CONTENTS

PARTICULARS

Application Fee for All India SLIET Entrance Test

Mode of registration shall be ONLINE only:

Online Application Fee

- General & Other Categories (Boys) : 1200/*-
- General & Other Categories (Girls) : 800/*-
- SC / ST (Boys and Girls) : 600/*-

***Bank charges Extra**

Mode of Payment: E-Challan/Net Banking/Debit card/Credit card

For any Information Contact: Dr. Rajesh Kumar, Chairman, SET-2015
Er. Amrik Singh, Vice-Chairman, SET-2015
Tel. No. 01672-280072, 253136
Fax No. 01672-280072, 280057
Email: chairmanset@sliet.ac.in,
chairmanset2015@gmail.com

Help Desk Numbers: (9.00A.M. TO 6.00P.M.on working days) **01672-253178, 253179, 09815048837,**
(For ONLINE Application)
Institute Website/ ONLINE Application: **www.sliet.ac.in**

IMPORTANT DATES & CHECK LIST FOR SET-2015

Last date for receipt of complete Application Form **Tuesday, March 31, 2015**
Last date for Modification/correction of information(Category/State Quota/Income): **April 2, 2015**

Date of Examination

• **3-Year ICD Program- (SET-I)**	**April 26,2015**	**Sunday**	**10.00 – 12.30 Hours**
• **Lateral Entry to ICD(2nd Year)(SET-IA)**	**April 26,2015**	**Sunday**	**10.00 – 12.30 Hours**
• **2-Year Diploma Programme- (SET-II)**	**April 26,2015**	**Sunday**	**10.00 – 12.30 Hours**
• **B.E.(Lateral Entry)-(SET-III)**	**April 26,2015**	**Sunday**	**14.30 – 17.00 Hours**
• **Ph.D. Programme (SET-V)**	**April 26,2015**	**Sunday**	**14.30 – 16.30 Hours**

Declaration of Result : May 11, 2015 (Monday)

• Group Discussion & Interview for MBA	**June 25-26, 2015**	**Thursday & Friday**
• Interview for Ph.D.	**June 29, 2015**	**Monday**
• Declaration of Result for MBA & Ph.D.	**July 08, 2015**	**Wednesday**

Online Counselling and Document Verification*

A.	**First Phase** (SET-I, SET-IA,SET-III & SET-V) **Choice Filling**		15th to 19th May, 2015
	Round-I		
	First provisional allotment		21nd May, 2015
	Payment of Seat holding fee(with choice of auto upgradation)		22nd -25th May, 2015
	Round-II		
	Upgradation of seat hold in 1st round and Second provisional allotment		27th May, 2015
	Payment of Seat holding fee(with choice of auto upgradation)		28th to 30th May, 2015
	Final allotment		1st June, 2015
B	**Document Verification / Fee Deposition (at SLIET Longowal)**		
i	**3-year ICD Program (SET-I)**	Punjab (All Reserved Categories)	15th -17th June,2015
		Punjab (General Category)	15th -17th June,2015
		Other States (All Category)	15th -17th June,2015
	Lateral Entry to ICD(2nd Year) (SET-IA)		18th June,2015
ii	Surrender of seat hold in 1st phase for consideration in the next round against available seats by Physical presence	All ICD students SET-I	15th -17th June,2015
iii	2-Year Diploma Program (SET-II)	All Vertically Promoted Students	26th June,2015
iv	**B.E.(Lateral Entry)-(SET-III)**	All Vertically Promoted Students	30th June, 2015
		All Reserve Categories	1st July, 2015(Morning)
		General Category	1st July, 2015 (Afternoon)
v	MBA	All Categories	13th July, 2015
C	**Second Phase SET-I (ICD) Choice Filling** (for those candidates who have not filled their choices earlier) /modification of choice for non allottees		20th to 23rd June, 2015
	First provisional allotment		25th June, 2015
	Seat holding fee (with choice of auto up-gradation)		26th – 30th June, 2015
	Final allotment		1st July, 2015
	Document Verification / Fee Deposition: Verification of Documents and deposition of fee at SLIET, Longowal.		6th July, 2015
D	**Second Phase SET-III (Choice Filling)** (for those candidates who have not filled their choices earlier)) /modification of choice for non allottees		3rd to 6th July, 2015
	First provisional allotment		7th July, 2015
	Seat holding fee (with choice of auto up-gradation)		8th -9th July, 2015
	Final allotment		10th July, 2015
	Document Verification / Fee Deposition: Verification of Documents and deposition of fee at SLIET, Longowal.		13th July, 2015

E	**Last Date for submission of passing certificate/Other Documents and Cancellation of admission/seats of defaulters**	21st July,2015
	Upgradation	22nd July, 2015
F	**Spot Round**	
	Spot Round ICD- SET-I	23rd July, 2015
	Spot Round SET-III	24th July, 2015
	Spot Round M.Tech.(including industry sponsored) against vacant seats	29th July, 2015
	Spot Round MBA	25th July,2015
	Spot Round M.Sc.against vacant seats	27th July,2015

Admission to B.E. (4-Yr), M.Tech., MBA and M.Sc. programmes will be as per details given below:

Programme	Name of Written Test	Counselling
B.E. (4-Yr)	JEE (MAIN) -2015	CSAB -2015
M.Tech Programme	Valid GATE Score	CCMT-2015
MBA	Valid GATE/CAT/CMAT-2015 score	Registration will reopen between 21st May to 31st May-2015(Group Discussion and Interview will be held on **June 25-26, 2015 Thursday & Friday)**
M.Sc.	PU-CET (PG)-2015, Panjab University, Chandigarh/CUCET-2015/JAM-2015	Registration will be opened between 21st May to 31st May-2015/with 07 days after declaration of PU-CET(PG)-2015 result.

Candidate must provide correct information to avoid disqualification for admission. The Correspondence address, Landline/ Mobile Phone Numbers and Email ID should be checked thoroughly as any of these mode(s) will be used for contacting the candidate and in case of wrong information in this regard, the responsibility lies with the candidate ONLY. The failure in receiving of the Correspondence by the candidate due to the fault of the third party will not be the responsibility of the institute.

****Dates for Counseling / Documents Verification are tentative /provisional for updates visit institute website from time to time.***

Abbreviations Used:

SLIET : Sant Longowal Institute of Engineering & Technology
SET : All India SLIET Entrance Test
ICD :Integrated Certificate-Diploma
CCMT : Centralized Counseling for M.Tech./M.Plan
JEE(Main) : Joint Entrance Examination(Main)
CSAB : Central Seat Allocation Board
PUCET(PG) : Punjab University Common Entrance Examination(Post Graduate)
CUCET : Central Universities Common Entrance Examination
JAM : Joint Admission Test
CAT : Common Admission Test
CMAT : Common Management Admission Test
GATE : Graduate Aptitude Test in Engineering
MBA : Master of Business Administration
AICTE : All India Council for Technical Education

CHAPTER - I

THE INSTITUTE

1.1 INTRODUCTION

Sant Longowal Institute of Engineering & Technology (SLIET), established by the Government of India, provides technical education in emerging areas of Engineering & Technology. It caters to the requirement of technical manpower at various levels by adopting the concept of modular system in imparting technical education with emphasis on practical training in industry. Set up in 1989 under Rajiv Gandhi - Longowal accord with an aim to fulfil the cherished dreams of late Sant Harchand Singh Longowal, the Institute has carved for itself a niche place among the professional Institutes and Universities of the country. The Institute is fully funded by Ministry of Human Resource Development, Government of India. The educational programmes of this institute are non-conventional, innovative, practical oriented and contain all aspects of new education policy (1986) of Govt. of India. The Institute offers programmes at Certificate, Diploma, Degree, Post-graduate (M.Tech., MBA and M.Sc.) and Ph.D. level in Science, Humanities, Management, Engineering and Technology. The M.Tech. Programmes were started in the Institute in 2002.

Spread in and sprawling over more than four hundred acres of land, the institute is wonderfully blessed with natural beauty, greenery, serene and pollution free atmosphere. It expresses through refreshing shades the environment and conditions truly designed to give the human being true satiety and comfort. Large plantations carried out at the institute make the institute an everlasting beauty. Live atmosphere is conducive to work environment, brings a human face and gives softening touch to the surroundings. Campus has water bodies and is a paradise for bird watchers.

Institute plays a host to a number of migratory birds giving the glimpse of some of the rarest species in the world. Splendor of the natural environment and beauty of the birds are the perfect setting for better learning in natural environment. It provides an atmosphere wherein a person becomes free from worries, converges his/her desires and start thinking and analyzing for making him/her physically fit, ethically strong and academically sturdy.

Enough avenues for channelizing youth energy in extracurricular activities such as: NSS, NCC, Industrial visits, Educational tours, reading rooms, departmental societies, SPICMACAY chapter, Technical & Cultural festivals, night playing facilities, eating points during the extra hours.

It has self contained campus facilities (Hostel, accommodation, academics, sports, shopping etc.) at par with IITs, NITs, IIMs and other CFTIs. The Institute has acquired the status of Deemed University in the year 2007 (Notification No.F.9-42/2001-U.3). In its Silver Jubilee year, Institute has taken a giant leap by introducing a new academic structure from the session 2014-15. The details of the new academic structure are given in the next section.

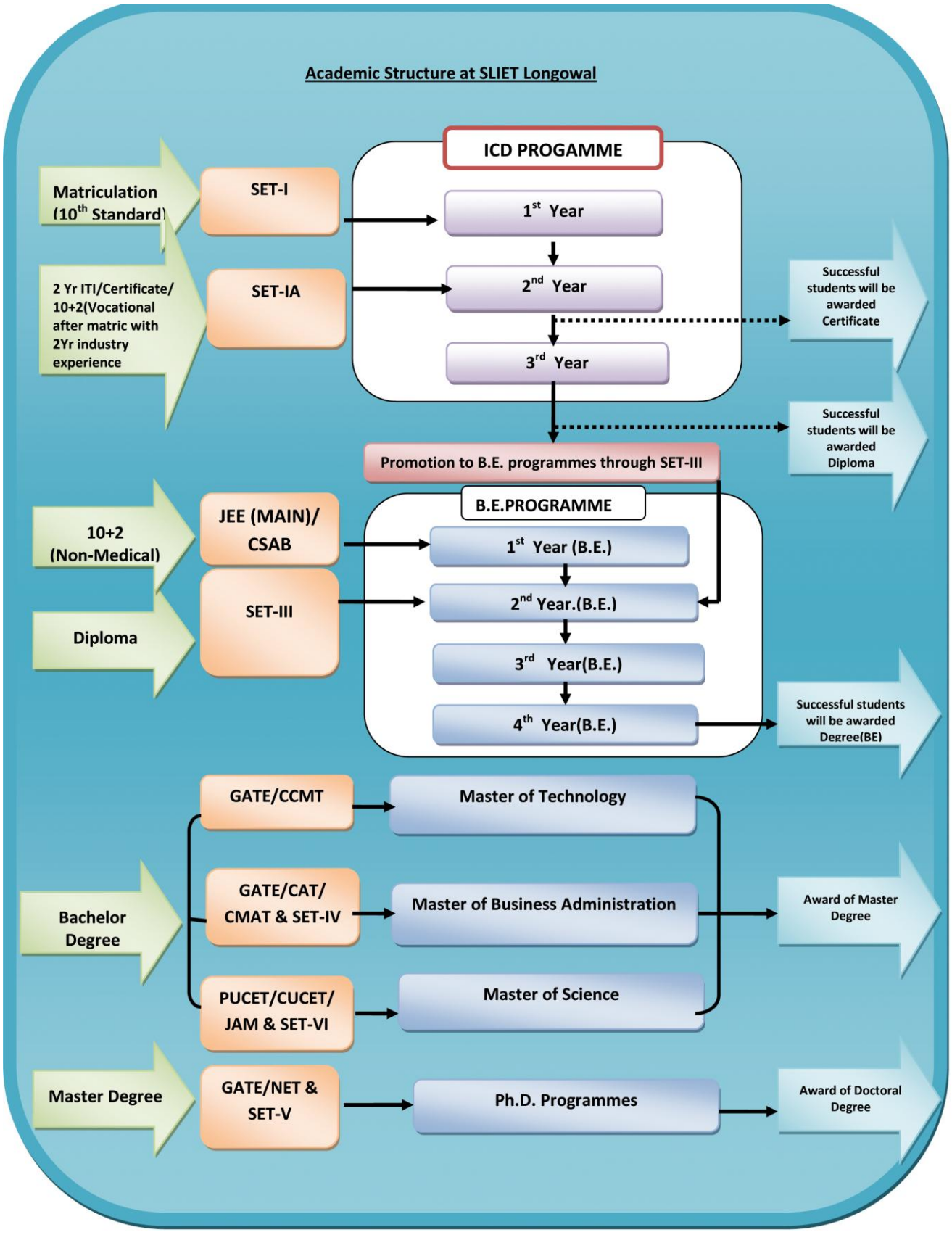
The candidates may visit Institute website www.sliet.ac.in for complete details about the Institute.

1.2 NEW ACADEMIC STRUCTURE

SALIENT FEATURES:

- Admission to ICD (Integrated Certificate-Diploma) programme (3-Yr) through All India SLIET Entrance Test (SET) after matric/10th standard exam from a recognised Board/University (Pass in English, Mathematics and Science is compulsory).
- Provision of voluntarily exit after successfully completing 2 years (with requisite number of credits) of ICD Programme. The student will be awarded certificate equivalent to 10+2(PU Chandigarh, Punjab School Education Board & MHRD)
- Provision of entry in 2nd year of ICD after ITI/Certificate with two years industrial experience.
- Diploma will be awarded to students who will complete 3 years of ICD with the prescribed credits as per teaching scheme successfully.
- 50% of the SLIET Diploma holders fulfilling the requisite criteria will be promoted to 2nd year of B.E.(4-Yr) on the basis of all India Entrance Test (SET) conducted by SLIET longowal.
- Few seats in the 2nd year of B.E.(4-Yr) are open for Diploma holders from any recognized institute of India

In the new academic structure students will spend 6 years (3-Yr. in ICD + 3-Yr. in B.E.) to complete graduation programme in Engineering & Technology after 10th standard.


