

Elevate your Career to Global Level

Online Master of Science (Data Science)

Symbiosis School for Online and Digital Learning (SSODL)



Chancellor's Message



Prof. Dr. S. B. Mujumdar

**Founder and President, Symbiosis
Chancellor, Symbiosis International
(Deemed University)**

National Education Policy 2020 has recommended online and digital education. University Grants Commission (UGC) has selected prestigious universities in India to impart ODL programs and I am happy that Symbiosis International (Deemed University) is among these universities. SIU has created a separate School for imparting quality education through Online and Digital Learning modes for Indian & International students.

I welcome you to the ODL School with a view to acquiring quality education in different subjects and enhancing your employability, and entrepreneurship skills.

May God bless you!

Pro-Chancellor's Message



Dr. Vidya Yeravdekar

**Principal Director, Symbiosis Society
Pro-Chancellor, Symbiosis International
(Deemed University)**

Post-pandemic, the importance of online education needs no justification. The United Nations under Sustainable Development Goals 4 (SDG 4) has mandated to eliminate discrimination in education and provide easy access to quality education. The Govt. of India has introduced the New Education Policy in 2020 which proposes revision and revamping of all aspects of the education structure and to create a system that is aligned with the aspirational goals of the 21st century and SDG 4.

In order to fulfil the mandate of SDG 4 and the NEP and to improve access to quality education, SIU has introduced programmes in the online and digital learning mode.

Symbiosis International University has been awarded Category-1 status by UGC as we have been developing high-quality online programmes for those who could not join the 'on-campus' programmes and were interested in continuing to learn with Symbiosis. These online programmes are developed by the best faculty of SIU. Students who join the online programmes will also get some opportunities to be on our beautiful University campus and experience campus life.

We will empower you with the requisite knowledge to help you apply this knowledge for the betterment of society.

Welcome to SSODL!

Vice-Chancellor's Message



Dr. Rajani Gupte

**Vice-Chancellor,
Symbiosis International (Deemed University)**

Symbiosis International (Deemed University), Pune offers the kind of education needed for leadership in a rapidly changing world. While continuing to work towards improving our offerings, we look for newer ways to deliver and improve access to quality education - hence the School of Online and Digital learning.

Symbiosis School for Online and Digital Learning (SSODL), offers programs from the faculties of Management, Computer Studies, Health Sciences, Media & Communication, Humanities & Social Sciences.

In the present dynamic world there is increasing use of technology. SSODL leverages technology for learner support and program learning delivery in synchronous and asynchronous mode. The school uses a state-of-art recording facility for programme recordings and the programme structure is aligned to the program being delivered through regular mode, providing flexible learning opportunities, e-Learning materials and full-fledged programme delivery through the internet, using technology-assisted mechanisms and resources. The pedagogy ensures that the learning is holistic, flexible and learner-centered.

Provost's Message



Dr. Rajiv Yeravdekar

**Provost,
Faculty of Health Sciences Symbiosis
International (Deemed University)**

We live in an extremely complex and dynamic world. The world is undergoing rapid changes in the knowledge landscape. Technology has become an integral part of our daily lives. With various dramatic, scientific and technological advances in every field, there is a parallel rise in the demand for professionally qualified professionals in the field of management, economics, media and communication and health sciences, especially driven by the impact of technology in the design and delivery of academic programs.

At the Symbiosis School for Online and Digital Learning (SSODL), we offer programs in various domains of healthcare including healthcare management, clinical research, nutrition & dietetics, nursing and disciplines related to healthcare such as health communication, hospital architecture planning and design etc. In addition to these programs, the SSODL also offers undergraduate and postgraduate programs in economics, media, and computer management in the online mode of delivery. The program content and delivery is through the experts in relevant disciplines. Our endeavor is on leveraging technology to create a wholesome environment of complete teaching and learning.

The School for Online and Digital Learning (SSODL) is equipped with a full-fledged call centre for addressing the issues faced by learners. The learning material which would facilitate self-learning is available to the learners on the learning management platform. The learning management platform would also provide access to the recordings of the videos of the sessions. The school would be using technology for assessment thus creating a complete contactless process from enrolment to teaching learning to assessment.

