datagram networks, IPv4, IPv6, Routing algorithms, Multiple access protocols, Error correction-detection, Wireless and Mobile Networks, GSM, CDMA, 802.11 standard, handling mobility in cellular networks, basics of physical layer

Data Base Systems: Database languages, View of Data, Relational Model, SQL: set operations, Aggregate functions, Nested Sub queries, Joined relations; ER Model: Constraints, Weak Entity sets, Generalization, Specialization, Reduction to Relational Schemas; Normalization: Different Normal Forms, Functional Dependency, Multi-valued Dependency; Transaction: Transaction concept, ACID properties, Serializability, Recoverability, Testing for serializability.

Operating Systems and System Programming: The concept of a process, operations on processes, process states, concurrent processes, process control block, process context, Job and processor scheduling, scheduling algorithms, Problems of concurrent processes, critical sections, mutual exclusion, synchronization, deadlock, Memory organization and management, storage allocation. Virtual memory concepts, paging and segmentation, File organization: blocking and buffering, file descriptor, directory structure, Basics of assemblers, Macro preprocessors and compilers.

Object Oriented Programming Concepts : Principles of Object Oriented Programming, Classes, objects, constructors and destructors, Operator overloading, Type conversions, Type of constructors, Function over loading, Inheritance, Polymorphism, File stream – File operators.

Calculus of One and Several Variables: Limit, continuity, differentiation and integration of functions of one and more variables. Directional derivative and gradient of a function.

MATHEMATICS

The subjects to be covered are: ODE, Discrete Mathematics, Linear Algebra, Probability and Statistics and Basic Calculus

Linear Algebra: vector spaces, subspaces, basis, linear transformation, matrix of linear transformations, system of linear equations and their solutions using Gaussian elimination method, Eigen values and Eigen vectors, diagonalization of a linear transformation.

Discrete Mathematics: Set theory, Mathematical logic, Relations and functions, Trees and Graphs.

Probability and Statistics: random variables, discrete and continuous distributions including Bernoulli, binomial, uniform, Poisson, exponential, hyper-geometric distributions, expectation, moments, central limit theorem, law of large numbers, random sample, sample mean, sample variance, mean, median and mode.

COMPUTER SCIENCE

Data structures and algorithms in C by Mark Allen Weiss
Computer Organization and design by David A. Patterson and John L. Hennessy, Elsevier Pub.

Computer Networking: A Top-Down Approach, 4/E James F. Kurose, Keith W. Ross, Pearson Pub.
Data Base System Concepts by Silberchatz, Korth and Studarshan, Tata McGraw Hill Pub.
Systems programming by Lelend Beck, 3rd edition, Pearson India.
C++ How to Program, 4/e by Paul Deitel

MATHEMATICS

Calculus by Stanley I. Gossman, Academic Press Pub.
Linear algebra by Larry smith, 3rd edition, Springer Verlag.
Discrete Mathematical Structures by Kolman, Busby and Ross, 4th Ed., Pearson Pub.
Advanced Engineering Mathematics by Kreyszig, 8th ed., Wiley Eastern, 1999.
Differential Equations by Shapley L. Ross John Wiley and Sons Pub.

M.Tech. in OPTOELECTRONICS AND COMMUNICATIONS

Question Paper Format:

General English Aptitude Test- 20 marks- ½ hour - essay type question- to test English language written communication skills
Written Test- 100 Marks- 3 hours- short answer and problem solving type questions
Technical Viva-Voce
Final Interview

Written Test: Duration of the test will be 3 hours and it will contain multiple choice, short answer and problem solving type questions.

Common for B.E. / B.Tech. / M.Sc. in Physics

General English Aptitude Test: This will consist of an essay type question to test English language written communication skills. The test will be for half an hour with allocation of 20 marks.

Linear Algebra: Determinates, System of linear equations, Eigenvalues and eigenvectors, Diagonalization of matrices.

Calculus: Limit, continuity and differentiability: 'Hospital rule, Maxima and minima, Taylor's series, Evaluation integrals, Lagrange multipliers, Power series, Fourier series.

Complex variable: Analytic functions, Taylor's and Laurent' series, Residue theorem, Cauchy's theorem.

Vector Calculus: Gradient, Divergence and Curl, Line, surface and volume integrals, Stokes, Gauss and Green's theorems.

Ordinary and Partial Differential Equations: ODEs with constant coefficients, variation of parameters, Initial and boundary value problems (BVPs), Power Series solutions, Legendre, Hermite and Bessel's functions, Variables separable method, Solutions heat, wave and Laplace equations.

Programming & Numerical Methods: Data Types & Declarations, Program Organization, Arithmetic Statements, Flow of Control-Iterative Statement, Conditional statement, Unconditional branching, arrays, functions and procedures, pointers, classes, file handling.

Errors, Interpolation, curve fitting, root finding, solutions of algebraic system, Eigen values – Power method, Numerical integration, Numerical Differentiation, Solution of ODEs and BVPs – RK Methods, Shooting & Crank-Nicholson methods.

For B. E. / B. Tech Applicants only

Networks: Network graphs: matrices of graphs; Solution methods, Nodal and mesh analysis, Network theorems, Thevenin's and Norton's, Wye-Delta transformation. Steady state analysis, Time and Frequency domain analysis, Solution using Laplace transform, 2port network parameters: transfer functions and state equations.

Electronic Devices: Energy bands, Carrier transport, diffusion, drift, mobility, resistivity, Diodes: p-n junction, Zener, BJTs, FETs, JFETs,

MOSFETs, PIN and Avalanche; LEDs, LASERS,

Analog Circuits: Equivalent circuits of diodes, BJTs, JFETs, and MOSFETs. Simple diode circuits, Single-and multi-stage, differential, operational, feedback and power amplifiers, Frequency response of amplifiers; Op-amp circuits, Filters, Oscillators.