Academic Structure at SLIET Longowal
ICD PROGAMME
Matriculation (10th Standard)
SET-I
1st Year
2 Yr ITI/Certificate/ 10+2(Vocational after matric with 2Yr industry experience
SET-IA
2nd Year
3rd Year
Successful students will be awarded Certificate
Successful students will be awarded Diploma
Promotion to B.E. programmes through SET-III
B.E.PROGRAMME
10+2 (Non-Medical)
JEE (MAIN)/ CSAB
1st Year (B.E.)
Diploma
SET-III
2nd Year.(B.E.)
3rd Year(B.E.)
4th Year(B.E.)
Successful students will be awarded Degree(BE)
GATE/CCMT
Master of Technology
Bachelor Degree
GATE/CAT/ CMAT & SET-IV
Master of Business Administration
Award of Master Degree
PUCET/CUCET/ JAM & SET-VI
Master of Science
Master Degree
GATE/NET & SET-V
Ph.D. Programmes
Award of Doctoral Degree

1.3 OBJECTIVES

The objectives of the Institute are:

(a) Education and Training:

(i) To offer flexible, modular, layered, multipoint entry/exit programmes in Engineering & Technology,

(ii) To promote "Self-employment" in all programmes by introducing a component of entrepreneurship & providing guidance and counselling services to help students to take-up self employment ventures,

(iii) To offer non-formal programmes in different areas of technology to strengthen the scope of Institutional programmes,

(iv) To provide Technical Education facilities for women, through specially designed courses,

(v) To offer continuing education programmes for working personnel from industries at different levels,

(vi) To meet the requirements of small, medium and large scale industries,

(vii) To offer higher level programmes after acquiring necessary competence at lower level programmes of the Institute,

(viii) To provide non-formal education and training to persons from unorganized sectors and school drops-out through its extension services, to enable them to acquire basic technical skills, so that they are successfully employed.

(b) Extension Services:

To offer services to:

(i) Industries in the neighborhood and in the region
(ii) Working personnel
(iii) Passed out students
(iv) I.T.I.'s and Polytechnics
(v) Research and other institutes of higher learning

(c) Research & Development:

(i) To conduct exploratory research to assess manpower requirement leading to integrated educational planning, curriculum development & instructional material development in the identified areas of Science & Technology.

(ii) To conduct research in the inter-disciplinary areas aimed at solving the problems of industry and community. The concept of practice school introduced in the Institute, will enable the students to attain the knowledge of modern technology practices in the Industries within reasonable time frame.

(d) Collaborations:

Number of M.O.U.'s with reputed industries and institutes of higher learning have been signed and some more are in pipe-line, for the purpose of drawing the expertise available with them, for the overall development of the Institute.

1.4 STATUS

The Institute is an autonomous body having the status of Deemed University and fully funded by the Government of India. It is controlled by SLIET Society, registered under Societies Registration Act, 1860. The Institute awards its own Certificates, Diplomas and Degrees including M.Tech., MBA, M.Sc. and Ph.D. Further, it is clarified that:

(a) The courses run by SLIET are duly approved by AICTE / UGC.

(b) Certificates awarded by SLIET were recognized by All India Council for Technical Education (A.I.C.T.E.), New Delhi (Letter No.F,765-65-031(E)/ET/97 dated July 4, 1997 and Letter No.F-765-65/ ET/97 dated April 15, 1997). Certificate courses of SLIET are equivalent to 10+2 qualification. Panjab University, Chandigarh vide its letter No.ST/8374 dated 21.9.1999 has recognized the Certificate courses of SLIET for the purpose of admission to B.A./B.Sc./B.C.A. courses (1st year). Department of Technical Education & Industrial Training, Govt. of Punjab, Chandigarh vide its Memo No.13/23/05-1 T.S.2/32 dated 4.1.2006 has recognized Certificate Course of SLIET equivalent to 10+2. According to the notification, SLIET students are eligible for the admission to B.E./B.Tech. Programmes of Punjab Technical University, Jalandhar (state-wise).Vide notification no. Notification 42 No.F 18-8/93 T.D.V./T.S. IV dated March 8, 1995, the certificate courses are declared as equivalent to 10+2 for job purpose.

(c) 3 year Integrated Certificate Diploma (ICD) courses were started from the session 2014-15.

(d) Two Year Diploma Courses were recognized by AICTE, New Delhi vide F.No. North-West/1-201645070/2014/EOA Dated 04/06/2014. Diploma Courses of SLIET are equivalent to the Diplomas awarded by the various State Boards of Technical Education in the appropriate fields for the purpose of recruitment to the posts and services under Central Government (Notification 42 No.F 18-8/93 T.D.V./T.S. IV dated March 8, 1995). Diplomas awarded by SLIET (except Diploma in Computer Science & Engineering) are exempted from Section-A of AMIE by The Institution of Engineers (India) vide letters No.EEA/AKG/R-22A dated Feb 20, 1995; EEA/AD/R-22A dated July 23, 1996 and EEA/AKG/R-22A dated November 1, 1999.

(e) B.E. (4-Yr) Courses were started from session 2014-15.

(f) M.Tech. Courses were recognized by AICTE, New Delhi vide F.No. North-West/1-201645070/2014/EOA Dated 04/06/2014.

(g) M.Sc. (Physics, Chemistry & Mathematics) is approved by the UGC, New Delhi vide letter no. F 6.66/2004 (CPP-I) dated 04 March, 2011.

1.5 LOCATION

The Institute is situated at Longowal (about 8 km from Badbar on Chandigarh-Bathinda Highway) in the District of Sangrur, Punjab. It is well connected by road with Sangrur (18 km), Ludhiana (100 km), Chandigarh (150 km) and Delhi (360 km). The nearest railway stations are Sangrur (18 km), Dhuri (30 km) & Sunam (16 km) on the Northern Railway. The nearest airports are at Chandigarh and Ludhiana.

1.6 FACILITIES

Spread in and sprawling over more than four hundred acres, Institute is wonderfully blessed with natural beauty and greenery. It expresses through refreshing shades revealing the environment and conditions truly designed to give the human spirit true satiety and comfort. Large plantations carried out at the Institute make the Institute a living beauty, a sign of endless and in exhaustible plenty. Live atmosphere enhances working environment bringing a softening, humanizing touch to the surroundings. Institute plays host to a number of migratory birds giving the glimpse of some of the rarest species of birds in the world. Splendor of the natural environment and beauty of the birds are the perfect setting for a spiritual and academic aesthete. Institute provides an atmosphere which means oneself away from the worries, converging desires promoting the values of thinking and analysis. While a cool shade never fails oneself, a nice and comfortable well-equipped guest house adds to the charm of staying at the Institute. Dotted with green parks, strolling areas, gymnasium, swimming pool, herbal nursery, a lake with a created home for doves, the Institute is a mini-paradise extending a warm welcome and symbolizes the 'Modern Gurukul' of 21st Century. All modern facilities to the residents in the campus are available.

(a) Hostels :

SLIET is a residential campus with ten hostels for boys and four for girls, accommodating about 3400 students which include about 1000 girl students. The hostels have been provided with proper kitchens, comfortable dining halls and indoor games facilities, Wi-Fi Internet connectivity, Newspapers / Magazines and Cable T.V. facilities. Hostel facility shall be provided to the students subject to availability and preference will be given to those students whose hometown's distance from the institute will be more. Girl students (including Ph.D. Scholars) will be considered for accommodation only in Girls Hostels. All the hostellers will have to maintain discipline and will abide by the rules framed by office of Dean(SFW) from time to time.

(b) Teaching Departments & Workshop:

The Institute has well-established departments of:

i. Computer Science & Engineering
ii. Electronics & Communication Engineering
iii. Electrical & Instrumentation Engineering
iv. Mechanical Engineering
v. Civil Engineering
vi. Chemical Engineering
vii. Food Engineering & Technology
viii. Physics
ix. Chemistry
x. Mathematics
xi. Management and Humanities
xii. Disability Studies

All the departments have well qualified faculty and supporting staff with laboratories equipped with the modern equipments. A modern workshop has been set up. An exhaustive practical training is imparted to the students to develop their working skills in well equipped workshops.

(c) Central Library:

The Central Library is housed in a modern building having all kinds of facilities for its best utilization by the faculty, staff and students. The Central Library is having large number of volumes of technical books along with a good collection of books on literature, general awareness, management, social sciences and humanities. The central library is subscribing 15 daily newspapers, numerous national and international magazines & periodicals. The faculty, staff and students have access to the full text of journals from Science Direct, ASTM standards & Digital Library, MathSciNet, subscribed by the Central Library. The Central Library is INDEST Consortium member and through INDEST, the faculty, staff and students have online access to the full text of journals from IEEE, Springer, ASME, ASCE, ACM and Nature etc. The NPTEL lectures had been added to the collection, these lectures can be viewed online within the campus. The Central library is under CCTV surveillance. Central library has established a book bank and students will be issued books for the whole semester subject to availability.

(d) Computing Facilities:

The Institute is equipped with latest and powerful hardware & software. The computer laboratories provide computing environment (Linux and Windows Platforms) to the students and faculty for the pursuit of academic excellence. The various software are catering to the need of students such as Oracle 10g, Power Builder, Developer 2000, Visual Basic, .Net, Qualnet etc. and hardware such as IBM Blade Server, IMB xSeries Server, Acer G510 series Server, workstations and PCs are available. The computer laboratories are also equipped with high end printers, plotters and scanners. All servers, PCs and peripherals are connected to the campus-networking for sharing the resources. Academic Blocks, Administrative Block, other Institute Buildings and all hostels are connected through optical fiber to share the resources and exchange the data.

(e) Health Centre:

The Institute has its own Health Centre to provide necessary medical aid to the students and staff in the campus. Apart from the Medical Officers, specialists are also approved as AMA's for providing consultation to the residents. Ambulance facility is available round the clock to shift the serious patients to the nearby hospitals.

(f) Bank, Post Office, Telephone Exchange and Shopping centre

A fully computerized branch of Central Bank of India with ATM facility and a post office are functioning in the campus to cater the needs of the faculty, staff and the students. STD payphone and cyber café facilities are available in the campus. A 800 line EPABX internal telephone facility is available in the institute. Each hostel has been provided with a telephone facility. A moderate shopping centre has been set-up to cater the needs of the residents. All major players of mobile companies have established their network around the campus.

(g) Sports

Adequate provisions for extra-curricular activities are available in the institute. At present, facilities are available for Table Tennis, Badminton, Swimming, Volley-Ball, Football, Hockey, Cricket, Basketball, Lawn Tennis and other indoor games. 400 meters Athletic Track is also available. Night playing facility is also there in the playgrounds.

(h) Students Activity Centre

A modern Students Activity Centre (SAC) has 02 Squash courts, Gymnasium equipped with latest Physical Fitness Machines, indoor games such as Table Tennis, Chess & Carom etc. and is fully functional.

(i) Extra Curricular Activities:

Students are encouraged to participate in extra curricular activities. Music and Hobbies clubs are functioning very effectively. Literary society is organizing various literary activities from time to time. Almost all the departments have their own technical societies which organize technical seminars, quizzes and other competitions in the departments to give a thrust to the development of academic potential of the students. NSS & NCC units have also been rendering valuable service by inculcating the habits of social & national responsibilities amongst the

students. The NSS unit also organizes the Blood Donation camps at SLIET Health Centre. ISTE-SLIET Students Chapter organizes a number of events on various aspects of personality and skill development and other areas of student's interest.

(j) Curriculum Development Cell:

The Institute has its own Curriculum Development Cell and Resource Centre for production of teaching aids and systemic development of curriculum to suit the requirements of industry.

(k) Equal Opportunities Cell:

The equal opportunities cell has been established in the institute to oversee the effective implementation of policies and programmes for deprived group [SC's, ST's, OBC's (non-creamy layer, minorities)] as per Government of India guidelines, in order to enhance their employability and to provide the guidance.

(l) Internet:

At present the Institute has dedicated 01 Gbps internet connectivity for the benefit of the students and faculty. Internet facility has been extended to various Academic Blocks, Administrative Block, hostels and other Institute Buildings through campus wide networking.

(m) Training and Placement Cell:

A centralized department of Training & Placement is established in SLIET, Longowal to meet its student's placement and industrial training requirements. The department is keeping strong liaison with reputed industries to provide placement opportunities and impart industrial training to the students of Institute. The department also provides the inputs on soft skills, personality development, leadership, motivation and communication skills etc. to the students in order to meet the expectations of the industry. A good number of industries conduct campus placements at the institute. The department is having state-of-the-art infrastructure viz. a group discussion room, interview room and a seminar hall. TCS, iGate-Patni, M&M, L&T Infotech, Birlasoft, Infosys, Trident India, ISGEC Yammunanagar, Punj Lloyd, Honda Siel Cars India Ltd., ESSAR, CIMCOO, J.P. Group of Industries, Nestle, Hindustan Unilever, SANMAR Group of Industries, L&T, Godrej and Boycee Mfg. Co., Sona Koya, i-Tech Vardhman etc. are some of the recruiting industries of SLIET students through Campus Placement.

1.7 THE FACULTY AND ADMINISTRATION

The Faculty of the institute is the core of the academic programme and guardian angle of maintaining the highest academic standards. Several academic distinction – honours and awards, fellowships of professional societies, books and monographs, patents have been bestowed on our faculty in recognition of their academic achievements. The institute is administrated by dynamic team of Director, Deans and Head of the Departments and Section Incharges.

DIRECTOR

Sunil Pandey, Ph.D.

DEANS

Amar Partap Singh Pharwaha, Ph.D., Dean (P&D)
Dhiraj Sud, Ph.D., Dean (Academics)
M.B. Bera, Ph.D., Dean (SFW)
Rajesh Kumar, Ph.D., Dean (R & C)

DEPARTMENT OF CHEMICAL ENGINEERING

Associate Professors:

Avinash Thakur, M.E.
Gulshan Kumar Jawa, M.E.
H. R. Ghatak, Ph.D.
Kamlesh Kumari, Ph.D. (on Deputation)
Pushpa Jha, Ph.D. (H.O.D.)
Sandeep Mohan Ahuja, Ph.D.

Assistant Professors:

A.S.K. Sinha, M.Tech.
Naveen Kumar Kaushley, M.Tech.
Nikhil Prakash M.Tech.,Ph.D
Subita Bhagat, M.Tech.
Vinay Kumar, Ph.D.
Vinod Kumar Meena, M.E.

DEPARTMENT OF CHEMISTRY

Professor:

B.K. Kanungo, Ph.D.
Dhiraj Sud, Ph.D.
Harish Kumar Chopra, Ph.D. (H.O.D.)

Associate Professors:

Damanjeet Singh Cannoo, Ph.D.
Ram Pal Chaudhary, Ph.D.

Assistant Professor:

Hemant Kumar, Ph.D.
Himanshu Rani, M. Phil.
Payal Malik, Ph.D.

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Associate Professors:

Birmohan Singh, M.E.
Damanpreet Singh, M.S. (H.O.D)
Gurjinder Kaur Cheema, M.S.
Major Singh Goraya, Ph.D.
Manoj Kumar Sachan, Ph.D.

Assistant Professors:

Jaspal Singh, M.Tech.
Manminder Singh, M.Tech.
Vinod Kumar Verma, M.S.

DEPARTMENT OF ELECTRICAL & INSTRUMENTATION ENGINEERING

Professors :

Ajat Shatru Arora, Ph.D. (H.O.D.)
Jaspreet Singh Dhillon, Ph.D.
Sanjay Marwaha, Ph.D.
Vijender Kumar Jain, Ph.D.