Message from Dean, Academics and Administration



Dr. Bhama Venkataramani

**Dean,
Academics and Administration**

Distance education leverages technology and offers enormous opportunities to impart quality education -i.e. domain expertise and important life skills. The Internet has made it possible to make education accessible to interested learners thus preparing them for the increasingly complex VUCA (Volatile, Uncertain, Complex, and Ambiguous) world. In the context of the increasing demand for access to quality education, the challenge for academics is to align with the dynamic changes and requirements of such a complex world and ensure relevant academic content, effective delivery of the same and appropriate assessment of the attainment levels.

Symbiosis School for Online and Digital Learning (SSODL) has been established to offer quality education through a variety of undergraduate and postgraduate programmes under its eight faculties. A visit to the SSODL website will help you appreciate the expertise of our in-house subject matter experts in curating industry-relevant programs, courses, and academic interventions that will make one's learning experience meaningful. The academic inputs would prepare the learner with a strong theoretical, analytical and practical understanding of the subject that would equip the learner for a challenging career and responsible citizenry.

The program would be delivered by leveraging the four-quadrant approach as mandated by the distance education bureau of UGC. The four quadrants are provision of (i) e- tutorials which would be delivered through the video content, (ii) e-content through e-books, (iii) a discussion forum which would be a platform for query resolution and discussion with subject matter experts and (iv) appropriate assessment tools which would be a mix of continuous assessment and end of term assessment.

We look forward to engaging with you and becoming a significant part of your academic journey!

Message from Dean, Faculty of Law



Dr Shashikala Gurpur

**Dean,
Faculty of Law**

Welcome to the Symbiosis family. We at Symbiosis offer industry-specific and multidisciplinary programs which are varied and content-rich. At Symbiosis we are always striving to offer quality education through our approach of reaching to learners through our multiple locations and multiple campuses. In continuation of our approach, we are pleased to introduce the Symbiosis School for Online and Digital Learning (SSODL).

The creation of Symbiosis School of Online and Digital Learning is another step in our journey of academic excellence and facilitating professionals and students alike to create a better world with their enhanced knowledge, skills and the right attitude for a successful venture. The content development and delivery of the programme is being executed through the dedicated faculty of symbiosis. The governance in the present dynamic and challenging world situation is being tested to its core capabilities. In such an environment it is becoming necessary for academic institutions to adapt to changes happening and the technology to facilitate the teaching-learning process while maintaining the quality.

The spirit of innovation and sustainable development is part of the culture of symbiosis and through the programmes being offered through the Symbiosis School of Online and Digital Learning the future industry professionals are being prepared to govern the operational and policy environment of the future. The dynamic nature of the business and the managing workforce in every avenue of management is reflected in the curricula so as to adapt to the evolving career paths of the future. These courses will enrich law students and professionals. The programmes being offered by SSODL would not only prepare good managers but would also prepare better human beings who contribute to a better rule-based world order.

Message from Dean, Faculty of Management



Dr. R Raman

**Dean,
Faculty of Management**

Symbiosis School for Online & Digital Learning (SSODL) is a constituent of Symbiosis International (Deemed University) and provides learners opportunities to learn a spectrum of programmes in management discipline in the online mode. All the online courses are well curated which motivates and engages learners, irrespective of their physical location. An extremely engaging mix of different learning methodologies such as live lectures, master classes by professors, projects and assignments will not only help in accelerated learning but also help to catapult the career of learners.

Message from Dean, Faculty of Computer Studies



Dr. Dhanya Pramod

**Dean,
Faculty of Computer Studies**

There is an unprecedented growth in online learning resources in the last few years. Access to technology and broad penetration of the Internet across the globe has opened up a new era of online universities and degree awarding online programmes.

At the outset, I welcome all online learners to the Faculty of Computer Studies (FoCS), Symbiosis International (Deemed University).