Digital circuits: Boolean algebra, logic gates, Digital IC families (DTL, TTL, ECL, MOS, CMOS), Combinational circuits, arithmetic circuits, code converters, multiplexers and decoders. Latches and flip-flops, counters and shift-registers. Sample and hold circuits, ADCs, DACs, Memories, Microprocessor (8085): architecture, programming, memory and I/O interfacing.

Signals and Systems: Laplace transform, continuous-time and discrete-time Fourier series and transforms, Z-transform. Sampling theorems. L TI Systems: analysis and signal transmission, Random signals and noise: probability, random variables, probability density function, autocorrelation, power spectral density.

Control Systems: Feedback; transfer function; steady-state errors; Stability criteria; Bode plots; Elementary state variable formulation; Transition matrix and response for L TI systems. On-off, cascade, P, PI, PID and feed-forward controls. Controller tuning and general frequency response.

Communications: Analog systems: modulation and demodulation systems, spectral analysis, superheterodyne receivers; hardware, realizations of analog communication systems; signal-to-noise ratio (SNR) AM, FM. Digital systems: PCM, DPCM, DM; ASK, PSK, FSK; matched filter receivers, bandwidth consideration and probability of error calculations for these schemes.

Electromagnetics: Maxwell's equations, Wave equation, Pointing vector. Plane waves: propagation, reflection and refraction; phase and group velocity; skin depth; Transmission lines: characteristic impedance; impedance transformation; Smith chart; Waveguides: modes in rectangular waveguides; boundary conditions; cut-off frequencies; dispersion relations. Antennas: Dipole antennas; antenna arrays; radiation pattern; reciprocity theorem, antenna gain.

For M.Sc. in Physics Applicants only

Classical Mechanics: Lagrange's and Hamilton's formalisms; Equation of motion, Poisson bracket; small oscillations, normal modes; wave equation; Special theory of relativity – Lorentz transformations, relativistic kinematics, mass-energy equivalence.

Electromagnetic Theory: Laplace and Poisson equations; conductors and dielectrics; boundary value problems; Ampere's and Biot-Savart's laws; Faraday's law; Maxwell's equations; boundary conditions; electromagnetic waves; radiation from moving charges.

Quantum Mechanics: Schrodinger equation; Bound state problems, hydrogen atom; angular momentum and spin; addition of angular momentum; matrix formulation, time independent perturbation theory; elementary scattering theory.

Atomic and Molecular Physics: Spectra of one-and many-electron atoms; LS and jj coupling; Zeeman and Stark effects; X-ray spectra; rotational and vibrational spectra of diatomic molecules; electronic transition in diatomic molecules, Franck-Condon principle; Raman effect; NMR and ESR;

Thermodynamics and Statistical Physics: Laws of thermodynamics; calculation of thermodynamic quantities; microstates, macrostates, phase space; partition function, free energy, classical and quantum statistics; Fermi gas; Black body radiation; Bose-Einstein condensation; first and second order phase transitions, critical point.

Solid State Physics: Elements of X-crystallography; structure determination; bonding, elastic properties, defects, lattice vibrations and thermal properties, free electron theory; band theory of solids; metals, semiconductors and insulators; transport properties; optical, dielectric and magnetic properties of solids; elements of superconductivity.

Nuclear and Particle Physics: Rutherford scattering; basic properties of nuclei; radioactive decay; nuclear forces; two nucleon problem; nuclear reactions; conservation laws; fission and fusion; nuclear

models; particle accelerators, detectors; elementary particles; photons, baryons, mesons and leptons; Quark model.

Electronics: Network analysis; semiconductor devices; bipolar transistors; FETs; power supplies, amplifier, oscillators; operational amplifiers; elements of digital electronics; logic circuits.

M.Tech. in ANALYTICAL METHODS AND CHEMICAL INSTRUMENTATION

QUESTION PAPER FORMAT

General English Aptitude Test- 20 marks- ½ hour - essay type question- to test English language written communication skills

Written Test- 100 Marks- 2 ½ hours- multiple choice, short answer and problem solving type questions:

SECTION A: 50 Marks - Multiple choice: 50 questions each with FIVE alternatives.

SECTION B: 30 Marks - Short answer questions: Three out of four- Each question carrying 10 marks.

SECTION C: 20 Marks - Long answer question- One with internal choice carrying 20 marks.

Technical Viva-Voce

Final Interview

SYLLABUS

Atomic structure and periodicity: Planck's quantum theory, wave particle duality, uncertainty principle, quantum mechanical model of hydrogen atom; electronic configuration of atoms; periodic table and periodic properties; ionization energy, electron affinity, electronegativity, atomic size.

Structure and bonding: Ionic and covalent bonding, M.O. and V.B. approaches for diatomic molecules, VSEPR theory and shape of molecules, hybridisation, resonance, dipole moment, structure parameters such as bond length, bond angle and bond energy, hydrogen bonding, van der Waals interactions. Ionic solids, ionic radii, lattice energy (Born-Haber Cycle).

s,p. and d Block Elements: Oxides, halides and hydrides of alkali and alkaline earth metals, B, Al, Si, N, P, and S, general characteristics of 3d elements, coordination complexes: valence bond and crystal field theory, color, geometry and magnetic properties.

Chemical Equilibria: Colligative properties of solutions, ionic equilibria in solution, equilibrium constants (Kc, Kp and Kx) for homogeneous reactions.