Associate Professors:

Anshuka Bansal, M.Tech.
Asim Ali Khan, M.Tech.
Charanjiv Gupta, M.E.
Diljinder Singh, M.E.
Gurmeet Singh, M.E.
Manpreet Kaur, M.Tech.
Manpreet Singh Manna, M.E.(On Deputation)
Pratibha Tyagi, M.Tech.
Rajinder Kaur, M.Tech.
Sanjeev Singh, Ph.D.
Surita Maini, M.E., Ph.D.

Assistant Professors:

Manmohan Singh, M.E.
Raj Kumar Garg, M. Tech.

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

Professor:

Amar Partap Singh Pharwaha, Ph.D.

Associate Professors:

Ajay Pal Singh Chauhan, M.E.
Anupma Marwaha, Ph.D.
Dilip Kumar, Ph.D
Jagpal Singh Ubhi, Ph.D. (H.O.D)
Lakhvinder Singh Solanki, M.E.
Surinder Singh, Ph.D.

Assistant Professors:

Alka Singla, M.Tech.
Pankaj Kumar Das, M.Tech.
Sarabjeet Singh, M.Tech.
Susanta Kumar Tripathi, M.Tech.
Vipul Singhal, M.Tech.

DEPARTMENT OF DISABILITIES STUDIES

Arvind Jayant, M.Tech. (H.O.D.)

DEPARTMENT OF MANAGEMENT & HUMANITIES

Professor:

Jappreet Kaur Bhangu, Ph.D.
Pardeep Kumar Jain, Ph.D.

Associate Professors:

Mahesh Kumar Arora, Ph.D.
Parveen Kaur Khanna, Ph.D.
Pawan Kumar Dhiman, Ph.D. (H.O.D)
Sanjeev Bansal, Ph.D.
Sanjeev Kumar Garg, B.Tech., MBA

Assistant Professors:

Mandeep Ghai, MBA

DEPARTMENT OF FOOD ENGINEERING & TECHNOLOGY

Professors:

D.C. Saxena, Ph.D. (H.O.D.)
H.K. Sharma, Ph.D.
M.B. Bera, Ph.D.
P.S. Panesar, Ph.D.

Associate Professors:

Bahadur Singh Hathan, Ph.D.
C.S. Riar, Ph.D.
Charanjeev Singh Saini, Ph.D.
Kamlesh Prasad, Ph.D.
Pradyuman Kumar, Ph.D.
Sukhcharn Singh, Ph.D.
Vikas Nanda, Ph.D.

Assistant Professors:

Navdeep Jindal, M.Tech.

DEPARTMENT OF MATHEMATICS

Professor:

Mandeep Singh, Ph.D.
S.S. Dhaliwal, Ph.D.
Vinod Mishra, Ph.D. (H.O.D.)

Associate Professors:

Janak Raj Sharma, Ph.D.
R.K. Guha, Ph.D.
Raj Kumar Goyal, M.Phil.
Ravi Kant Mishra, Ph.D.
Sushma Gupta, Ph.D.
V.K. Kukreja, Ph.D.

Assistant Professors:

Yogesh Kapil, M.Sc.

DEPARTMENT OF MECHANICAL ENGINEERING

Professors:

Kulwant Singh, Ph.D.
Pardeep Gupta, Ph.D. (H.O.D.)
P.K. Singh, Ph.D.
Rajesh Kumar, Ph.D.
V. Sahni, Ph.D.

Associate Professors:

Amandeep Singh Shahi, Ph.D.
Amrik Singh, M.E.
Anil Kumar Singla, M.E.
Arvind Jayant, M.Tech.
Indraj Singh, M.Tech.
Jagtar Singh, Ph.D.
Jaspal Singh Gill, M.Tech.
Kanwalpreet Singh, M.E.
M.A. Akhtar, M.Tech.
Manoj Kumar Goyal, M.E.
Raj Kumar Yadav, Ph.D.
Rakesh Kumar, M.Tech.
Ravindra Kumar Saxena, Ph.D.
Shankar Singh, Ph.D.
Suresh Chandra Verma, M.E.

Assistant Professors:

Anuj Bansal, M.E.
Deewakar Sharma M.Tech.
Harish Kumar Arya, M.Tech.
Manpreet Singh, M.Tech. (on EOL)
Mohd. Majid, M.Tech.
Surinder Kumar, M.Tech.
Sunil Kumar, M.Tech.
Sumit Kumar, B.Tech.
Vivek Kumar, M.Tech.

DEPARTMENT OF CIVIL ENGINEERING

Sanjeev Kumar Garg, B.Tech., MBA (H.O.D.)

DEPARTMENT OF PHYSICS

Professors:
A.S. Dhaliwal, Ph.D.
Kiranjit Singh Kahlon, Ph.D. (H.O.D.)
K.S. Mann, Ph.D.
M.M. Sinha, Ph.D.
S.S. Verma, Ph.D.

Associate Professors :
S.S.Ghumman, Ph.D.

Assistant Professors:
Kanika Aggrawal, M.Sc. M.Tech.
Prabhdeep Kaur, Ph.D.

TRAINING & PLACEMENT CELL
Jap Preet Kaur Bhangu, Ph.D.(Head)

WORKSHOP
Shankar Singh, Ph.D. (Head)

Asstt. Workshop Superintendent
Harbhajan Singh, Diploma

CENTRAL LIBRARY

Librarians :
Prithvi Singh Bamnia, M.Phil.
Sanjay Gupta, M.Lib.Inf. Sci. (Admn. Incharge)

SPORTS DEPARTMENT
S.S.Punia, S.P.I., M.P.Ed., N.I.S.

REGISTRAR
Col. Arun Kainthla (Retd), M.A.LLB

Deputy Registrar (Administration):
Sanjeev Bansal, Ph.D.

Deputy Registrar (Accounts):
Rakesh Mishra, M.Com,LLB, DCA,PGDBA

Deputy Registrar (Academics)
Navdeep Jindal, M.Tech.

Faculty Incharge (Store):
K.S. Mann, Ph.D.

Faculty Incharge (Purchase):
P.S. Panesar, Ph.D.

Medical Officer:
Charanjit Singh, M.B.B.S.

Incharge Estate:
Pankaj Kumar Das, M.Tech. (I/c Construction and maintenance wing (Civil))
Raj Kumar Goyal, M.Phil. (I/c Horticulture, Water supply & Sanitation)
Jagpal Singh Ubhi, Ph.D. (I/c Electrical wing)

CHAPTER - II

IMPORTANT INFORMATION

The Institute offers modular pattern of education in emerging areas of Engineering, Technology, Sciences, Humanities and Management. Following Programmes are offered by the institute:

(a) Integrated Certificate-Diploma (ICD) (b) 2-Year Diploma (c) B.E. (d) M.Tech. (e) M.B.A. (f) M.Sc. (g) Ph.D.

2.1 SLIET ENTRANCE TEST-2015 Schedule

Entrance Test conducted for admission to various programmes is termed as SLIET Entrance Test (SET) and the details are given in **Table 2.1**.

Table 2.1

Name of Programme	Entrance Test	Date	Time
3 year ICD Programme	SET-I	26th April,2015	10.00 – 12.30 Hours
ICD-Lateral Entry	SET-1A	26th April,2015	10.00 – 12.30 Hours
2 Year Diploma Programme	SET-II	26th April,2015	10.00 – 12.30 Hours
B.E.(Lateral Entry)	SET-III	26th April,2015	14.30 – 17.00 Hours
B.E.(4-Yr)	JEE(Main)-2015		
M.Tech Programme	Valid GATE Score		
MBA	Score corresponding year Valid GATE/CAT/CMAT-2015		
M.Sc.	PU-CET (PG)-2015/JAM-2015/CUCET-2015		
Ph.D. (Full Time)	SET-V	26th April,2015	14.30 – 16.30 Hours

2.2 Pattern of Examination

There will be only one paper of two & half hours duration and of 150 marks for SET-I, SET-1A,SET-II & SET-III. For SET-V, it shall be of two hours duration and having 100 marks.

The syllabi and distribution of marks for SET-I,SET-1A,SET-II & SET-III, SET-IV and SET-V are given in the Chapter-III, IV, V ,VII and IX respectively and all the syllabus can also be downloaded from the institute website **www.sliet.ac.in.**

Note : There will be objective type questions with four options having single correct answer. For each incorrect response, one fourth (1/4) of the total marks allotted to the question would be deducted. However, no deduction of marks will be made if no response is indicated for an item in the OMR Answer Sheet. The candidates appearing for Examination are advised not to attempt such item in the answer sheet if they are not sure of the correct response. **More than one answer indicated against a question will be deemed as incorrect response and will be negatively marked.** All objective type questions are required to be answered on OMR Answer Sheet to be provided at the time of Examination. Answers are to be marked using ball point pen (black / blue) only.

2.3 Centres of SET-2015 : (Numbers before the name of the city in following table indicate centre code)

01 Abohar	12 Chandigarh	23 Gorakhpur	34 Jalandhar	45 Moradabad	56 Ranchi
02 Agartala	13 Chennai	24Gurdaspur	35 Jammu	46 Mukatsar	57 Rupnagar
03 Agra	14 Darbhanga	25 Guwahati	36 Kolkata	47 Mumbai	58 Sangrur
04 Amritsar	15 Dehradun	26 Hamirpur	37 Kurukshetra	48 Muzaffarpur	59 Shillong
05 Bangaluru	16 Delhi	27 Haridwar	38 Longowal	49 Nagpur	60 Shimla
06 Barielly	17 Faridkot	28 Hissar	39 Lucknow	50 Nawanshahr (SBS Nagar)	61 Sunam
07 Barnala	18 Fatehgarh Sahib	29 Hoshiarpur	40 Ludhiana	51 Panaji	62 Tarn Taran Sahib
08 Bathinda	19 Ferozepur	30 Hyderabad	41 Mandi	52 Pathankot	63 Trivandrum
09 Bhagalpur	20 Gandhinagar	31 Imphal	42 Mansa	53 Patiala	64 Varanasi
10 Bhopal	21 Gangtok	32 Itanagar	43 Meerut	54 Patna	
11 Bhubaneswar	22 Gaya	33 Jaipur	44 Moga	55 Raipur	

Note: Director, SLIET / Chairman, SET reserves the right to scrap any centre and allot any other centre to the candidates without assigning any reason.

2.4. Application Fee

Process of registration shall be ONLINE only.

Online Application Fee

- General & Other Categories (Boys) : ₹1200/*-
- General & Other Categories (Girls) : ₹ 800/*-
- SC / ST (Boys and Girls) : ₹ 600/*-

*Bank Charges Extra

Mode of payment

E-Challan, Netbanking, Debit and Credit Card

2.5. Admit Cards

Admit Card will be provided in Duplicate. One Admit Card has to be deposited at examination centre at the time of examination and other copy shall be retained by the candidate for future use.

Admit Card can be downloaded from Institute website www.sliet.ac.in . All the candidates shall print their Admit Cards from the respective login *after* ***17.04.2015****. In* case of any difficulty in printing / downloading the Admit Card, the candidate should contact / inform the Issuing Authority immediately but not later *than* ***23.04.2015****.* The form number / roll number is the prime means for locating the application and it should always be quoted in all correspondence & enquiry. No candidate will be permitted to enter the examination hall without a valid admit card. The admit card meant for candidate should be preserved carefully.

2.6. Merit List

- All admissions will be made on merit determined for admission. In case of tie among two or more candidates, candidate elder in age as per the relevant entry in the matriculation certificate shall be placed higher in merit. Again, if there is tie in age (date of birth), candidate having higher marks in qualifying examination shall be placed higher in merit. Wrong filling of Date of Birth in Application Form will lead to disqualification of candidature.
- A candidate has to obtain a minimum marks in Entrance Test for inclusion in the merit list. Candidates who fail to appear in Entrance test (SET) -2015, will not be included in the merit list.
- **For admission in ICD programme**, a common merit list for each programme shall be prepared and the candidate will be allotted trade/branch/specialization as per his/her merit and choice and the availability of seats.
- **For admission in ICD(2nd Year) under lateral entry, candidate has to appear in test/interview.**
- **For admission to B.E. Programme**
  - **B.E. Programme (4-Yr):** Admission to B.E. will be based on JEE(Main)-2015 and counseling through CSAB-2015. For Institute spot admission CSAB-2015 schedule will be followed. Refer Institute website www.sliet.ac.in from time to time.
  - **B.E.(Lateral Entry) :** Merit list will be prepared in three broad categories separately i.e. **Group A –** Electronics / Computer, **Group B –** Mechanical, **Group C** – Chemical & Food as mentioned in **Table 5.1**. The Candidate who qualifies in SLIET Entrance Test (SET-III) will be admitted in the same Group in which he/she has applied and appeared.
- **For admission to M.Tech. programme** Admission to M.Tech. will be through Centralized Counselling for M.Tech. / M.Plan (CCMT-2015) in NITs and CFTIs to be conducted by NIT, Rourkela for the session 2015-16 (***website: www.ccmt.in***). For spot admission CCMT-2015 schedule will be followed. Refer Institute website www.sliet.ac.in from time to time.
- **For admission to MBA programmes**
  - Merit list will be prepared on the basis of marks obtained in CAT in the corresponding year or CMAT-2015 or GATE qualified followed by group discussions and interview.
  - First preference will be given to the candidates having valid CAT score / percentile (However, these candidates have to appear in Group Discussion and Interview.
  - For preparing the merit list, the marks obtained in the CAT in the corresponding year or CMAT-2015 or GATE shall be converted out of 400. Marks for GD and interview will be awarded out of 25 each.
  - Final merit list will be made on basis of marks scored in all three components out of 450.
  - Institute shall decide the minimum cut off marks wherever qualifying marks in the test is not mentioned in result card.

For admission to M.Sc. programmes, Admission to M.Sc. will be based on PU-CET (PG)-2015 Panjab University, Chandigarh, CUCET or JAM. There shall be a minimum cut off marks for admission to M.Sc. Programmes. Candidate will be admitted in the same discipline in which he/she has applied and appeared and not in any other discipline. For Admission/counseling schedule follow Institute website www.sliet.ac.in.

- **For admission to Ph.D. programmes (Full Time)**
  - **MERIT List [In case of candidates appearing for the SLIET Entrance Test (SET-V)]:**
    (a) Total marks secured in the SLIET Entrance test (SET-V) will be converted out of 70.
    (b) The marks secured in the interview out of 30.
    (c) Merit list will be prepared based on the total marks [(a)+(b)] secured by the candidate).
  - **MERIT List (in case of candidates exempted from appearing the Entrance Test) :**
    (a) Total percentage of marks* secured in National Level Test (converted out of 70).
    (b) The marks secured in the interview (converted out of 30).
    (c) Total marks will be out of 100.

    *In case no marks / grade is mentioned on the Certificate of National Level Test and only qualifying criterion is there, such candidate will be awarded 50% marks against this component to calculate the overall merit. However candidate may improve this component for admission in Ph.D. programme at SLIET by appearing in written test of SET-V.