We are launching a Bachelor of Computer Applications (BCA), M.Sc. (Computer Application), and M.Sc. (Data Science) under FoCS. The BCA programme focuses on building computer science fundamentals and then imparts various skill sets required to design and develop software. M.Sc. (Computer Application) programme focuses on technology implementation and application design, whereas the M.Sc. (Data Science) programme intends to build analytics capabilities of students and give exposure to data science tools, technologies, and applications.

Each programme has been designed with a similar approach to in-class learning as regards the outcomes are concerned. The learners will get benefited from the convenience of learning from home without compromising the technical rigour and outcome achievement. The programmes will provide a comprehensive learning experience and enable the students to become industry-ready professionals.

I Wish You All The Very Best for your digital learning!

Message from Dean, Faculty of Media and Communication



Dr. Ruchi Kher Jaggi

**Dean,
Faculty of Media and Communication**

The Master of Arts in Mass Communication (Online and Distance Learning) programme is being offered by Symbiosis Institute of Media and Communication (SIMC), Symbiosis International (Deemed University) in collaboration with Symbiosis School for Online and Distance Learning (SSODL).

The two-year programme will offer the learner an integral insight into the media and communication industry. It will cover broad and specific topics under the mass communication umbrella and will equip the learner, regardless of their diverse backgrounds, to put this learning and knowledge to use in the media and communication employment sector. The programme is designed for learners who have a keen interest in the field of mass communication and aim to enhance their knowledge about the field and its functioning.

Today, SIMC is the largest institute of its kind in India in terms of PG student intake, across two full-time (two-year) programmes with distinctly different specializations and yet, delivering a unique and complementary blend of Media, Communications and Management theories coupled with practice. SIMC is also the oldest post-graduate institute offering integrated Media and Communications based programmes.

With its proven experience, expertise and excellence, SIMC will now extend itself to offering its media and communication programme in the online mode at a global scale.

Message from Dean, Humanities and Social Sciences



Dr. Jyoti Chandiramani

**Dean,
Faculty of Humanities and Social Sciences**

Dear Aspiring Economist,

Symbiosis School of Economics offers graduate and postgraduate programmes in economics, both online and offline. The course contents are rigorous with a descriptive and investigative approach to connect students with all aspects of economic areas, focusing on micro, macro and global paradigms. Our endeavor is to develop intellectual and professional competencies among students and equip them with skills to include innovation and pragmatism in problem-solving. The well-designed course structure has an ever-evolving curriculum which includes continuous assessments in the form of term papers and reports.

The Research Methodology courses train students in the application of various qualitative and quantitative research methods. Our faculty use the latest technologies and software programmes in online and offline formats.

These academic inputs at SSE, equip you, the student, with a strong theoretical, analytical and empirical understanding of the subject matter. This provides you with a very strong foundation, which we believe will prepare the graduates from SSE to become pragmatic professionals, competent decision and policy-makers, while also being sensitive human beings. You will be capable of providing an integrated framework to various trade and developmental economic issues, and all other concerns need to be addressed at the micro and macro levels of an economy.

The philosophy at SSE encourages an open-door approach, open to feedback and constructive criticism creating a ground for a sound learning experience. The environment is disciplined and rigorous while at the same time giving plenty of scope for creativity, originality and student initiatives.

Message from Dean, Faculty of Engineering



Dr. Ketan Kotecha

**Dean,
Faculty of Engineering**

Welcome to Symbiosis International (Deemed University), where you'll join a diverse community that is engaged in practical learning and cutting-edge research for a successful career in business, government, private or academia. Technology is growing at a very faster pace, so is the need for skilled professionals in the IT industry is also growing exponentially. Online education is proving to be a powerful asset to accelerate the learning curve of the nation and facilitate location-independent learning. The field of computer science and AI are becoming the backbone for intelligent automation in every domain. There is a huge demand for CS & AI-equipped professionals in crucial application areas such as healthcare, fintech, sustainability, etc. Our faculty members are engaged in industry-oriented technology teaching pedagogy and high-impact research funded by government and academic bodies in a variety of areas. Through excellence in teaching, research, and service, we create an inclusive and dynamic experience.