Electrochemistry: Conductance, Kohlrausch law, Half Cell potentials, emf, Nernst equation, galvanic cells, thermodynamic aspects and their applications.

Reaction Kinetics: Rate constant, order of reaction, molecularity, activation energy, zero, first and second order kinetics, catalysis and elementary enzyme reactions.

Thermodynamics: First law, reversible and irreversible processes, internal energy, enthalpy, Kirchoff's equation, heat of reaction, Hess law, heat of formation, Second law, entropy, free energy, and work function. Gibbs-Helmholtz equation, Clausius-Clapeyron equation, free energy change and equilibrium constant, Troutons rule, Third law of thermodynamics.

Basis of Organic Reactions Mechanism: Elementary treatment of SN1, SN2, E1 and E2 reactions, Hoffmann and Saytzeff rules, Addition reactions, Markonikoff rule and Kharash effect, Diels-Alder reaction, aromatic electrophilic substitution, orientation effect as exemplified by various functional groups. Identification of functional groups by chemical tests.

Structure-Reactivity Correlations: Acids and bases, electronic and steric effects, optical and geometrical isomerism, tautomerism, conformers, concept of aromaticity.

Carbonyl compounds: Nomenclature-nature of carbonyl groups - preparation of aldehydes and ketones. General mechanism of Nucleophilic addition-C,S,O and N-nucleophiles- General features

to be highlighted - Mechanisms of bi-sulphite addition, cyanohydrin reaction, Cannizzaro reaction, crossed aldol condensation, benzoin condensation using KCN and also Thiamine hydrochloride.

Analytical Chemistry: Non aqueous solvents- comparison of the solvent characteristics of liquid ammonia and liquid SO2 with water - Different types of reactions in each solvent system.

Solubility of substances: - Mechanism of solvation - Chemical interactions involved, activity, activity coefficients, ionic strength of electrolytes, electrolytic dissociation -weak and strong electrolytes.

Acids and Bases: Arrhenius, Lowry -Bronsted concepts of acids and bases - Strengths of acids and bases - Dissociation of polyprotic acids -Lewis theory of acids & bases HSAB (Hard and soft acid and base) Concept - Classification of acids and bases as hard and soft. Pearson's HSAB concept, acid-base strength and hardness and softness - Aqueous equilibria:Weak electrolytes - Oswald's law, common ion effect - Acid-base equilibria in water - Hydrogen ion exponent (pH) - Ionic product of water- Neutralization reactions - types, salts- solubility characteristics. Sparingly soluble salts - solubility product principle - calculation of solubility and solubility product- Application of the solubility product principle and common ion effect in qualitative inorganic analysis to be illustrated with examples.

Complex ions: Formation, consequences of complex formation - Importance of complex ion formation in qualitative inorganic analysis. Salt hydrolysis - interaction of salts with water: Hydrolysis of salts - hydrolysis constant, degree of hydrolysis - Derivation of expressions for pH of aqueous solution of different types of salts.

Buffers - concept, buffer components, mechanism of buffer action, types of buffers, preparation of buffers - Henderson's equation, buffer capacity, importance of buffers.

Quantitative analysis: Titrimetry: Basic principle, types of reactions - characteristics of solutions Standard solutions - primary standard. Characteristics of primary standards, secondary.

standards, examples -Theoretical principles involved in titrimetric analysis using neutralization and redox reactions - neutralization curves - Potentiometric titration curve.

Theory of indicators for neutralization indicators -Theory of indicators for red-ox indicators - Basic discussion of types of indicators - internal and external, self-indicator, pH indicators, redox indicators with suitable examples.

M.Tech. in NUCLEAR MEDICINE

Question Paper Format:

General English Aptitude Test- 20 marks- ½ hour - essay type question- to test English language written communication skills

Written Test- 120 Marks- 2 ½ hours- multiple choice, short answer and problem solving type questions.

Paper I- Common Paper- 30 Multiple Choice Questions- 2 hours
Paper II- Subject of study- 30 Multiple Choice questions in the subject of study and choice- 2 hours

Technical Viva-Voce

Final Interview

1) Syllabus for Common Paper

Computer awareness and scientific aptitude

Computer awareness: History of computers, history of computers, computer classification, Classification based on size and capability, Basic knowledge of computer systems, software and programming.

General awareness and scientific aptitude

Biology: Animal physiology, Blood, Evolution, Cytology, For DNA molecule, mineral nutrition, photosynthesis, branches.

Chemistry: Quantum numbers, Periodic table, Electronegativity, group 1 elements, group 2 elements, group 13 elements, group 14 elements, group 16 elements, group 17 elements, group 18 elements,

transition elements, hydrocarbons, biomolecules, carbohydrates, amino acids, proteins, nucleic acids, mutation, vitamins.

Geography: core of earth, volcanoes, earthquakes, atmosphere, troposphere, ozonosphere, stratosphere, ionosphere, mesosphere, exosphere, ozone, global warming and green-house effect, rocks, minerals, some facts about soils, soils of India.

Mathematics: binomial theorem, progressions, some standard limits, median, harmonic mean, mode, probability.

Physics: Projectile motion, collisions, Newton's law of gravitation, Kepler's laws, moment of inertia, Hooke's law, angular momentum, escape velocity, simple harmonic motion, Doppler's effect, first law of thermodynamics, Coulomb's law, electric field, electric potential, electric dipole, capacitance, current, Faraday's law, Lorentz force, mutual inductance, self-inductance.

For M.Sc. in Physics Applicants

Mathematical Physics: Linear vector space; matrices; vector calculus; linear differential equations; elements of complex analysis; Laplace transforms, Fourier analysis, elementary ideas about tensors.