The lists of qualified candidates as per their information in admit card number and rank/merit will be displayed on the notice board of the Institute on **May 11, (Tentative), 2015** (except for B.E.(4-Yr), M.Tech., M.Sc., MBA and Ph.D. Programmes). **Result will also be available on Institute Website : www.sliet.ac.in**

2.7. Counselling and Document Verification

There will be ONLINE COUNSELLING for all the programmes (except for MBA and Ph.D.). The exact schedule of ONLINE COUNSELLING, document verification and submission of admission fee will be displayed on the Institute website **www.sliet.ac.in.** After provisional allotment of seat, Document Verification the Submission of Admission Fee will be held at SLIET Campus, Longowal. The seat allotted provisionally will be cancelled if the candidate fails to get the documents verified and fee deposited during the prescribed period. **No separate Call Letters will be sent to the candidates for Counselling / Document Verification / Submission of Admission Fee.** However, if a candidate fails to participate in counselling in time due to any reason, he may appear in the next available counselling. Such candidate will have to keep track of the next available counselling schedule which will be displayed on Institute website and participate therein without waiting for any intimation in this regard. His/her claim in such subsequent counselling in which he/she may participate may be considered in accordance with his/her merit/choice and availability of seats in a particular trade/ branch/specialization during the said subsequent counselling. Candidate will be required to submit academic copy of fee deposit receipt and obtain a Final Seat Allotment Card after document verification and fee deposit to complete the admission process.

The steps to be followed for ONLINE COUNSELLING and eligibility conditions for participating in each round of Counselling will be made available before the start of ONLINE COUNSELLING at www.sliet.ac.in.

2.8. Medium of Examination:

The medium of entrance examination for SET-IA, SET-II, SET-III and SET-V will be English. However, for candidates appearing in the entrance test for 3 -Year ICD Program (SET-I), question paper for Physics, Chemistry & Mathematics will be provided in English, Hindi & Punjabi language as per choice of the candidate filled in the application form at the time of registration.

2.9 PRINCIPLES OF RESERVATION APPLICABLE TO ALL ADMISSIONS

2.9.1 Reservation of Seats*:

i) The distribution of seats and admission procedure for Direct Entry seats and Vertical Entry seats is given in Chapter IV & V for 3 year ICD Programme, 2 year Diploma & B.E. Programme respectively.

Note: The procedure for vertical promotion shall be as per policy framed by Institute from time to time.

ii) Seats to which reservation apply: There shall be no reservation (SC / ST / OBC / PH) in case of admission by vertical promotion from certificate course to diploma course and diploma course to B.E.(Lateral Entry) course. The reservation of seats shall be available only in the direct entry seats meant for admission to ICD/B.E./Post-graduate/Ph.D. programmes.

iii) Extent of Reservation* : The extent of reservation will be as under:-

a) For Scheduled Caste (SC) 15%

b) For Scheduled Tribes (ST) 7.5%

c) For Physically Handicapped (PH) 3% (within respective category including General Category)

d) For Other Backward Classes (OBC) 27%

(OBC reservation will be available to non-creamy layer only. The details of non-creamy layer will be as per the stipulations set out hereunder at 2.9.3 (v)).

e) Few seats are available to NRI/Foreign Nationals in UG/PG programmes under DASA scheme. No vertical promotion system is available to the students admitted under NRI Category.

f) Students admitted in 2nd year of ICD programme through SET-IA will also not be considered for promotion to the higher module under the vertical promotion scheme of the institute.

***Reservation will be as per latest guidelines issued by the Government of India from time to time.**

2.9.2. Territorial Quota

Seats meant for 3 Year ICD(SET-I) courses are bifurcated for the candidates of the State of Punjab and for the candidates belonging to other States, respectively in the following proportion:

I)	**3 Year ICD (Integrated Certificate Diploma) Programme**	
	Quota for Punjab State (excluding Chandigarh)	75%
	Quota for Other States and U.T. (including Chandigarh)	25%

NOTE: THERE SHALL BE NO TERRITORIAL RESERVATION FOR ADMISSION TO SET-IA, B.E., POST-GRADUATION (M.Tech, MBA, M.Sc.) AND Ph.D. PROGRAMMES. ALSO, THERE SHALL BE NO TERRITORIAL RESERVATION FOR VERTICAL ENTRY SEATS.

2.9.3. Rules for operating reservation

(i) For operating reservation of seats, seats of specialization in Mechanical Engineering Degree programmes will be treated as falling in one Degree programme.

(ii) Candidate passing qualifying examination from the Schools / Institutes falling in Punjab State (excluding Chandigarh) will be eligible for reservation marked for Punjab State and all others will be eligible to claim reservation for Other States & U.T. (including Chandigarh), for admission to 3 year ICD Programmes. Candidates passing qualifying examination from National Open School or as a private candidate will be eligible to claim territorial quota on the basis of their domicile.

(iii) Seats remaining unfilled in OBC category will be offered to general category, as per instructions of Govt. of India as may be applicable from time to time.

(iv) In case of seats remains vacant in ICD programme under territorial quota of Punjab it shall be transferred to Other State quota and vice versa

(v) Eligibility for SC/ST Reservation : For applying to avail reservation under SC/ST category, the candidates will be required to submit adequate proof / certificate, issued by the competent authority as may be prescribed from time to time in evidence of his/her belonging to respective category.

(vi) **Eligibility for OBC Reservation** : For applying to avail reservation under OBC category, the candidates will be required to submit adequate proof / certificate, issued by the competent authority as may be prescribed from time to time in evidence of his/her not belonging to creamy layer. The criteria of creamy layer will be applied as may be prescribed by the Govt. of India from time to time. At present, Notification issued by the Ministry of Human Resource Development, New Delhi, prescribes that the candidates whose family income does not exceed Rs. 4.5 lacs per annum (the amount will be governed by latest guidelines of Govt. of India) and do not fall within the category of creamy layer. **The above proof / certificate should pertain to the financial year 2014-15 and certificate for the same issued after 31.03.2015 only in the given format (Appendix-IV) will be considered.**

(vi) For claiming seats reserved for Physically Handicapped candidates, the minimum Degree of disability should be 40%. Seats falling to the share of Physically Handicapped candidates in various branches are interchangeable depending upon the availability/suitability of candidates. However, in any branch (as well as in the total seats meant for direct entry) number of seats will not exceed the prescribed quota of 3%. To claim reservation under Physically Handicapped category, the candidate is required to submit a certificate from the Chief Medical Officer of the district concerned clearly mentioning about the extent/Degree of disability. The admission to this category will be governed by the rules of Govt. of India as may be applicable from time to time. The decision of admission committee, regarding the suitability of a candidate for a particular branch for claiming reservation under this category, shall be final and binding on the candidates.

(vii) The seats remaining vacant in any branch due to non availability/suitability of eligible candidates belonging to physically handicapped category will be shifted to the respective main category in that branch.

(viii) A candidate seeking admission against any reserved seat/ territorial quota if fails to get admission against the said reserved seat/quota for any reason, may immediately apply to the Chairman SET for consideration of his claim for admission in non-reserved category/quota. For considering the said claim, however, no separate call letter shall be issued to such candidates and he/she will have to appear in the counselling for filling up the seats other than reserved seats/quota at his/her own responsibility. The claim of such candidate shall be considered in order of his/her merit and his/her choice of trade/branch/specialization as well as availability of seats in the said trade/branch/specialization in the unreserved category/quota aforesaid.

(ix) Director, SLIET reserves the right to transfer the unfilled seats of one quota/category to another quota/category as per existing rules/norms.

Note: Being Centrally Funded Technical Institute, candidates would be considered for reservation and other benefits under SC/ST/OBC quota as per the guidelines issued/list published by Government of India for the purpose.

2.10. FEE STRUCTURE FOR ACADEMIC YEAR 2015-16

		ICD (3 Yr) / Diploma (2 Yr)	B.E.	PG (M.Tech., MBA)	PG (M.Sc.)
A. REFUNDABLE FEES: (WITHOUT ANY INTEREST) To be paid at the time of admission	Caution Money Institute/Hostel	5000	5000	5000	5000
	Total (A)	**5000**	**5000**	**5000**	**5000**
B. NON REFUNDABLE FEES (To be paid at the time of admission)	Admission Related Fund	700	1500	1500	1500
	Students Activity Related Fund	3000	7000	5000	5000
	Library Related Fund	500	1500	1500	1500
	Total (B)	**4200**	**10000**	**8000**	**8000**
C. OTHER FEE PER SEMESTER (Non-Refundable)	Development Fund	1000	2000	2000	2000
	Tuition Fee	5000	20000	12000	8000
	Other Charges	1000	1500	1500	2500
	Hostel Fee	1500	2500	2500	2500
	Total (C)	**8500**	**26000**	**18000**	**15000**
Grand Total (A+B+C) (in ₹)		**17700**	**41000**	**31000**	**28000**

For Industry Institute Sponsored Candidates in M.Tech./ MBA/ M.Sc. the tuition fee will be ₹ 25000/- per semester.

For NRI candidates the fee shall be charged as follows:

Name of Program	Tuition fee	Other charges
ICD	US$ 1600 per annum (US$ 800 per annum for SAARC countries)	US$ 500 per annum
B.E./M.Tech.	US$ 7000 per annum(US$ 3500 per annum for SAARC countries) or as applicable for candidates admitted under DASA	US$ 1000 per annum

- Student availing mess facility will have to pay Rs 10,000 as caution money (interest free) extra at the time of admission.
- The fee structure may be revised from time to time with the approval of competent authority.

*__Amount for Group Insurance Scheme (GIS) is to be paid annually by each student as decided by the Institute applicable on the date of admission.__

2.11 IMPORTANT NOTES FOR ADMISSION TO ALL PROGRAMMES

Following points are highlighted and shall also be applicable to the admission to the concerned programme:-

(a) The direct entry candidates who do not possess the result of qualifying examination during Document Verification and payment of admission fee at SLIET Campus, will be considered for provisional admission as per allotted seat. However, such candidates will be required to submit proof of passing the qualifying examination latest by 21st July, 2015 failing which their admission will stand, cancelled. Vertical entry students shall be required to produce the result of qualifying examination during Document Verification and payment of admission fee at SLIET Campus.

(b) Semester system will be followed for all the Programmes.

(c) Academic calendar and study scheme along with syllabi will be given to all the admitted students after start of the classes.

(d) The medium of instructions is English for all the Programmes.

(e) It is expected that the applicants will have good general physique with normal vision and hearing. In case of defective vision, it must be corrected to 6/9 in both eyes or 6/6 in the better eye. Defective hearing should also be corrected. There should not be any abnormality in heart and lungs and history of mental disease /chronic disease and epileptic fits. The candidate must attach a medical certificate of fitness from a Govt. Doctor not below the rank of A.M.O.

(f) Scholarships are provided to the meritorious candidates as per norms of Government of India notified from time to time.

(g) Tuition Fee Waiver (TFW) Scheme of AICTE, New Delhi shall be applicable in all Diploma(3 Year) & B.E. Courses only to the meritorious candidates as per norms of the scheme notified from time to time. Candidates must produce income certificate as applicable to the scheme and issued after 31.03.2015.

(h) Post matric scholarship

- The students belonging to Schedule Caste Category (other than Punjab) and Scheduled Tribes/Other Backward Class category belonging to other states eligible under Post Matric Scholarship scheme will be charged normal fee at the time of admission. Reimbursement of fee of eligible students will be as per existing practice being followed by the institute.
- No tuition fee and other non-refundable charges will be charged from the students belonging to Schedule Caste category of Punjab domicile who are eligible under the Post Matric Scholarship Scheme at the time of admission. Candidates must produce income certificate as applicable to the scheme and issued after 31.03.2015.
- All the students belonging to SC category of Punjab Domicile eligible under Post Matric Scholarship Scheme are required to submit the following documents at the time of admission/Counselling

  i. Caste Certificate
  ii. Domicile Certificate of Punjab State
  iii. Income Certificate issued by competent authority
  iv. UID/Aadhaar Card
  v. Bank Account in the name of student.

(i) There shall be a minimum number of students to run the course.

(j) Request for marks and re-evaluation of the answer sheets will not be entertained.

(k) There will be a cutoff mark for all type of test conducted by SLIET through SET.

2.12 WITHDRAWAL FROM ADMISSION and REFUND OF FEE

A candidate after taking admission in the Institute may withdraw his/her admission and request for refund of fee as per following procedure:

Withdrawal: The candidate has to make a written request to the Chairman, SET-2015 in the prescribed Performa available in SET office for withdrawal of his / her admission and get the same approved.

Refund of Fee: After approval of withdrawal of admission from Chairman, SET-2015, the candidate is required to obtain blank Performa of "No Dues Certificate" from the Academic Section of the Institute. After getting "No Due Certificate" completed from all the Departments / Sections concerned of the Institute, this is to be submitted in **Original** in Accounts Section and a copy be submitted with academic section. **The case of refund of fee will be processed only after submission of complete "No Dues Certificate". The refund will be made as per Institute norms.**

Note: If the admission is withdrawn before the start of academic session / classes**,** then there is no need to submit "No Dues Certificate" for refund of fee.

2.13 LEGAL JURISDICTION

All disputes pertaining to the counselling and admission for all ICD / Diploma / B.E. / Post-Graduate (M.Tech. / MBA & M.Sc.) and Ph.D Programmes of SLIET, Longowal shall fall within the jurisdiction of Sangrur (Punjab) only.

2.14 DISCLAIMER

The statement made in the information brochure and all other information contained herein is believed to be correct at the time of publication. However, the Institute reserves the right to make changes at any time without notice, in and additions to the regulations, conditions governing the admission, requirements, seats, fees and any other information, or statements contained in this information brochure. No responsibility will be accepted by the Institute for hardship or expenses encountered by candidates / any other person for such changes, additions, omissions or errors, no matter how those are caused.

CHAPTER - III

Three Year ICD (INTEGRATED CERTIFICATE DIPLOMA) PROGRAMME (SET-I & SET-IA)

The objective of the ICD Programme is to produce technically skilled manpower in appropriate areas.

(a) Eligibility:

(I) The minimum qualification for admission to the 3 Year ICD Programme is Matric pass (Pass in English, Mathematics and Science is compulsory) from a State Education Board / CBSE / ICSE / National Open School or an equivalent examination recognized / approved by MHRD, Government of India. Those who are appearing in matriculation examination may also apply subject to producing the result at the time of admission.

(II) For admission to Lateral Entry **ICD (2nd year)** in addition to the matric pass as above, must have passed full time 2 years ITI/Certificate/10+2 (vocational) in relevant trade with 50% marks(45% for reserved categories) from Govt./Semi Govt Insttitue alongwith 2 years industrial experience from Govt./Semi Govt. and Private Industry of repute.

(b) **Duration:** The duration of the ICD programme is 3 years, However if a student willing to exit after successfully completing 2 years in the prescribed course of study with required credits he/she will be awarded certificate in the respective course of ICD programme. He/ She will be allowed to exit only after completing all the formalities as per the norms of institute.