Message from Dean, Faculty of Architecture and Design



Dr. Sanjeevani Ayachit

**Dean,
Faculty of Architecture and Design**

Symbiosis Institute of Design (SID), a constituent of Symbiosis International (Deemed University) is one of the top design schools in India. With best-in-class infrastructure & experienced faculty members, SID stands as the first choice for many aspirants in the field of design education. SID is one of the largest design institutes in the country having a built-up area of more than 80,000 sq. Our campus at Viman Nagar houses, state-of-the-art design studios, laboratories, workshops, IT infrastructure, a rapid prototyping lab, well-equipped classrooms, an excellent library and resource center, exhibition areas, a seminar hall, a conference room, etc. Our graduates develop proficiency in domain-specific skills and knowledge while imbibing logical and critical thinking-empowered intellectual and creative abilities. They inculcate sensitivity towards socio-cultural, political, economic and environmental considerations along with a strong research orientation and innovative practices for real-world problem-solving. Our faculty is drawn from multidisciplinary areas like arts, science, engineering, design, and architecture and create a wholesome learning ecosystem to nurture the creativity of our students.

Director's Message



Dr. Parimala Veluvali

**Director,
Symbiosis School for Online and Digital Learning**

Access to good quality education is becoming increasingly important and is the key to empowerment. The Symbiosis School for Digital and Online Learning (SSODL) has been set up essentially to provide quality education in the domains of Health care, Management, Computer sciences and Humanities delivered in distance, online and digital mode. Programmes offered under these domains provide professional education to learners in a student-centric manner.

At SSODL, learning is designed keeping in mind learner engagement, so in addition to rich content developed by subject experts, learners have access to live lectures delivered in a synchronous mode and can engage with professors through interactive discussion forums. Our Business, Technology, Humanities, and extremely well-received Health Care programmes, equip our students to become leaders with moral depth and intellectual rigour.

The Symbiosis School of Online and Digital Learning Pune, located in the lush green Symbiosis International (Deemed University) main campus at Lavale, Pune, is the Centre of education and culture, providing students with an exceptional opportunity to interact with peers from across the globe and network.

I invite all of you to join the learning community at SSODL, which offers the dual benefit of receiving top-quality online learning experience combined with the recognition of studying at a globally ranked University.

Welcome to SSODL, a community of lifelong learners!

About Symbiosis International (Deemed University)

Prof. Dr. S. B. Mujumdar established Symbiosis in 1971 on the principles of the Vedic thought of “Vasudhaiva Kuttumbakam”, i.e. the world is one family. With changes sweeping across India’s higher education scenario, Symbiosis International (Deemed University) (SIU) established need-based Constituent Institutes / Departments across eight faculties of Law, Management, Computer Studies, Health Sciences, Media & Communication, Humanities & Social Sciences, Engineering and Architecture & Design. Due to the excellence and quality of education imparted by Symbiosis Institutes, the Ministry of Human Resource Development, Govt. of India conferred the ‘Deemed to be University’ status on Symbiosis in 2002.



Approvals & Accreditations

- The University is awarded Category-I status by UGC and an A++ grade by NAAC in the third assessment cycle
- The University is also ranked 32nd in the Universities Category of NIRF 2022
- The University is ranked tenth in the category of 'University & Deemed to be University (Private-Self-Financed)' in Atal Ranking of Institutions on Innovation Achievement (ARIIA) 2021
- Times Higher Education (THE) World University Ranking 2022 has ranked Symbiosis International University amongst the top 800- 1000 Universities in the World
- The University is also ranked in the top 350 Universities in Asia by the QS Regional Rankings
- The only Indian University to have received the Asia Pacific Quality Label



About Symbiosis School for Online and Digital Learning (SSODL)

Symbiosis School for Online and Digital Learning (SSODL) is a constituent of the prestigious Symbiosis International (Deemed University) (SIU). SSODL offers online programmes (UG & PG) Degree that are UGC entitled and AICTE approved.