Classical Mechanics: Conservation laws; central forces, Kepler problem and planetary motion; collisions and scattering in laboratory and centre of mass frames; mechanics of system of particles; rigid body dynamics; moment of inertia tensor; noninertial frames and pseudo forces; variational principle; Lagrange's and Hamilton's formalisms; equation of motion, cyclic coordinates, Poisson bracket; periodic motion, small oscillations, normal modes; special theory of relativity - Lorentz transformations, relativistic kinematics, mass-energy equivalence.

Electromagnetic Theory: Solution of electrostatic and magnetostatic problems including boundary value problems; dielectrics and conductors; Biot-Savart's and Ampere's laws; Faraday's law; Maxwell's equations; scalar and vector potentials; Coulomb and Lorentz gauges; Electromagnetic waves and their reflection, refraction, interference, diffraction and polarization. Poynting vector, Poynting theorem, energy and momentum of electromagnetic waves; radiation from a moving charge.

Quantum Mechanics: Physical basis of quantum mechanics; uncertainty principle; Schrodinger equation; one, two and three dimensional potential problems; particle in a box, harmonic oscillator, hydrogen atom; linear vectors and operators in Hilbert space; angular momentum and spin; addition of angular momenta; time independent perturbation theory; elementary scattering theory.

Thermodynamics and Statistical Physics: Laws of thermodynamics; macro-states and microstates; phase space; probability ensembles; partition function, free energy, calculation of thermodynamic quantities; classical and quantum statistics; degenerate Fermi gas; black body radiation and Planck's distribution law; Bose-Einstein condensation; first and second order phase transitions, critical point.

Atomic and Molecular Physics: Spectra of one- and many-electron atoms; LS and jj coupling; hyperfine structure; Zeeman and Stark effects; electric dipole transitions and selection rules; X-ray spectra; rotational and vibrational spectra of diatomic molecules; electronic transition in diatomic molecules, Franck-Condon principle; Raman effect; NMR and ESR; lasers.

Solid State Physics: Elements of crystallography; diffraction methods for structure determination; bonding in solids; elastic properties of solids; defects in crystals; lattice vibrations and thermal properties of solids; free electron theory; band theory of solids; metals, semiconductors and insulators; transport properties; optical, dielectric and magnetic properties of solids; elements of superconductivity.

Nuclear and Particle Physics: Nuclear radii and charge distributions, nuclear binding energy, Electric and magnetic moments; nuclear models, liquid drop model - semi-empirical mass formula, Fermi gas model of nucleus, nuclear shell model; nuclear force and two nucleon problem; Alpha decay, Beta-decay, electromagnetic transitions in nuclei; Rutherford scattering, nuclear reactions conservation laws; fission and fusion; particle accelerators and detectors; elementary

particles, photons, baryons, mesons and leptons; quark model.

Electronics: Network analysis; semiconductor devices; Bipolar Junction Transistors, Field Effect Transistors, amplifier and oscillator circuits; operational amplifier, negative feedback circuits, active filters and oscillators; rectifier circuits, regulated power supplies; basic digital logic circuits, sequential circuits, flip-flops, counters, registers, A/D and D/A conversion.

For M.Sc. in Chemistry Applicants

Physical Chemistry:

Structure: Quantum theory: principles and techniques; applications to a particle in a box, harmonic oscillator, rigid rotor and hydrogen atom; valence bond and molecular orbital theories, Hückel approximation; approximate techniques: variation and perturbation; symmetry, point groups; rotational, vibrational, electronic, NMR, and ESR spectroscopy. **Equilibrium:** Kinetic theory of gases; First law of thermodynamics, heat, energy, and work; second law of thermodynamics and entropy; third law and absolute entropy; free energy; partial molar quantities; ideal and non-ideal solutions; phase transformation: phase rule and phase diagrams - one, two, and three component systems; activity, activity coefficient, fugacity, and fugacity coefficient; chemical equilibrium, response of chemical equilibrium to temperature and pressure; colligative properties; Debye-Hückel theory; thermodynamics of electrochemical cells; standard electrode potentials: applications - corrosion and energy conversion; molecular partition function (translational, rotational, vibrational, and electronic).

Kinetics: Rates of chemical reactions, temperature dependence of chemical reactions; elementary, consecutive, and parallel reactions; steady state approximation; theories of reaction rates - collision and transition state theory, relaxation kinetics, kinetics of photochemical reactions and free radical polymerization, homogeneous catalysis, adsorption isotherms and heterogeneous catalysis.

Inorganic Chemistry:

Main group elements: General characteristics, allotropes, structure and reactions of simple and industrially important compounds: boranes, carboranes, silicones, silicates, boron nitride, borazines and phosphazenes. Hydrides, oxides and oxoacids of pnictogens (N,P), chalcogens (S, Se & Te) and halogens, xenon compounds, pseudo halogens and interhalogen compounds. Shapes of molecules and hard-soft acid base concept. Structure and Bonding (VBT) of B, Al, Si, N, P, S, Cl compounds. Allotropes of carbon: graphite, diamond, C₆₀. Synthesis and reactivity of inorganic polymers of Si & P.

Transition Elements: General characteristics of d and f block elements; coordination chemistry: structure and isomerism, stability, theories of metal-ligand bonding (CFT and LFT), mechanisms of substitution and electron transfer reactions of coordination complexes. Electronic spectra and magnetic properties of transition metal complexes, lanthanides and actinides. Metal carbonyls, metal-metal bonds and metal atom clusters, metallocenes; transition metal complexes with bonds to hydrogen, alkyls, alkenes and arenes; metal carbenes; use of organometallic compounds as catalysts in organic synthesis. Bioinorganic chemistry of Na, K, Mg, Ca, Fe, Co, Zn, Cu and Mo.