(c) ©Disciplines & Seats: Admission is available in the following disciplines of ICD Programmes. **General principles relating to reservations are given in Section 2.9.**

INTAKE AND DISTRIBUTION OF SEATS FOR 3-Year ICD IN THE ACADEMIC SESSION 2015-16

S. No.	Department	Name of Diploma Programme	Intake	Name of Certificate Programme	Intake
1.	Chemical Engineering	Chemical Technology (DCT)	60	Paper Technology (CPT)	60
2.	Food Engineering and Technology	Food Technology (DFT)	60	Food Processing & Preservation (CFP)	60
3.	Computer Science and Engineering	Computer Science & Engineering (DCS)	120	Data Entry & Word Processing (CDE)	120
4.	Electronics and Communication Engineering	Electronics & Communication Engineering (DEC)	60	Television Mechanic CTV)	30
				Servicing & Maintenance of Electronic Instruments (CSME)	30
5.	Electrical and Instrumentation Engineering	Instrumentation & Control (DIN)	60	Servicing & Maintenance of Medical Instruments (CSMM)	60
		Electrical Engineering (DEE)	60	Electrician (CEN)	60
6.	Mechanical Engineering	Mechanical Engineering (DME)	150	Welding (CWG)	30
				Foundry and Forging (CFF)	30
				Tool & Die Technology (CTD)	30
				Auto & Farm Equipment Mechanic (CAF)	30
				Air Conditioning Mechanic (CAC)	30
7.	Civil Engineering	Civil Engineering (DCE)	30	Building Maintenance (CBM)	30

Note: The seats shown above are indicative and may vary at the time of admission.

Considering different supernumerary schemes of scholarship as per Govt.norms the number of seats may increase. The student may voluntarily exit after successfully completing 2 years (with requisite number of credits) of ICD Programme. Student will be awarded certificate which is equivalent to 10+2 by MHRD, Panjab University, Chandigarh & Punjab School Education Board.

Fifty percent (50%) students admitted (but not exceeding 50% of the sanctioned strength) in 3-Year ICD programme in the respective batch fulfilling the institute Academic norms/criteria shall be promoted to higher module in the respective year. Students admitted under NRI category/PWD scheme shall not be considered under 50% quota of promotion.

(d) Territorial Quota:

Seats meant for 3 Year ICD (SET-I) courses are bifurcated for the candidates of the State of Punjab and for the candidates belonging to other States, respectively in the following proportion:

Quota for Punjab State (excluding Chandigarh)	75%
Quota for Other States and U.T. (including Chandigarh)	25%

The detailed conditions to available territorial quota are given in section 2.9.3 (ii) However, admission under SET-IA will be purely on open merit.

(e) Admission Procedure :

1. Admission to all ICD courses shall be made on the basis of All India SLIET Entrance Test (SET-I).
2. Admission to (ICD 2nd year Lateral Entry) shall be through SET-IA test and personal interview. Candidate shall register himself/herself online.

(f) Entrance Test Schedule :

Test	Date	Time
SET-I (ICD)	26th April,2015	10.00-12.30 Hours
SET-IA (ICD) Lateral Entry	26th April,2015	10.00-12.30 Hours

(g) Fee Structure for 3 Year ICD Programme : Detailed fee structure is in Section 2.10

Note: The fee structure may be revised from time to time with the approval of competent authority.

INTAKE AND DISTRIBUTION OF SEATS FOR ICD(Lateral Entry) BASED ON SET-IA IN THE ACADEMIC SESSION 2015-16

S. No.	Department	Name of Diploma Programme	Intake*
1.	Chemical Engineering	Chemical Technology (DCT)	2
2.	Food Engineering and Technology	Food Technology (DFT)	2
3.	Computer Science and Engineering	Computer Science & Engineering (DCS)	4
4.	Electronics and Communication Engineering	Electronics & Communication Engineering (DEC)	2
5.	Electrical and Instrumentation Engineering	Instrumentation & Control (DIN)	2
		Electrical Engineering (DEE)	2
6.	Mechanical Engineering	Mechanical Engineering(DME)	4
7.	Civil Engineering	Civil Engineering (DCE)	2

*The number of seats may increase considering vacant seats against the sanctioned strength of the respective class/Trade of specialization.

SYLLABUS OF SLIET ENTRANCE TEST (SET-I & SET-IA) FOR ADMISSION TO 3-Year ICD PROGRAMME, 2015

PATTERN OF SET- I & SET-IA

SLIET Entrance Test (SET-I & SET-IA) for admission to ICD Programme will consist of one paper of two & half hours duration. This paper will have 150 objective type questions of 150 marks from English, General Knowledge, Mental Aptitude, Mathematics, Physics & Chemistry.

Note: Answers of all the objective type questions are to be filled in the OMR answer sheet given separately during the Examination. There will be 25% negative marking for wrong answers.

SYLLABUS AND MODEL QUESTIONS

Marks : 150 **Time : 2½ Hours**

ENGLISH, GENERAL KNOWLEDGE, MENTAL APTITUDE

Marks: 20 (20 Questions)

Syllabus :

1. Usage of Tenses
2. Fill in the Blanks with Prepositions
3. Active Passive Voice
4. General Knowledge/Awareness
5. Aptitude Test

MATHEMATICS

Marks: 50 (50 Questions)

Syllabus :

ALGEBRA : Integers, rational and irrational numbers, ratio and proportions. Polynomials, GCD and LCM of Polynomials by factorization method. Linear equations in one variable; solution of simultaneous equations. Quadratic equations and their solutions. Law of indices .Arithmetic progression

TRIGONOMETRY: Trigonometric ratios-sin x, cos x, tan x, cot x, cosec x and sec x for 0^o, 30^o, 45^o, 60^o and 90^o. Trigonometric Identities. Use of Trigonometric tables. Simple problems on heights and distances.

MENSURATION : Perimeter and area of a triangle, square, rectangle, rhombus, trapezium, quadrilateral and circle. Volume and surface area of cube, right prism, cylinder, cone and sphere.

GEOMETRY : Point, line, collinear points, intersecting and non-intersecting lines in a plane. Family of lines, concurrent lines, distance between two parallel lines. Angle-acute, obtuse and right angles. Triangle, its sides and angles. Similarity of triangles. Congurence of triangles. Pythagoras theorem and its converse. Circle. Diameter and circumference of a circle. Arc and sector of a circle. Chord and segment of a circle. Tangent to a circle. Family of concentric circles. Direct and transverse common tangents. Centroid, and orthocentre.

STATISTICS : Collection and tabulation of statistical data. Graphical representation of statistical data, bar diagram, histograms, pie-charts. Measures of central tendency (mean, median, mode).simple problems on probability.

PHYSICS

Marks : 40 (40 Questions)
Syllabus :

Motion : Uniform and non-uniform motion (qualitative idea only), displacement, speed and velocity, acceleration, equations of motion.
Force : Definition, Inertia of a body, balanced and unbalanced forces, relationship between force, acceleration and mass of an object, action and reaction of forces.
Gravitation : Laws of gravitation, acceleration due to gravity.
Work : Work done by a force, relation between work and energy, kinetic energy and potential energy.
Wave Motion : Nature of wave, propagation of a wave through a medium, type of waves; longitudinal, transverse, simple harmonic motion (graphical representation), amplitude of wave, relationship between wave length, frequency and velocity of wave.
Light : Perception of energy carried by light waves, human eye structure and function of human eye, focal length of eye-lens, image formation on the retina, perception of color-composition of white light.
Heat : Mechanical work and heat, heat and temperature, measurement of temperature, specific heat, thermal expansion, change of state, idea of latent heat, idea about relative humidity.
Electricity : Conductors and resistors, measurement of current, potential difference and resistance. Heating effect of electric current, quantitative relationship between heat, current, resistance and time of flow of current, electric appliances based on heating effect of current, measurement of electric energy, units of electric power and energy.
Magnetic effects of Electric Current : Magnetic field of a current carrying conductor, coil and solenoid, electric motor & its applications, Electromagnetic induction.

Reference Book : Science: for Class-IX and X, Published by NCERT.

CHEMISTRY

Marks: 40 (40 Questions)
Syllabus :

Matter-Nature and Behaviour : Nature and behaviour of different types of substances, elements, compounds and their mixtures, structure of matter, atomic theory, molecules and atom; Structure of atom-electrons, protons and neutrons; composition of nucleus-atomic number and mass number, distribution of electrons in different energy levels in an atom, valence electrons and valency.
Atomic Mass and Molecular Mass: Mole concept; percentage composition of compounds.
Physical and Chemical Changes: Combination, displacement, decomposition, slow, fast, exothermic and endothermic reactions, catalyst; chemical equations.
Electrochemical Cell: Construction and working of a simple voltaic cell; lead storage battery and dry cell; electrolysis-movement of ions during electrolysis; Faraday's Laws; electroplating.
Classification of Elements: Periodic Law, periods & groups; General trend in properties of elements in periodic table.
Fuel : Type of fuels, coal; natural fuels, conditions for combustion, heat produced during combustion, combustion of food in living organisms.
Mineral Cycles : Carbon cycle, role of carbon and its compounds, nitrogen cycle, nitrogen fixation, oxygen cycle, oxidation process, water cycle, role of energy in different cycles.
Water : Water a natural resource, origin of life in it, a medium for the activity of the living, a solvent, uses, saturated and unsaturated solution, sea water as habitat of organism, salts from sea.

Air : Composition, Atmosphere & its role in radiation, Carbon dioxide and its diverse effects on living organism, role of trees, release of carbon dioxide from fossils, fuels and automobiles, corrosion of metals, damage of historical monuments from acidic gases, effect of metallic particles, asbestos, etc., on living organisms. Carbon monoxide and its ill effects, air pollution and its effects on human beings.

Dependence of Man on Natural Resources : Minerals from earth, metals and non-metals, uses of non-metals.

Carbon and its Compounds : Introduction, allotropes of carbon and their occurrence, structure, related properties and uses; hydrocarbons - their elementary structure, properties and uses; isomerism (elementary idea); simple compounds of carbon, hydrogen and oxygen and their uses; petroleum products; introductory account of synthetic fibres, plastics, rubber, soaps and detergents.

Extraction of Metals : Metals and non-metals (Si, P,S) occurrence, properties and uses; general metallurgical operations for extraction of pure metal (extraction of copper, iron and aluminum). Properties of metals, uses of metals and non-metals; properties of some alloys (brass, gunmetal, German silver, Solder, bronze), uses at home and in industry.

Reference Book : Science-A Text Book for Class IX & X, Published by NCERT.

Sample Objective Type Questions :

Fill the choice of the alternative you think to be correct answer in the OMR answer sheet.

Q.1 The name of the city which is known as a pink city.
(a) Chandigarh (b) Mumbai (c) Jaipur (d) Delhi

Q.2 In a right angled triangle the sides perpendicular to each other are 15 cm and 8 cm. Its perimeter is :
(a) 46 cm (b) 60 cm (c) 120 cm (d) 40 cm

Q.3 The least distance of distinct vision of normal eye is
(a) 30 cm (b) 25 cm (c) 15 cm (d) 20 cm

Q.4 To remove hypermetropia, lens used is
(a) concave (b) convex (c) cylindrical (d) plano-concave

Q.5 Isotopes of an atom have
(a) same mass number (b) different atomic number (c) same atomic number (d) none of the above

Q.6 Chemical name of baking soda is
(a) sodium chloride (b) sodium carbonate (c) sodium bicarbonate (d) none of above

CHAPTER - IV

2-Year DIPLOMA PROGRAMME (SET-II)
[Only for SLIET Certificate Students admitted in the Year 2013]

4. DIPLOMA PROGRAMME

The objective of the Diploma Programme is to produce supervisory level technical manpower. More emphasis is given on practical oriented class work with an extensive training in industry.

(a) Eligibility: The admission to the 2 year Diploma Programmes is only for the Certificate students of SLIET admitted in the Year 2013. Candidates must have secured 50% marks (45% in case of candidates belonging to reserved categories) in the qualifying examination.

(b) Duration: The duration of the programme is 2 years.

(c) Disciplines & Seats: Available disciplines and information regarding distribution of seats in 2 year Diploma programmes are given in **Table 4.1.**

(d) Admission Procedure (*Only for SLIET certificate students admitted in the year 2013*): There will be vertical mobility of 50% of the sanctioned strength in each Certificate Programme to Diploma Programme. The linkage between Certificate and Diploma modules is illustrated in **Table 4.2**. For vertical promotion from Certificate course to Diploma course against these reserved seats, the Certificate course students shall apply for entrance test (SET-II) in order to enter into the Diploma stream as per **Table 4.2.** Such students have to apply through online mode. A SLIET student will be eligible for admission under this category who had got admission in Certificate course in 2013-2014 & not earlier and had completed the course in the prescribed period of normal study i.e. two years and by availing only prescribed chances to clear a subject. **The students admitted under NRI / PWD category will not be eligible for promotion.**

TABLE 4.1 : Distribution of Seats for Diploma Programme (2-Yr) for the Academic Session 2015-16

Sr.No.	Discipline	Seats for Vertical Entry
1	Chemical Technology (**DCT**)	23
2	Food Technology (**DFP**)	23
3	Computer Science & Applications (**DCA**)	29
4	Computer Science & Engineering (**DCE**)	29
5	Electronics & Communication Engineering (**DEC**)	29
6	Instrumentation & Process Control (**DIN**)	29
7	Mechanical Engineering (Specialization in Industrial & Production Engineering) (**DIP**)	29
8	Mechanical Engineering (Specialization in Maintenance & Plant Engineering) (**DMP**)	29
9	Mechanical Engineering (Specialization in Welding Technology) (**DWT**)	29
10	Mechanical Engineering (Specialization in Foundry Technology) (**DFT**)	29
	Total	**278**

Note: Only 50% students admitted against above programmes shall be promoted to Degree programmmes.

TABLE 4.2 : Linkage between various Certificate and Diploma Programme for the Academic Session 2015-16 (Only for SLIET certificate students admitted in the year 2013)

	CERTIFICATE PROGRAMME/GROUP		DIPLOMA PROGRAMME
1.	Air Conditioning & Refrigeration Auto and Farm Machinery Tool and Die Technology Foundry & Forging Welding Technology	50% 50% 50% 50% 50%	**(GROUP-A)** Mechanical Engg. (Spl. in Industrial and Production Engineering) Mechanical Engg. (Spl. in Maintenance & Plant Engineering Mechanical Engg. (Spl. in Foundry Technology) Mechanical Engg. (Spl. in Welding Tech.)
2.	Maintenance of Television Servicing & Maint of Electronics Instruments Servicing & Maint. of Medical Instruments Maintenance of Electrical Equipments Computer Applications	50% 50% 50% 50% 50%	**(GROUP-B)** Computer Science & Engineering Electronics & Communication Engineering Instrumentation & Process Control Computer Science & Applications
3.	Food Technology Paper & Printing Technology	50%	**(GROUP-C)** Food Technology Chemical Technology

Note: Admission in above programme shall be offered only on the basis of sufficient number of students in relevant stream in diploma programme, otherwise shall be transferred to the relevant programme within the group.