Programmes offered by SSODL are delivered in an online and digital mode imparting the same skills, knowledge, and domain expertise of regular physical programmes offered under Symbiosis in terms of academic rigour, excellent faculty, and a learner-centric outcome-based education, along with the flexibility of self-paced learning. Our Business, Technology, Humanities, and extremely well-received Health Care programmes, equip our students to become leaders with moral depth and intellectual rigour.



AICTE Approved



ज्ञान-विज्ञान विमुक्तये
UGC Entitled

#TheSymbiEdge

25+
Real Teaching
Faculties

80000+
Active Students

12Lac+
Strong Alumni
Network

51+
Year of Legacy
Symbiosis
International
University



Programme Overview

Online Master of Science (Data Science) from Symbiosis School for Online and Digital Learning (SSODL), aims to equip students with data science knowledge highly relevant in the intelligence era and provides a comprehensive framework for understanding data science life cycle, statistical foundations, technologies and applications.

So, get ready to become an industry-desired data scientist with a highly credible and valuable degree!

DATA SCIENCE



Programme Highlights

Symbiosis online Degree Programme
equally credible as offline



100% Online Programmes- No
campus visit required



Online assessments as per
UGC Guidelines



24* 7 Access to Learning
Management System



Curriculum developed by experts
from top 10 Symbiosis Institutes
in India



Access to recorded sessions- learn
at your own pace



Live Teacher- student lectures
& interactions



Peer-to-peer doubt sharing &
solving sessions



Programme Details

Duration	<ul style="list-style-type: none">• 24 Months (Online)
Eligibility	<ul style="list-style-type: none">• Graduate from any recognized University/ Institution of National Importance with a minimum of 50% marks or equivalent grade at graduation level.
Assessments	<ul style="list-style-type: none">• All courses will have 30% internal component and 70% component as an external (University).
Standard of Passing	<ul style="list-style-type: none">• The assessment of the student for each examination is done, based on relative performance. Maximum Grade Point (GP) is 10 corresponding to O (Outstanding).• A student is required to pass both internal and external examinations separately with a minimum Grade Point of 4 corresponding to Grade P.• Students securing less than 40% absolute marks in each head of passing will be declared FAIL. The University awards a degree to the student who has achieved a minimum. CGPA of 4 out of maximum of 10 CGPA for the programme.



Syllabus Breakdown

Semester 1

- ▶ Statistical Computing
- ▶ Research Methodology
- ▶ Data Analysis Using Python
- ▶ NoSQL Databases
- ▶ Data Warehousing
- ▶ Data Management
- ▶ Mathematics Foundations

Semester 2

- ▶ Multivariate statistics-1
- ▶ Statistical Inference
- ▶ Machine Learning Algorithms
- ▶ Text Analytics
- ▶ Operations Research and Optimization Techniques
- ▶ Data Protection and Privacy
- ▶ Data Mining

Semester 3

Generic Core Courses

- ▶ Multivariate Statistical Analysis - 2
- ▶ Artificial Neural Network and Deep Learning
- ▶ Data Analysis and Visualization
- ▶ Big Data Analytics

Generic Elective

- ▶ Fuzzy Logic
- ▶ Natural Language Processing
- ▶ Flexi Credit Course
- ▶ Cognitive Computing

Semester 4

Generic Core Courses

- ▶ Time Series Analysis
- ▶ Project

Specialization Electives

- ▶ Reinforcement Learning
- ▶ Social Media and Web Analytics
- ▶ Computer Vision
- ▶ Analytics Applications