Solids: Crystal systems and lattices, miller planes, crystal packing, crystal defects; Bragg's Law, ionic crystals, band theory, metals and semiconductors, Different structures of AX, AX₂, ABX₃ compounds, spinels.

Instrumental methods of analysis: Atomic absorption and emission spectroscopy including ICP-AES, UV-visible spectrophotometry, NMR, mass, Mossbauer spectroscopy (Fe and Sn), ESR spectroscopy, chromatography including GC and HPLC and electro-analytical methods (Coulometry, cyclic voltammetry, polarography - amperometry, and ion selective electrodes).

Organic Chemistry:

Stereochemistry: Chirality of organic molecules with or without

chiral centres. Specification of configuration in compounds having one or more stereogenic centres. Enantiotopic and diastereotopic atoms, groups and faces. Stereoselective and stereospecific synthesis. Conformational analysis of acyclic and cyclic compounds. Geometrical isomerism. Configurational and conformational effects on reactivity and selectivity/specificity.

Reaction mechanism: Methods of determining reaction mechanisms. Nucleophilic and electrophilic substitutions and additions to multiple bonds. Elimination reactions. Reactive intermediates- carbocations, carbanions, carbenes, nitrenes, arynes, free radicals. Molecular rearrangements involving electron deficient atoms.

Organic synthesis: Synthesis, reactions, mechanisms and selectivity involving the following- alkenes, alkynes, arenes, alcohols, phenols, aldehydes, ketones, carboxylic acids and their derivatives, halides, nitro compounds and amines. Use of compounds of Mg, Li, Cu, B and Si in organic synthesis. Concepts in multistep synthesis - retrosynthetic analysis, disconnections, synthons, synthetic equivalents, reactivity umpolung, selectivity, protection and deprotection of functional groups.

Pericyclic reactions: Electrocyclic, cycloaddition and sigmatropic reactions. Orbital correlation, FMO and PMO treatments.

Photochemistry: Basic principles. Photochemistry of alkenes, carbonyl compounds, and arenes. Photooxidation and photoreduction. Di-π-methane rearrangement, Barton reaction.

Heterocyclic compounds: Structure, preparation, properties and reactions of furan, pyrrole, thiophene, pyridine, indole and their derivatives.

Biomolecules: Structure, properties and reactions of mono- and disaccharides, physicochemical properties of amino acids, chemical synthesis of peptides, structural features of proteins, nucleic acids, steroids, terpenoids, carotenoids, and alkaloids.

Spectroscopy: Principles and applications of UV-visible, IR, NMR and Mass spectrometry in the determination of structures of organic molecules.

For M.Sc. in Life Sciences Applicants

Chemistry: Atomic structure and periodicity; Planck's quantum theory, wave particle duality, uncertainty principle, quantum mechanical model of hydrogen atom; electronic configuration of atoms; periodic table and periodic properties; ionization energy, electron affinity, electronegativity, atomic size.

Structure and bonding: Ionic and covalent bonding, M.O. and V.B. approaches for diatomic molecules, VSEPR theory and shape of molecules, hybridisation, resonance, dipole moment, structure parameters such as bond length, bond angle and bond energy, hydrogen bonding, van der Waals interactions. Ionic solids, ionic radii, lattice energy (Born-Haber Cycle).

s.p. and d Block Elements: Oxides, halides and hydrides of alkali and alkaline earth metals, B, Al, Si, N, P, and S, general characteristics of 3d elements, coordination complexes: valence bond and crystal field theory, color, geometry and magnetic properties.

Chemical Equilibria: Colligative properties of solutions, ionic equilibria in solution, solubility product, common ion effect, hydrolysis of salts, pH, buffer and their applications in chemical analysis, equilibrium constants (K_c, K_p and K_x) for homogeneous reactions.

Electrochemistry: Conductance, Kohlrausch law, Half Cell potentials, emf, Nernst equation, galvanic cells, thermodynamic aspects and their applications.

Reaction Kinetics: Rate constant, order of reaction, molecularity, activation energy, zero, first and second order kinetics, catalysis and elementary enzyme reactions.

Thermodynamics: First law, reversible and irreversible processes, internal energy, enthalpy, Kirchoff's equation, heat of reaction, Hess law, heat of formation, Second law, entropy, free energy, and work function. Gibbs-Helmholtz equation, Clausius-Clapeyron equation, free energy change and equilibrium constant, Trouton's rule, Third law of thermodynamics.

Basis of Organic Reactions Mechanism: Elementary treatment of SN₁, SN₂, E₁ and E₂ reactions, Hoffmann and Saytzeff rules, Addition reactions, Markonikoff rule and Kharash effect, Diels-Alder reaction, aromatic electrophilic substitution, orientation effect as exemplified by various functional groups. Identification of functional groups by chemical tests.

Structure-Reactivity Correlations: Acids and bases, electronic and steric effects, optical and geometrical isomerism, tautomerism, conformers, concept of aromaticity

Biochemistry: Organization of life. Importance of water. Cell structure and organelles. Structure and function of biomolecules: Amino acids, Carbohydrates, Lipids, Proteins and Nucleic acids. Biochemical separation techniques and characterization: ion exchange, size exclusion and affinity chromatography, electrophoresis, UV-visible, fluorescence and Mass spectrometry. Protein structure, folding and function: Myoglobin, Hemoglobin, Lysozyme, Ribonuclease A, Carboxypeptidase and Chymotrypsin. Enzyme kinetics including its regulation and inhibition, Vitamins and Coenzymes.