(e) Principles of Vertical Admission (from Certificate to Diploma Programme)

Admission to the vertical entry seats shall be 50% of the sanctioned strength of the students in a particular Certificate Programme in 2013 and not earlier. If a student from promoted candidates do not claim admission in a trade or a seat falls vacant afterwards in a trade, then that seat will be offered to next eligible candidate in that trade.

(f) Entrance Test Schedule :

Test	Date	Time
SET-II (Diploma)	26th April,2015	10:00 – 12:30 Hours

(g) Fee Structure for Diploma Programme: Detailed fee structure is in Section 2.10.

Note : The fee structure may be revised from time to time with the approval of competent authority.

SYLLABUS OF SLIET ENTRANCE TEST (SET-II)
FOR ADMISSION TO 2 Year DIPLOMA PROGRAMME, 2015

PATTERN OF SET-II

SLIET Entrance Test (SET-II) for admission to 2 year Diploma Programme (Group A, Group B, Group C) will consist of one paper of two & half hours duration. This paper will have 150 objective type questions of 150 marks from English, General Knowledge, Mathematics, Physics and Chemistry.

Note: ***Answers of the objective type questions are to be filled in the OMR answer sheet given separately during the Examination.There will be 25% negative marking for wrong answers.***

SYLLABUS AND MODEL QUESTIONS

Marks: 150 **Time : 2½ Hours**

ENGLISH, GENERAL KNOWLEDGE AND APTITUDE

Marks: 20 (20 Questions)
Syllabus :

1. General Science
2. Idioms and Phrases
3. Events of National & International Importance
4. Fill in the blanks with suitable words/prepositions
5. Correction of sentences
6. Change of Voice
7. Current Affairs
8. Indian National Movement
9. History of India
10. Mental Aptitude

MATHEMATICS

Marks: 50 (50 Questions)
Syllabus :

Algebra : Integers, rational and irrational numbers, ratio and proportions. Polynomials, GCD and LCM of Polynomials by factorization method. Linear equations in one variable; solution of simultaneous equations. Law of indices. Solution of quadratic equations, relationship between their roots and coefficients. Equations reducible to quadratic form. Symmetric Functions of roots. Formation of a quadratic equation with given roots. Arithmetic progression, Geometric progression and Arithmetico-Geometric series. Series of natural numbers ($\sum n$, $\sum n^2$, $\sum n^3$). Permutations and Combinations, Binomial theorem for any index. Complex numbers. Algebra of complex numbers. Modulus and argument of a complex number. Conjugate of a complex number. Triangle inequality, representation of complex number in ARGAND's Diagram, polar form & exponential form. Square Root of a complex number. Cube roots of unity. De-Moivre's Theorem with simple applications. Vectors, their Scalar product and cross product. Scalar triple product and its applications.

Trigonometry : Trigonometric ratios-sin x, cos x, tan x, cot x, cosec x and sec x for 0^o, 30^o, 45^o, 60^o and 90^o. Trigonometric Identities. Use of Trigonometric tables. Trigonometric ratios and their relations. Trigonometric Identities. T-ratios of allied angles. Addition and Subtraction formulae. Transformation of product into sum or difference and vice-versa. T-ratios of multiple and sub-multiple angles. Inverse trigonometric functions. Solution of trigonometric equations. Heights and distances.

MENSURATION : Perimeter and area of a triangle, square, rectangle, rhombus, trapezium, quadrilateral and circle. Volume and surface area of cube, right prism, cylinder, cone and sphere.

GEOMETRY : Point, line, collinear points, intersecting and non-intersecting lines in a plane. Family of lines, concurrent lines, distance between two parallel lines. Angle-acute, obtuse and right angles. Triangle, its sides and angles. Similarity of triangles. Congurence of triangles. Pythagoras theorem and its converse. Circle. Diameter and circumference of a circle. Arc and sector of a circle. Chord and segment of a circle. Tangent to a circle. Family of concentric circles. Direct and transverse common tangents. Centroid, and orthocentre.

STATISTICS : Collection and tabulation of statistical data. Graphical representation of statistical data, bar diagram, histograms, pie-charts. Measures of central tendency (mean, median, mode). Simple problems on probability.

Matrices and Determinants : Determinants of order 2 and 3, their elementary properties. Definition of a matrix. Types of matrices. Equality of matrices. Operations on matrices. Symmetric & Skew Symmetric matrices. Singular and non-singular matrices. Minors and cofactors. Adjoint and inverse of a matrix. Solution of simultaneous linear equations in 2 and 3 variables.

Coordinate Geometry : Rectangular Cartesian co-ordinates. Distance between two points. Section formulae. Locus of a point. Equation of a straight line in various forms. Angle between two given lines. Condition for two lines to be parallel or perpendicular. Distance of a point from a line. Line through point of intersection of two given lines. Concurrency of lines. Equation of a circle in various forms. Intersection of a circle with a straight line. Equations of tangent and normal to a circle. Intersection of two circles. Parametric representation of equation of a circle. Equations of the parabola, ellipse and hyperbola in the standard forms.

Calculus : Function, its domain and range. Limit, continuity and differentiability of a function. Derivative of sum, difference, product and quotient of two functions. Derivative of algebraic, trigonometric, exponential, logarithmic, hyperbolic and Inverse trigonometric functions. Chain rule. Derivative of functions expressed in implicit and parametric forms. Logarithmic differentiation. Tangents and Normals. Maximum and Minimum values of a function. Integration as the inverse process of differentiation. Integration by parts, by substitution and by partial fractions. Integration of rational and irrational functions. Definite integral and its application for the determination of area (simple cases).

PHYSICS

Marks: 40 (40 Questions)

Syllabus :

Unit & Dimensions: SI Units

Motion : Uniform and non-uniform motion (qualitative idea only), displacement, speed and velocity, acceleration, equations of motion. Projectile, circular motion & concept of relative motion.

Force : Definition, Inertia of a body, balanced and unbalanced forces, relationship between force, acceleration and mass of an object, action and reaction of forces. Newton's law of motion.

Gravitation : Laws of gravitation, acceleration due to gravity.

Work : Work done by a force, relation between work and energy, kinetic energy and potential energy. angular momentum, torque equilibrium of rigid bodies. Hooks law, Youngs modules, Shear & Bulk modules.

Wave Motion : Nature of wave, propagation of a wave through a medium, type of waves; longitudinal, transverse, simple harmonic motion (graphical representation), amplitude of wave, relationship between wave length, frequency and velocity of wave. Superimposition of waves, progressive waves, stationary waves, vibration strings, air columns, reasonance. Beats, velocity of sound, Echo, Doppler effect.

Light : Perception of energy carried by light waves, human eye structure and function of human eye, focal length of eye-lens, image formation on the retina, perception of color-composition of white light. Rectilinear propagation of light. Reflection and refraction at plane and curved surface, total internal reflection and critical angles. Deviation and dispersion of light by a prism. Thin lens, combinations of mirror and lens, magnifications, microscope, telescope.

Heat : Mechanical work and heat, heat and temperature, measurement of temperature, specific heat, thermal expansion, change of state, idea of latent heat, idea about relative humidity. Thermal expansion of solids, liquids and gases. Kinetic theory of gases, specific heats, Isothermal and adiabatic process, laws of thermodynamics & their applications, Stefans law and Newton's law of cooling

Electricity : Conductors and resistors, measurement of current, potential difference and resistance. Heating effect of electric current, quantitative relationship between heat, current, resistance and time of flow of current, electric appliances based on heating effect of current, measurement of electric energy, units of electric power and energy. Coulombs law, electric fields and electric potentials, lines of forces. Capacitance, dielectric constant, parallel plate capacitor, capacitor in series and parallel, energy stored in capacitor, charging and discharging of capacitors. Electric current, Ohm's law, series and parallel arrangements of resistances and cells. Kirchoffs law and its applications to network, heating effects of current.

Magnetic effects of electric Current : Magnetic field of a current carrying conductor, coil and solenoid, electric motor & its applications, Electromagnetic induction. Biot-Savart's law and its application. Force on a moving charge and on a current carrying wire in magnetic field. Magnetic moment of a current loop, effect of a uniform magnetic field on current loop, moving coil glavanometer, voltmeter, ammeter. Electromagnetic induction, Faraday's and Lenz's law, definitions of self and mutual-inductance..

Reference Book : Physics Class XI and XII Published by NCERT.

CHEMISTRY

Marks : 40 (40 Questions)

Syllabus :

Matter-Nature and Behaviour : Nature and behaviour of different types of substances, elements, compounds and their mixtures, structure of matter, atomic theory, molecules and atom; Structure of atom-electrons, protons and neutrons; composition of nucleus-atomic number and mass number, distribution of electrons in different energy levels in an atom, valence electrons and valency.

Atomic Mass and Molecular Mass: Mole concept, percentage composition of compounds.

Physical and Chemical Changes: Combination, displacement, decomposition, slow, fast, exothermic and endothermic reactions, catalyst; chemical equations.

Electrochemical Cell: Construction and working of a simple voltaic cell; lead storage battery and dry cell; electrolysis-movement of ions during electrolysis; Faraday's Laws; electroplating.

Fuel : Type of fuels, coal; natural fuels, conditions for combustion, heat produced during combustion, combustion of food in living organisms.

Mineral Cycles : Carbon cycle, nitrogen cycle, nitrogen fixation, oxygen cycle, oxidation process, water cycle, role of energy in different cycles.

Water : Water a natural resource, origin of life in it, a medium for the activity of the living, a solvent, uses, saturated and unsaturated solution, sea water as habitat of organism, salts from sea.

Air : Composition, Atmosphere & its role in radiation, Carbon dioxide and its diverse effects on living organism, role of trees, release of carbon dioxide from fossils, fuels and automobiles, corrosion of metals, damage of historical monuments from acidic gases, effect of metallic particles, asbestos, etc., on living organisms. Carbon monoxide and its ill effects, air pollution and its effects on human beings.

Dependence of Man on Natural Resources : Minerals from earth, metals and non-metals, uses of non-metals.

Carbon and its Compounds : Introduction, allotropes of carbon and their occurrence, structure, related properties and uses; hydrocarbons - their elementary structure, properties and uses; isomerism (elementary idea); simple compounds of carbon, hydrogen and oxygen and their uses; petroleum products; introductory account of synthetic fibres, plastics, rubber, soaps and detergents.

Extraction of Metals : Metals and non-metals (Si, P,S) occurrence, properties and uses; general metallurgical operations for extraction of pure metal (extraction of copper, iron and aluminum). Properties of metals, uses of metals and non-metals; properties of some alloys (brass, gunmetal, German silver, Solder, bronze), uses at home and in industry.

Atomic Structure & Classification of Elements: Rutherford's Model, spectra of hydrogen atom, Bohr's model, quantum numbers, Pauli's exclusion principle, Hund's rule, Aufbau's principle, electronic configuration of elements, shapes of s,p and d orbitals. Periods and groups, classification of elements with respect to s, p and d-block, periodicity in properties, namely atomic and ionic radii, ionization energy, electronegativity and oxidation states.

Stoichiometry : Calculations involving common oxidation reduction, neutralization and displacement reactions.

Behaviour of Gases : Avogadro's Law, equation of state and ideal gas, Vander waal's equation, diffusion of gases, kinetic theory of gases, average, root mean square and most probable velocity and their relation with temperature, Gay Lussac's Law.

Solutions : Expressing concentration in terms of mole fraction, molality, molarity and normality, Raoult's Law and molecular weight determination from lowering of vapour pressure.

Chemical Equilibrium, Kinetics and Energetics: Law of mass action, equilibrium constants Kc, Kp and their relationships, Le-Chatelier's principle and its applications, ionic equilibria in aqueous solutions, solubility product, common ion effect, acid-base theories (Bronsted and Lewis), hydrolysis of salts, pH, buffer solutions. Rate of reaction, order of reaction, molecularity, rate constant and half-life period of first order reaction, variations of rate constant with temperature (Arrhenius equation). Heat of formation, heat of combustion and heat of reaction, Hess's Law, bond energy.

Electrochemistry : cell reactions, Nernst equation, standard potential, and electrochemical series, e.m.f. of cells involving the following electrodes only: Zn/Zn^{++}, Fe^{++}/Fe^{+++}, Sn/Sn^{++}, $(Pt)H_2/H^+,Cl_2(Pt)$.

Ores and Minerals : Commercially important ores of iron, tin, silicon, aluminum, lead, iron, copper, silver and zinc with their extractive metallurgy (chemical principles and reactions only, industrial details excluded). i) Carbon reduction method (iron and tin); ii) Self reduction method (copper and lead); iii) Electrolytic reduction method (magnesium and aluminum); iv) Cyanide process (silver).

Transition elements (only the first series) definition, general characteristics properties viz. variable oxidation states, colour [details of electronic transition excluded], paramagnetism, [formation of complexes, stereochemistry excluded].

Preparation and Properties of the following Compounds : Oxides, hydroxides, carbonates, bicarbonates, chlorides and alums, oxides and chlorides of tin and lead, ferrous sulphate, Mohr's salt, ferric oxide and ferric chloride, copper sulphate, oxide and sulphate of zinc, silver nitrate and silver bromide. Hydrogen peroxide and carbides, silicones and silicone carbides, nitrogen and phosphorous, oxides and oxy acids of ammonia, fertilizers, sulphur oxides, sulphurous and sulphuric acids, sodium thiosulphate and hydrogen sulphide, halogens, oxyacids of chlorine, bleaching powder.

Isolation, Preparation and Properties of Non-Metals : Silicon, nitrogen, phosphorous, oxygen, sulphur, fluorine, chlorine, bromine and iodine (preparation and properties of ozone included).

Alkanes, Alkenes, Alkynes and Benzene: Preparation of alkanes (Wurtz reaction and decarboxylation reaction), substitution reaction of alkanes (including mechanism). Preparation by dehydrohalogenation of respective alkyl halides and by dehydration of alcohols, addition reactions (Markownikoff's and anti-Markownikoff's rule including mechanism, ozonolysis). Benzene structure, properties, nitration, sulphonation, halogenation, acylation and alkylation reactions, effect of o-, p- and m- directing groups in monosubstituted benzenes.

Characteristics Reactions of following Organic Compounds: Alcohols (esterification, dehydration, oxidation, reactions with sodium, phosphorous halides and zinc-chloride/conc.HCl), phenols (halogenation, nitration, sulphonation and Reimer-Teimann reaction), aldehydes and ketones (oxidation, reduction, oxime and hydrazone formation, aldol condensation, Cannizaro's reaction, haloform and Grignard reactions).

Model Objective Type Questions

Fill the choice of the alternative you think to be correct answer in the OMR answer sheet.