Fee Details

Application Fee	Total Programme Fee
INR 750	INR 1,40,000

Instalment Pattern

Sem 1	Sem 2	Sem 3	Sem 4
INR 38,750	INR 33,750	INR 33,750	INR 33,750

EMI Options Available

OR

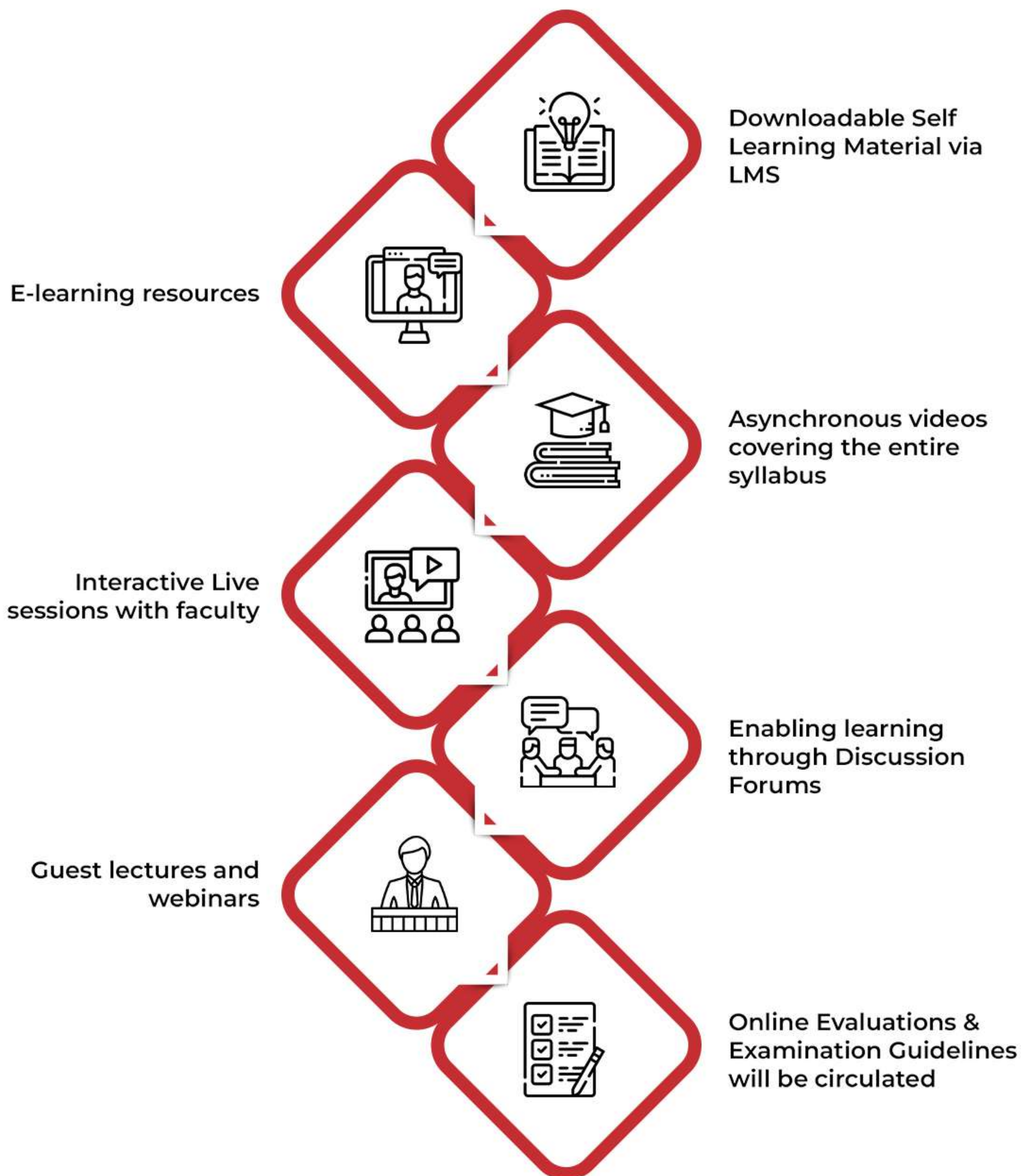
One-Time Payment Option (To be paid at the time of admission)

INR 1,30,000

Important Note

Refund/Cancellation: Application fees are not refundable
Programme/Admission fees Refund/Transfer will be as per the SIU policy.

Detailed Information on E-Learning Content



Learning at SSODL is in a student-centric manner.
It will happen through the 04-quadrant learner-centric approach.

Admission Process

Step 1
Register online



Step 2
Fill up the online application form



Step 3
Upload original scan copies of all the necessary documents



Step 4
Pay online registration fees



Step 5
Document verification by the institute for eligibility of the applicant



Step 6
Pay online programme fees after the eligibility is verified