Metabolism and bioenergetics. Generation and utilization of ATP. Metabolic pathways and their regulation: glycolysis, TCA cycle, pentose phosphate pathway, oxidative phosphorylation, gluconeogenesis, glycogen and fatty acid metabolism. Metabolism of Nitrogen containing compounds: nitrogen fixation, amino acids and nucleotides. Photosynthesis: the Calvin cycle.

Biological membranes. Transport across membranes. Signal transduction; hormones and neurotransmitters.

DNA replication, transcription and translation. Biochemical regulation of gene expression. Recombinant DNA technology and applications: PCR, site directed mutagenesis and DNA-microarray. Immune system. Active and passive immunity. Complement system. Antibody structure, function and diversity.

Cells of the immune system: T, B and macrophages. T and B cell activation. Major histocompatibility complex. T cell receptor. Immunological techniques: Immuno diffusion, immune electrophoresis, RIA and ELISA.

Botany:

Plant Systematics: Systems of classification (non-phylogenetic vs. phylogenetic - outline), plant groups, molecular systematics.

Plant Anatomy: Plant cell structure, organization, organelles, cytoskeleton, cell wall and membranes; anatomy of root, stem and leaves, meristems, vascular system, their ontogeny, structure and functions, secondary growth in plants and stellar organization.

Morphogenesis & Development: Cell cycle, cell division, life cycle of an angiosperm, pollination, fertilization, embryogenesis, seed formation, seed storage proteins, seed dormancy and germination. Concept of cellular totipotency, clonal propagation; organogenesis and somatic embryogenesis, artificial seed, somaclonal variation, secondary metabolism in plant cell culture, embryo culture, in vitro fertilization.

Physiology and Biochemistry: Plant water relations, transport of minerals and solutes, stress physiology, stomatal physiology, signal transduction, N₂ metabolism, photosynthesis, photorespiration; respiration, Flowering: photoperiodism and vernalization, biochemical mechanisms involved in flowering; molecular mechanism of senescence and aging, biosynthesis, mechanism of action and physiological effects of plant growth regulators, structure and function of biomolecules, (proteins, carbohydrates, lipids, nucleic acid), enzyme kinetics.

Genetics: Principles of Mendelian inheritance, linkage, recombination, genetic mapping; extrachromosomal inheritance; prokaryotic and eukaryotic genome organization, regulation of gene expression, gene mutation and repair, chromosomal aberrations (numerical and structural), transposons.

Plant Breeding and Genetic Modification: Principles, methods - selection, hybridization, heterosis; male sterility, genetic maps and molecular markers, sporophytic and gametophytic self incompatibility, haploidy, triploidy, somatic cell hybridization, marker-assisted

selection, gene transfer methods viz. direct and vector-mediated, plastid transformation, transgenic plants and their application in agriculture, molecular pharming, plantibodies.

Economic Botany: A general account of economically and medicinally important plants- cereals, pulses, plants yielding fibers, timber, sugar, beverages, oils, rubber, pigments, dyes, gums, drugs and narcotics. Economic importance of algae, fungi, lichen and bacteria.

Plant Pathology: Nature and classification of plant diseases, diseases of important crops caused by fungi, bacteria and viruses, and their control measures, mechanism(s) of pathogenesis and resistance, molecular detection of pathogens; plant-microbe beneficial interactions.

Ecology and Environment: Ecosystems – types, dynamics, degradation, ecological succession; food chains and energy flow; vegetation types of the world, pollution and global warming, speciation and extinction, conservation strategies, cryopreservation, phytoremediation.

Microbiology:

Historical Perspective: Discovery of microbial world; Landmark discoveries relevant to the field of microbiology; Controversy over spontaneous generation; Role of microorganisms in transformation of organic matter and in the causation of diseases.

Methods in Microbiology: Pure culture techniques; Theory and practice of sterilization; Principles of microbial nutrition; Enrichment culture techniques for isolation of microorganisms; Light-, phase contrast- and electron-microscopy.

Microbial Taxonomy and Diversity: Bacteria, Archea and their broad classification; Eukaryotic microbes: Yeasts, molds and protozoa; Viruses and their classification; Molecular approaches to microbial taxonomy.

Prokaryotic and Eukaryotic Cells: Structure and Function: Prokaryotic Cells: cell walls, cell membranes, mechanisms of solute transport across membranes, Flagella and Pili, Capsules, Cell inclusions like endospores and gas vesicles; Eukaryotic cell organelles: Endoplasmic reticulum, Golgi apparatus, mitochondria and chloroplasts.

Microbial Growth: Definition of growth; Growth curve; Mathematical expression of exponential growth phase; Measurement of growth and growth yields; Synchronous growth; Continuous culture; Effect of environmental factors on growth.

Control of Micro-organisms: Effect of physical and chemical agents; Evaluation of effectiveness of antimicrobial agents.

Microbial Metabolism: Energetics: redox reactions and electron carriers; An overview of metabolism; Glycolysis; Pentose-phosphate pathway; Entner-Doudoroff pathway; Glyoxalate pathway; The citric acid cycle; Fermentation; Aerobic and anaerobic respiration; Chemolithotrophy; Photosynthesis; Calvin cycle; Biosynthetic pathway for fatty acids synthesis; Common regulatory mechanisms in synthesis of amino acids; Regulation of major metabolic pathways.

Microbial Diseases and Host Pathogen Interaction: Normal microbiota; Classification of infectious diseases; Reservoirs of infection; Nosocomial infection; Emerging infectious diseases; Mechanism of microbial pathogenicity; Nonspecific defense of host; Antigens and antibodies; Humoral and cell mediated immunity; Vaccines; Immune deficiency; Human diseases caused by viruses, bacteria, and pathogenic fungi.