Q.1 The house burnt for hours before the blaze was put…….

(a) off (b) away (c) out (d) up

Q.2 nth derivative of a^x is:

(a) a^x (b) $a^x \log a$ (c) a^{nx} (d) $a^x(\log a)^n$

Q.3 The instrument which measures temperature by radiation is called :

(a) Thermopile (b) Thermometer (c) pyrometer (d) Galvanometer

Q.4 The reaction of formation of ethyl alcohol from ethyl bromide in the presence of aq. KOH is

(a) Addition reaction (b) Elimination reaction (c) Substitution reaction (d) None of these

CHAPTER - V

[A] B.E.(4-Yr.) (ADMISSION THROUGH JEE (Main))

5.1 B.E. PROGRAMME (4-Yr.)

Institute runs B.E.(4-Yr.) programme in various disciplines of engineering and technology.

(a) Eligibility: Candidates are advised to refer to JEE (Main)-2015 website. The eligibility conditions of JEE (Main) -2015 will be applicable.
(*The decision of Admission Committee regarding equivalency shall be final and binding upon the candidate).

(b) Duration: The duration of B.E. Programme is 4 years.

(c) Disciplines & Seats: Available disciplines of study and information regarding distribution of seats are given in **Table 5.1. Reservation of seats will be as per Govt. of India norms (Refer section 2.9)**

Table 5.1 Intake and Distribution of Seats for BE(4-Year) in Academic Session 2015-16

S.No	Branch of Engineering	TOTAL SEATS
1.	Chemical Engineering	30
2.	Food Technology	30
3.	Computer Science & Engineering	60
4.	Electronics & Communication Engineering	30
5.	Instrumentation & Control Engineering	30
6.	Electrical Engineering	60
7.	Mechanical Engineering (Manufacturing Engineering)	35
8.	Mechanical Engineering (Welding Technology)	35
	Total	**310**

Considering different schemes of scholarship as per Govt.norms the number of seats may increase.

(d) Admission Procedure: Admission will be done through JEE (Main) – 2015. Eligible candidates will fill the application form of JEE (Main) – 2015. Subsequently counseling will be done by CSAB-2015. All candidates are advised to refer to website of JEE (Main) – 2015 (www.jeemain.nic.in) and CSAB -2015 (www.nitp.ac.in) for further details.

(e) Fee Structure for B.E. (4-Yr.): Detailed fee structure is in Section 2.10.

Note : The fee structure may be revised from time to time with the approval of competent authority

[B] B.E. (Lateral Entry) (SET-III)

5.2 B.E.(Lateral Entry)

Bachelor of Engineering is a continuation of technical expertise acquired in corresponding Diploma programmes and offers an opportunity to Diploma holders to obtain Bachelor Degree in Engineering.

(a) Eligibility: All candidates who have passed Diploma course in any discipline from SLIET or from any other polytechnic affiliated with any State Board of Technical Education and approved by All India Council for Technical Education (AICTE), securing **55% marks (50% in case of candidates belonging to reserved categories)** are eligible to compete for admission to the appropriate B.E. programmes as given in **Table 5.2**.
Those who are appearing in final examination may also apply.

(b) Duration: The candidates who get admission in B.E. through lateral entry will have to spend 3 Yrs to complete their course.

(c) Disciplines & Seats: Available disciplines of study and information regarding distribution of seats are given in **Table 5.3. General principles relating to reservations are given in Section 2.9.**

(d) Admission Procedure: There are two categories of seats in this programme as given in **Table 5.3.**
(i) Vertical Entry Seats (ii) Direct Entry Seats
The admission to both the categories will be based on All India SLIET Entrance Test (SET-III). There will be cutoff mark for admission. The admission procedure to these two categories is as under:-

(7) **Vertical Entry Seats (*Only for SLIET students admitted in the year 2013*):** There shall be vertical mobility of 50% of the sanctioned strength in each Diploma programme of SLIET to B.E. programme. The linkage between Diploma and B.E. modules is illustrated in **Table 5.4.** For vertical promotion from Diploma to B.E against these reserved seats, the Diploma students shall apply in Entrance Test (SET-III). Such students are required to apply through online mode. However, the students admitted under Persons with Disabilities (PWD) and Non Resident Indians (NRI) category will not be eligible for Vertical Entry Seats. A SLIET student will be eligible for admission under this category who had got admission to Diploma course in 2013-2014 and not earlier and had completed the Diploma course in the prescribed period of normal study i.e. two years and by availing only prescribed chances to clear a subject. The admission to these seats will be on the basis of merit of All India SLIET Entrance Test (SET-III) and linkage shown in **Table 5.4.** If any Vertical entry seats remain vacant, it shall be filled by Direct entry category.

(7) **Direct Entry Seats (*For outside candidates and SLIET students*):** All candidates possessing entry qualification (Diploma) prescribed as per **Table 5.2** are eligible to compete for direct entry seats for various B.E. programmes as per **Table 5.3**. The admission to these seats is on the basis of merit of the All India SLIET Entrance Test (SET-III) conducted by the institute.

Table 5.2

Engineering Group	Diploma Stream
GROUP-A : Electrical, Electronics & Computer Group For Group-A, admission will be in following courses : 1. Computer Science & Engineering (GCS) 2. Electronics & Communication Engg. (GEC) 3. Instrumentation & Control Engineering (GIN) 4. Electrical Engineering (GEE)	Information Technology, Computer Science & Technology, Computer Engineering, Hardware Engineering / Technology, Software Engineering / Technology, Bio-Computer Engineering, Instrumentation & Measurement, Instrumentation Biomedical Engineering, Applied Electronics & Instrumentation, Telecommunication Engineering, Microwave Technology, Power Engineering, Electrical & Electronics Engineering, Instrumentation & Control Engineering, Electrical Engineering, Electronics & Communication Engineering, Computer Science & Applications, Instrumentation & Process Control OR Equivalent*
GROUP-B : Mechanical Group For Group-B, admission will be in following courses : 1. Mechanical Engineering (Manufacturing Engineering) (GME) 2. Mechanical Engineering (Welding Technology) (GWT)	Material Science & Technology, Metallurgical Engineering, Metallurgy & Materials, Ceramic Engineering & Technology, Industrial Engineering, Automation and Robotics Engineering, Industrial Engineering & Management ,Automobile Engineering, Energy Management Technology, Non-conventional Engineering Technology, Manufacturing Engineering, Mechanical Engineering, Foundry Technology, Industrial & Production Engineering, Maintenance & Plant Engineering, Welding Technology OR Equivalent*.
GROUP-C : Chemical & Food Group For Group-C, admission will be in following courses : 1. Chemical Engineering (GCT) 2. Food Technology (GFT)	Petroleum, Petrochemical, Biotechnology, Food Technology, Biochemical Engineering, Pulp and Paper Technology, Sugar Technology, Leather Technology, Plastics & Rubber Technology, Polymer Engineering, Polymer-science & Rubber Technology, Oil Technology, Paint Technology, Food Engineering, Agricultural Engineering, Agricultural & Food Engineering, Food Processing, Chemical Engineering & Technology OR Equivalent*.

***The decision of Admission Committee regarding equivalency shall be final and binding upon the candidate.**

TABLE 5.3 : Distribution of Seats(SET-III) for B.E. (Lateral Entry) for the Academic Session 2015-16

Sr. No.	Discipline	Seats Available	Seats for Vertical Entry*	Seats for Direct Entry*
1.	Chemical Engineering **(GCT)**	40	23	17
2.	Food Technology **(GFT)**	39	23	16
3.	Computer Science & Engineering **(GCS)**	74	47	27
4.	Electronics & Communication Engineering **(GEC)**	41	24	17
5.	Instrumentation & Control Engineering **(GIN)**	45	23	22
6.	Electrical Engineering **(GEE)**	07	00	07
7..	(a) Mechanical Engineering–(Manufacturing Engg.) **(GME)**	52	46	6
	(b) Mechanical Engineering–(Welding Technology) **(GWT)**	53	46	7
	TOTAL	**351**	**232**	**119**

* Seats shown under category are indicative. Considering different schemes of scholarship as per Govt.norms the number of seats may increase.

TABLE 5.4: Linkage between various Diploma and B.E. Programmes for Academic Session 2015-16 (Vertical Entry)

	DIPLOMA PROGRAMME		B.E. PROGRAMME
1.	Computer Science & Applications Computer Science & Engineering Electronics & Communication Engineering Instrumentation & Process Control	50% 50% 50% 50%	**(Group-A)** Computer Science & Engineering Electronics & Communication Engg. Instrumentation & Control Engg.
2.	Industrial & Production Engineering Maintenance & Plant Engineering Welding Technology Foundry Technology	50% 50% 50% 50%	**(Group-B)** Mechanical Engineering. (i) Manufacturing Engineering (ii) Welding Technology
3.	Chemical Technology Food Technology	50% 50%	**(Group-C)** Chemical Engineering Food Technology

(f) Principles of Vertical Admission (from Diploma to B.E. Programme)

Admission to the vertical entry seat in B.E. programme shall be 50% of the sanctioned strength of the students in a particular Diploma Programme in 2013-2014 and not earlier. If a student from promoted candidates do not claim admission in a trade or a seat falls vacant afterwards in a trade, then that seat will be offered to next eligible candidate in that trade.

(f) Entrance Test Schedule :

Test	Date	Time
SET-III (B.E. (Lateral Entry))	26th April, 2015	14.30 – 17.00 Hours

(g) Fee Structure for B.E. Programme : Detailed fee structure is in Section 2.10

Note: The fee structure may be revised from time to time with the approval of competent authority.

SYLLABUS OF SLIET ENTRANCE TEST (SET-III) FOR ADMISSION TO B.E. (lateral Entry), 2015

PATTERN OF SET-III

SLIET Entrance Test (SET-III) for admission to B.E. (Lateral Entry) will consist of one paper of two and half hours duration. This paper will have 150 objective type questions of 150 marks from English, General Knowledge, Mental Aptitude, Mathematics, Physics, Chemistry and Basics of Engineering (**appropriate group**).

Note : ***Answers of the objective type questions are to be filled in the OMR answer sheet given separately during the Examination. <u>There will be 25% negative marking for wrong answers</u>.***

SYLLABUS AND MODEL QUESTIONS

Marks: 150 **Time: 2½ Hours**

GENERAL KNOWLEDGE, MENTAL APTITUDE & ENGLISH

Marks: 20 (20 Questions)
Syllabus :

The paper will include questions covering the following topics:-
1. General Science
2. Current events of National and International importance
3. History of India
4. Indian Politics and Economy
5. Indian National Movement
6. General Mental ability
7. Idioms/Phrases
8. Usage of Tenses
9.Change the form of Narration
10. Fill in the blanks with suitable words.

MATHEMATICS

Marks: 20 (20 Questions)
Syllabus :

Algebra : Solution of quadratic equations, relationship between their roots and coefficients. Equations reducible to quadratic equation. Symmetric Functions of roots. Formation of a quadratic equation with given roots. Arithmetic progression, Geometric progression and Arithmetico-Geometric series. Series of natural numbers ($\sum n$, $\sum n^2$, $\sum n^3$). Mathematical induction. Permutations and Combinations. Binomial theorem for any index.

Trigonometry : Trigonometric ratios and their relations. Trigonometric Identities. T-ratios of allied angles. Addition and Subtraction formulae. Transformation of product into sum or difference and vice-versa. T-ratios of multiple and sub-multiple angles. Heights and distances. Solution of Trigonometric Equations.

Coordinate Geometry : Rectangular Cartesian coordinates. Distance between two points. Section formulae. Locus of a point. Equation of a straight line in various forms. Angle between two given lines. Condition for two lines to be parallel or perpendicular. Distance of a point from a line. Line through point of intersection of two given lines. Concurrency of lines. Equation of a circle in various forms. Intersection of a circle with a straight line. Intersection of two circles. Equations of the parabola, ellipse and hyperbola in the standard forms.

Calculus : Function, its domain and range. Limit, continuity and differentiability of a function. Derivative of sum, difference, product and quotient of two functions. Derivative of algebraic, trigonometric, exponential, logarithmic, hyperbolic and Inverse trigonometric functions. Chain rule. Derivative of functions expressed in implicit and parametric forms. Maxima & Minima. Equation of tangent and normal. Integration as the inverse process of differentiation. Integration by parts, by substitution and by partial fractions. Integration of rational and irrational functions. Definite integral and its application for the determination of area (simple cases).

CHEMISTRY

Marks: 15 (15 Questions)

Atoms, Molecules and Chemical Arithmetic: Symbols, formulae, oxidation, reduction, oxidation number, balancing of simple chemical equations, mole concept, empirical formulae and molecular formulae.

Chemical families – Periodic Properties: Mendeleev's and Modern periodic tables, classification of elements into s, p, d and f blocks, periodic properties (ionization potential, electron affinity, atomic and ionic radii, oxidation states).

Atomic Structure, Bonding and Molecular Structure: Bohr's theory, brief description of hydrogen spectrum, the wave nature of matter, de-Broglie's theory, Uncertainty principle, Quantum numbers, Pauli's exclusion principle, Hund's rule of maximum multiplicity, shapes of orbitals, electronic configuration of atoms upto atomic no. 30. Types of bonding (ionic, covalent and co-ordinate covalent), Lewis structure, VSEPR theory, Molecular orbital theory and molecular shapes, hybridization (sp, sp^2 and sp^3) and molecular structure, hydrogen bond, metallic bond, Vander Waals forces.

PHYSICS

Marks: 15 (15 Questions)

Description of Motion : Motion in a straight line, uniform motion, speed and velocity, equation of motion in a straight line, position time graph, instantaneous velocity and acceleration, motion in two dimensions, projectile motion, uniform circular motion, torque, angular momentum, conservation of angular momentum, centripetal and centrifugal forces, centre for mass, motion of centre of mass and momentum conservation.

Moment of Inertia: Moment of Inertia (M.I.) of rigid body, radius of gyration, theorem of parallel and perpendicular axes, M.I. of a straight rod, circular ring, circular disc, relation between torque and M.I., kinetic energy, motion of point mass tied to the string to the wound on a cylinder, motion of cylinder rolling without slipping on an inclined plane.

Kinetic Theory of Gasses: Boyle's and Charles's laws, gas equation, gas constant, pressure exerted by gas, kinetic energy of molecules, kinetic interpretation of temperature, derivation of gas laws from kinetic theory of gases.

Electromagnetic Waves, Atomic and Nuclear Physics: Production and properties of e.m. waves, e.m. spectrum, nature and velocity of e.m. waves, propagation of radio waves in earth's atmosphere, photoelectric effect, laws of photoelectric effect, production of x-rays, soft and hard x-rays, uses of x-rays, Radio activity laws, half life and average life for radioactive materials, nuclear fission and fusions.

Objective Type Questions

Fill the choice of the alternative you think to be correct answer in the OMR answer sheet.