Chemotherapy/Antibiotics: General characteristics of antimicrobial drugs; Antibiotics: Classification, mode of action and resistance; Antifungal and antiviral drugs.

Microbial Genetics: Types of mutation; UV and chemical mutagens; Selection of mutants; Ames test for mutagenesis; Bacterial genetic system: transformation, conjugation, transduction, recombination, plasmids, transposons; DNA repair; Regulation of gene expression: repression and induction; Operon model; Bacterial genome with special reference to E.coli; Phage λ and its life cycle; RNA phages; RNA viruses; Retroviruses; Basic concept of microbial genomics.

Microbial Ecology: Microbial interactions; Carbon, sulphur and nitrogen cycles; Soil microorganisms associated with vascular plants.

Zoology:

Animal world: Animal diversity, distribution, systematics and classification of animals, phylogenetic relationships.

Evolution: Origin and history of life on earth, theories of evolution, natural selection, adaptation, speciation.

Genetics: Principles of inheritance, molecular basis of heredity, mutations, cytoplasmic inheritance, linkage and mapping of genes.

Biochemistry and Molecular Biology: Nucleic acids, proteins, lipids and carbohydrates; replication, transcription and translation; regulation of gene expression, organization of genome, Krebs' cycle, glycolysis, enzyme catalysis, hormones and their actions, vitamins.

Cell Biology: Structure of cell, cellular organelles and their structure and function, cell cycle, cell division, chromosomes and chromatin structure. Eukaryotic gene organization and expression (Basic principles of signal transduction).

Animal Anatomy and Physiology: Comparative physiology, the respiratory system, circulatory system, digestive system, the nervous system, the excretory system, the endocrine system, the reproductive system, the skeletal system, osmoregulation.

Parasitology and Immunology: Nature of parasite, host-parasite relation, protozoan and helminthic parasites, the immune response, cellular and humoral immune response, evolution of the immune system.

Development Biology: Embryonic development, cellular differentiation, organogenesis, metamorphosis, genetic basis of development, stem cells.

Ecology: The ecosystem, habitats, the food chain, population dynamics, species diversity, zoogeography, biogeochemical cycles, conservation biology.

Animal Behaviour: Types of behaviours, courtship, mating and territoriality, instinct, learning and memory, social behaviour across the animal taxa, communication, pheromones, evolution of animal behavior.

For M.Sc. in Nanoscience & Nanotechnology) Applicants

Mathematical Methods for Nanoscience: Curvilinear coordinates: Transformation of coordinates; orthogonal curvilinear coordinates; Gradient, divergence and curl; Partial Differential equations: The method of separation of variables: Separation of Laplace and Helmholtz equations in Cartesian, Spherical polar and Cylindrical polar coordinates; Vector Spaces: Linear transformations and matrices; Types of matrices and their properties: Eigen-value problems: Determination of eigen values and eigenvectors matrices referred above; Diagonalization and applications, Complex Numbers: complex functions, analytic function; properties of complex numbers; Fundamentals of Probability: probability theorems; conditional probability; Bayes' formula; counting, permutations and combinations; Random variables; mean, standard deviation, variance; Distribution functions; Binomial, Gaussian and Poisson distributions.

Quantum Mechanics: Postulates of Quantum mechanics - Schrodinger's equation - Comparison with the Classical Hamiltonian equation - Significance of wave function - Eigen functions and Eigen values, their characteristics, normalization and orthogonality, probability distribution functions, Application of Schrodinger's equation to the particle in a box (one-dimensional and three dimensional) with complete solution - average values- expression for quantum mechanical tunneling; Rigid rotator, Harmonic oscillator and Schrodinger equation for the hydrogen atom - Quantum numbers and their characteristics - Diagrams of orbital wave functions and probability distribution functions - their significance The variational method and perturbation theory.

Nanoscience: Introduction to Nanoscience: History and Scope,

Interdisciplinary nature, Nanoparticles: Nanoclusters, nanocrystals (different types), Core-shell nanoparticles, Synthesis, Nanoscale phenomena and properties of nanoparticles.

Physical: de Broglie wavelength & exciton Bohr radius, jellium model, Electronic and electrical: Density of States, Quantum Effects, quantum structures: wells, wires, dots; Role of size, shape and energy considerations, Optical: Surface plasmon, fluorescence, Magnetic: Superparamagnetism, Chemical: Surface to volume ratio, Surface energy.

Scaling laws: Nano-scaling in Mechanics, Special nanomaterials: Fullerenes, graphene, graphite nanostructures, carbon nanotubes, inorganic nanowires, Synthesis of nanomaterials: Top-down – bottom-up approaches; simple soft synthetic methods: co-precipitation, chemical reduction, solution combustion, Fundamental spectroscopic analysis techniques: UV-Visible spectroscopy, Photoluminescence spectroscopy, IR spectroscopy – FTIR and ATR.

Nanomaterials: Synthesis and Characterization: Advanced synthesis strategies: Hard routes: Laser ablation/vaporization/ pyrolysis, electric-arc, spark erosion, vapour deposition methods, Gas phase synthesis, flame synthesis, mechanical attrition method, sputtering, and ion implantation, Soft routes : Sol-Gel Processing, Self-Assembly, Hydrothermal/solvothermal, inverse micellar method, vapour deposition methods (chemical), Characterizing techniques: Molecular spectroscopy: Raman spectroscopy, electron spin resonance spectroscopy, mass spectroscopy, Diffractometry: Powder X-ray Diffraction, introduction to electron and neutron diffraction, Electrophoretic Techniques: General principles, factors effecting electro forces, preparation of concentration gradient and pH gradient gels. Separation of proteins by SDS-PAGE. Two dimensional polyacrylamide gel electrophoresis and isoelectric focussing. Agarose gel electrophoresis of DNA and RNA.

Circular dichroism and optical rotatory dispersion: Principles of optical activity, cotton effect, relation between CD and ORD; Linear dichroism of biological polymers; Use of circular dichroism in protein analysis.

Nanomaterials: Applications and Devices: Fabrication at the nanoscale: Lithography methods, Limitations of optical, X-ray, electron and ion beam fabrication methods, Lithographic techniques, Scanning probe based techniques, Nanomaterials of chemical and biological origin: Formation and characterization of polymers, Conductive polymers and application, supramolecular structures; Bio -Functionalization of nanomaterials; Bio synthesis- Bacteria as bio synthesizer, Bioderived and Bio-Inspired Materials, Bio templates Nanomaterials for Biological applications: Quantum dots fluorescence and use as bio-markers, Near Field Bioimaging, Nanoparticles for Optical diagnostics and Targeted Drug Delivery, Quantum Dots for bioimaging, Upconverting Nanophores for Bioimaging, Biosensing, Nanoclinics- Gene Delivery and Photodynamic Therapy, Nanomaterials for Optoelectronic Applications: Nanocomposites: Photonic media, local enhancement, Quantum confined lasers & Random Lasers, Optoelectronics-Devices: Polymeric LEDs and Self assembled Organic Nonlinear optical materials, Applications., Photonics crystals and fibers, Nanomaterials for Magnetic Applications: Fundamentals of Magnetism, Magnetic Storage and Fabrication & Scaling of Storage devices, Ferro fluid-Super Para magnetism, Nanoscale Magnetic Resistive materials: Giant Magnetic Resistance (GMR) & Colossal Magnetic Resistance (CMR).

Advanced Instrumentation Techniques: Electron spectroscopy: UV and X-ray photoelectron spectroscopy, Auger electron spectroscopy, electron energy loss spectroscopy, Microscopy: Electron Microscopy, Field ion microcopy, Scanning Electron Microscopy, Atomic Force Microscopy, Scanning tunneling microscopy, near field scanning optical microscopy, confocal microscopy, phase contrast, dark field techniques, Chromatographic Techniques, X-ray spectroscopy: Energy

dispersive X-ray spectroscopy, X-ray absorption spectroscopy, X-ray fluorescence spectroscopy – WDXRF and EDXRF, Thermo analytical techniques: Principles of thermal analysis, instrumental methods of analysis by differential thermal analysis, differential scanning calorimetry, thermo gravimetry, thermal mass analysis, temperature profiling.

Step 8 Await final decision

Step 9 Join SSSIHL

STEP 8: WAIT FOR RESULTS / FINAL DECISION

After all the admissions tests and interviews are completed in April, final decisions about admissions will be made and posted on the University website (www.sssihl.edu.in) on the day following the completion of tests and interviews for that particular programme. By 1 May 2014, all results will be posted on the website.

Additionally, provisional list of selected candidates will also be put up at the Ashram (opposite the Accommodation office).

In addition, a selection letter will be sent to all selected candidates. Along with the letter, related information will also be included.

STEP 9: JOIN THE UNIVERSITY!

Congratulations! If you make it to this stage, you have got a place to study at Sri Sathya Sai Institute of Higher Learning. We look forward to welcoming you at one of our campuses.

The Academic Year 2014/15 commences on 2 June 2014.

LIST OF DOCUMENTATION TO BE SUBMITTED UPON ADMISSION

All newly admitted candidates must submit the following to the Director of the Campus on the opening day of the University academic year:

UNDERGRADUATE PROGRAMMES

- › Original Marks Certificate of X/XII Standard. If your XII Std. results are not yet published, you should submit the original marks certificate of X Standard).
- › Transfer Certificate
- › Conduct Certificate

POSTGRADUATE AND PROFESSIONAL PROGRAMMES

- › Original Marks Certificate of your college / University degree. If your final year results are not yet published, you should submit the original marks certificate of your previous degree / XII Standard.
- › Transfer Certificate
- › Conduct Certificate

How do I contact the admissions office if I need further help?

The Admissions pages of the website (<http://sssihl.edu.in/sssuniversity/Admissions.aspx>) are designed to make sure that candidates have all the information that they require to successfully apply to SSSIHL.

You may refer to the Application Guide to get all the information you need for getting and filling an application form completely, supporting documentation and materials, and related information about test dates, schedules and how to find out about the progress of your application. We even have a dedicated Related Downloads page to further assist you.

The Application Guide will give you the answers to most, if not all, queries that you may have for admissions.

If you need further assistance please contact us either by email or telephone.

By Email:

› For admissions related queries, please email:
admissions@sssihl.edu.in

› For online applications related queries, please email:
onlineadmissions@sssihl.edu.in

We will answer all email enquiries within two working days of receipt.

By Telephone:

To contact the admissions office for Admissions related queries, please telephone:

+91 9441 911 381 or
+91 9441 911 391

The above numbers are for admissions related queries only between 9 a.m. and 5 p.m., Monday to Saturday. Outside of these hours, please email us on either one of the above addresses, depending on the nature of your query.

You are wished the very best!
Sai Ram!

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|------------------|----------------------------|------------------|---------------------|------------------|-------------------------|-------------------------|----------------------|-------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Choose Programme | Eligibility & Descriptions | Application form | Documents checklist | Post application | Await Test confirmation | Attend Test & Interview | Await final decision | Join SSSIHL |

APPLICATION No.

Please note down your Application No. here (located on your Application form) for your future reference.

SSSIHL
admissions
contact us

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