Q1. A ball thrown up is caught by the thrower 4s after start. The height to which the ball has risen is (assuming g =10 m/s^2)

(a) 20 m (b) 10m (c) 400m (d) 2m

Q2. What determines the nature of path followed by the particle?

(a) speed (b) velocity (c) acceleration (d) none of these

BASICS OF ENGINEERING

GROUP – A (Electrical, Electronics and Computer Group)

Marks : 80 (80 Questions)

Operating System: Introduction to various operating systems, single user, multiuser, batch processing, time sharing, real time, multiprogramming and multiprocessing systems, distributed computing, resources management, memory management; **System Software:** Introduction, system software, application software, compilers, assemblers, loaders, linkers; **Application Development:** Algorithms and flowcharts, program writing, debugging and execution, compilation, interpretation, programming using C language, Object Oriented Programming concepts; **Information Technology (IT):** Internet and its applications, web browser, E-mail; e-marketing & e-payment **Data management and organization:** Introduction to databases, architecture and structure of DBMS, data models; **Introduction to data structure** : arrays, linked list, stacks and queues; **Computer Networks:** Applications, introduction to OSI and TCP/IP, Networking topologies/technologies; **Latest Technologies:** Latest processor and memory configurations and related technologies. **Software Engineering:** Software Development Life Cycle, Software metrics, Coding and Testing; **Computer System Architecture:** Number system, Boolean Algebra, K-map, Instruction formats, Addressing modes, I/O interfacing, Control unit organization, Pipelining, Cache and main memory, Modes of data transfer.

Conductors, semiconductors, insulators, Extrinsic & Intrinsic semiconductors. PN Junction Diode - its V-I characteristics, Rectifiers, filters. BJT - various transistor configurations, their input/output characteristics. FET, MOSFET their construction & characteristics. Modulation - Need & types of modulation (AM, FM, PM). Radio Receivers - TRF & superheterodyne. Pulse modulation PAM,PCM,, PWM, PPM. Logic gates - Definition, symbols & truth table of NOR, OR, AND, NAND, EX-OR gates, various Flip Flops (SR, JK, T, D), Registers & Counters. Operational Amplifier - Inverting & Non inverting amplifiers, Op Amp as an inverter, scale changer, adder, subtractor, differentiator, integrator.

AC fundamentals: single phase, rms value, peak to peak value, average value. RL, RC & RLC circuits, Power & Power factor, power measurement. **DC& AC Bridges:** Wheatstone bridge, Maxwell's Bridge, De-Sauty's Bridge, Owen's Bridge, Kelvin's Double Bridge, Hay's Bridge. **Network Theorems:** Thevenin's, superposition, Norton, maximum power transfer theorem, reciprocity and Tellegen's theorems. **Electromagnetic & Magnetic circuits:** Principle of AC & DC machines and Transformers. **DC Circuits:** Circuit components (resistor, inductor and capacitors) and DC Circuits resonance. Errors in measurement system, Galvanometer, PMMC and Moving iron instruments, DC potentiometers, Multimeter, LED/LCD/Segment Displays, CRO, Basic components of instrumentation system, sensors & transducers, resistive, capacitive & inductive transducers. **Signal Conditioning:** A/D and D/A converters, filtering and impedance matching, operational amplifiers.

GROUP – B (Mechanical Group)

Marks : 80 (80 Questions)

Thermal Engineering: Basic concepts, thermodynamic properties: intrinsic and extrinsic, open, closed and isolated systems, heat and work, specific heat, thermal and thermodynamic equilibrium, Zeroth law and first law of thermodynamics, internal energy, entropy, enthalpy. Clausius and Kelvin-Plank statement of second law, different thermodynamic processes like isobaric, isochoric, isothermal, and reversible adiabatic, C.I. engine, S.I. engine, Otto Cycle, Diesel Cycle, Carnot Cycle, Steam Formation: Dry, Wet Steam, Dryness Fraction

Applied Mechanics, Strength of Material and Machine Design: Concept of mechanics and applied mechanics, laws of forces, moments, friction and laws of motion. Stress & strain, concept of load, tensile, compressive, shear stress, torsion, Bending Moments and strains. Columns, Springs, Beams, stress concentration, types of loading, theories of failure, factor of safety, endurance limit, efficiency of riveted and welded joints, keys and its types, stress in shafts, design of shafts (solid and hollow).

Fluid Mechanics: Concept of fluid, fluid mechanics and hydraulics, properties of fluid (viscosity, specific weight, specific volume, specific gravity) with their units. Pascal's law, concept of atmospheric pressure, gauge pressure, absolute pressure, vacuum and differential pressure, Buoyancy, Centre of Buoyancy, Metacentre, Metacentre Height and Application.

Manufacturing Engineering & Management: Introduction and classification of engineering materials, thermal, chemical, electrical and mechanical properties of commonly used engineering materials. Purpose of heat treatment, various heat treatment processes like cyaniding, nitriding, hardening, case hardening, annealing, normalizing, tempering, and their applications. Arc and gas welding processes, pattern materials and pattern allowances used in pattern making, cores, basic foundry processes and powder metallurgy. Different machining operations, principles of operations, cutting tools and machine tools used to carry out turning, milling, drilling, shaping & planning operations. Quality control, control charts, acceptance sampling, TQM. Plant location, layout and line balancing. Types of plant layouts. Inventory control, Inventory classification, and EOQ and ABC analysis.

GROUP – C (Chemical and Food Group)

Marks : 80 (80 Questions)

Chemical Engineering Thermodynamics: Laws of thermodynamics, thermodynamic properties, general thermodynamic relationships. Application for open/closed systems and reversible/irreversible processes, Raoult's Law. Chemical reaction equilibrium.

Chemical Reaction Engineering: Molecularity and order of reaction, reaction kinetics, different types of ideal reactors and their performance equations.

Heat Transfer: Different modes of heat transfer with governing relationships, Fourier's law, Steady state heat transfer through plain and composite slab, Cylindrical and spherical surfaces, Natural and forced convection, Radiation heat transfer. Heat transfer equipments and their industrial applications.

Mass Transfer: Fick's law of diffusion, Mass transfer operations and their applications, Molecular diffusion, eddy diffusion, diffusion in solids. Simple (differential) distillation, Rectification (Fractionating column) distillation, crystallization, drying - Moisture content on dry and wet basis, Equilibrium moisture content, Constant and falling rate phase calculations, Critical moisture content, absorption, equipment for separation and industrial application.

Unit operations: Calculation of energy required in grinding by Ritinger's law and Bond's law, Mixing index, Rate of mixing, agitation, Constant rate filtration, constant pressure filtration, Filter cake compressibility, Centrifuge equipment like cream separator and clarifiers used in dairy industry, crystallization.

Fluid flow: Physical properties of fluid, Classification of fluid flow, Continuity equation, Bernoulli's theorem, Concept of Reynold's number and its determination, Flow through parallel plates and circular pipes, Different type of pumps like centrifugal, reciprocating, rotary and piston displacement pumps, Concept of viscosity, Newtonian and non-Newtonian fluids.

Material and Energy balance: Material and energy balance calculation in processes with recycle/bypass/purge.

Chemical Process Industries: Raw material and process description for the manufacturing of ammonia, urea, ammonium phosphate, cement, soda ash, caustic soda, glass, sulphuric acid, hydrochloric acid and nitric acid.

Process Instrumentations: Instruments for temperature, pressure, liquid level, flow and pH measurement.

Environmental Engineering and Safety: Different types of liquid, air and solid pollutions from industries, effect of chemical pollution on ecology and environment. Pollution control methods. Hazards from wastes, toxic gases, chemicals; symptoms and their remedial action. Fire, noise pollution in industry and their control.

Food Chemistry and Microbiology : Classification, physical and chemical properties of carbohydrates, proteins, lipids; types of pigments, vitamins and minerals; morphology, methods of reproduction and types of bacteria and fungi; microbiology of various food products.

Food Process Technology: Milling of cereals and pulses; oil extraction methods; standardization, homogenization and pasteurization of liquid milk; meat and poultry processing; production of alcoholic and non-alcoholic beverages; technology of manufacturing of fruits and vegetable products; different preservation techniques in foods.

Food Analysis and Quality Control : Quality attributes; food adulteration and its detection; physico-chemical and mechanical properties of foods; sensory evaluation; HACCP; Food Safety and Standards Act.

CHAPTER - VI

M.TECH. PROGRAMME

The objective of M.Tech. programme is a continuation of technical expertise acquired in qualifying Degree Programmes. This will also offer the opportunity to the candidate to acquire skill to work on R&D projects and to promote industry institute interaction.

a) Eligibility :

1) Holds a B.Tech. / B.E. / B.Sc. (Engg.) Degree of recognized University/Institute in the appropriate branch.

OR

has passed Section 'B' of the Institution of Engineers (India) in appropriate branch or Grade IETE and has three years of professional experience in reputed organization. The candidates must have secured at least 60% marks (55% in case of candidates belonging to reserved categories) in aggregate in qualifying degree.

2) Must have a valid GATE score.

3) For appropriate branches at graduate level eligible for admission in various M.Tech. courses, candidates are advised to refer to website CCMT – 2015.

4) For Industry-Institute sponsored category seats, appropriate branches for admission in various M.Tech. courses are as under :

i) M.Tech. (Manufacturing Systems Engineering): Candidate should have B.E./ B.Tech. Degree in Mechanical Engineering/ Manufacturing Engineering / Production Engineering / Industrial Engineering or equivalent*

ii) M.Tech. (Welding and Fabrication): Candidate should have B.E./ B.Tech. Degree in Mechanical Engineering / Manufacturing Engineering /Welding Technology / Production Engineering / Industrial Engineering or equivalent*

iii) M.Tech. (Food Engineering & Technology): Candidate should have B.E./B.Tech. or equivalent in Food Technology / Food Engineering / Agricultural & Food Engineering/Food Processing & Preservation/Food Processing Engineering/Food Processing Technology or equivalent*.

iv) M.Tech. (Instrumentation & Control Engineering): Candidate should have B.E./ B.Tech. Degree in Electrical Engineering or Instrumentation & Control or Electrical and Electronics Engineering or Instrumentation Engineering or Electronics Engineering or Computer Engineering or Electronics & Instrumentation Engineering or Electronics & Communication Engineering or equivalent*

v) M.Tech. (Chemical Engineering): Candidate should have B.E. / B.Tech. or equivalent in Chemical Engineering/ Chemical Technology/Chemical Engineering (Plastic and Polymer)/Chemical and Polymer Engineering/ Chemical & Alcohol Technology/ Chemical and Bio-Engineering or equivalent*

vi) M.Tech. (Electronics & Communication Engineering): Candidate should have B.E./ B.Tech. Degree in Electronics & Communication Engineering or Electrical and Electronics Engineering or Electronics & Instrumentation Engineering or Computer Engineering or equivalent*

vii) M.Tech. (Computer Science & Engineering): Candidate should have B.E./ B.Tech. or equivalent Degree in Computer Engineering/ Computer Science & Engineering/ Computer Technology/Computer Science/Information Technology/Computer Science and Information Technology/ Computer Science and System Engineering/ Computer Engineering & Applications.

NOTE: In addition to above appropriate branches for courses at SLIET, Longowal as mentioned at the CCMT-2015 website are also valid.

(*The decision of Admission Committee regarding equivalency shall be final and binding upon the candidate).

b) Duration: The duration of M.Tech. programme is 2 years.

c) Disciplines & Seats: Available discipline of study and information regarding the distribution of seats are as given Table 6.1. Reservation of seats will be as per Govt. of India rules (Refer section 2.9) **but the same will not apply to Industry-Institute sponsored seats mentioned below :**

TABLE 6.1: Intake and Distribution of Seats

S.No.	Name of the Department	Name of M.Tech. Programme	Sanctioned Seats*	Open	Industry-Institute Sponsored
1.	Mechanical Engineering (ME)	M.Tech. in Manufacturing Systems Engineering **(PG-MSE)**	36	31	05
2.	Mechanical Engineering (ME)	M.Tech. in Welding and Fabrication **(PG-WLF)**	25	20	05
3.	Food Engineering & Technology (FET)	M. Tech. in Food Engineering & Technology **(PG-FET)**	25	20	05
4.	Computer science and Engineering	M.Tech. in Computer science and Engineering **(PG-CSE)**	25	20	05
5.	Electrical & Instrumentation Engineering (EIE)	M.Tech. in Instrumentation and Control Engineering **(PG-ICE)**	25	20	05
6.	Chemical Engineering (CE)	M.Tech. Chemical Engineering **(PG-CE)**	25	20	05
7.	Electronics & Comm. Engg. (ECE)	M.Tech. in Electronics & Communication Engineering **(PG-ECE)**	25	20	05

- *The vacant seats under industry/institute sponsored category shall not be shifted to any other category.*
- *There shall be no reservation or quota etc. on territorial basis for admission to M. Tech./P.G. Programmes.*

**** Minimum number of students to run above programmes shall be as per senate decision.***

d) Admission Procedure:

(i) Admission to M.Tech. will be through Centralized Counselling for M.Tech. (CCMT-2015)*. Candidates interested in M.Tech. admission at SLIET should visit CCMT-2015 website "www.ccmt.in". For Institute spot admission as per CCMT-2015 schedule and Industry-Institute sponsored seats to be filled by the Institute, follow Institute websites www.sliet.ac.in for announcement in this regard. Two teaching assistantships amounting Rs.8000/- per month for a period of maximum two years or till the availability of funds under TEQIP-II Project will be granted under each M.Tech. Programme to the meritorious students as per Institute Policy and terms & conditions applicable under TEQIP-II..

*CCMT-2015 means Centralized Counselling for M.Tech. / M.Plan in NITs and CFTIs to be conducted by NIT, Rourkela for the session 2015-16 (website: www.ccmt.in).

There shall be a minimum number of students required to run the course as approved by the senate.

(ii) Conditions for Industry-Institute Sponsored Category

- The candidates interested for admission in M.Tech. Programmes under this category shall report for spot admissions as per notified counselling schedule.
- The qualifications / eligibility criterion, fee structure and other details will be similar as for other categories as mentioned in this Chapter.
- Preference will be given to those who have qualified in GATE. If still seats remain vacant, then the admission will be made on the basis of merit of Qualifying Examination.
- The candidate must have a minimum of two years full time experience (after completion of Degree) in a registered Firm/Company/Industry/Education and Research Institutions/any Government Deptts. or Government Autonomous Organizations in the relevant field in which admission is being sought.
- A letter from the employer must be furnished along with application stating that the candidate is being sponsored to get admission. The employer should also indicate that the candidate would not be withdrawn mid-way till the completion of the course **(sample attached at Appendix III)**.
- Candidate will be required to submit his/her last month's verified salary slip from the employer, along with the application.
- In case of any dispute the decision of the Admission Committee will be treated to be final and binding upon the candidate(s).

- The candidate to be admitted under this category is require to deposit fee as per given in Section 2.10

(e) Fee Structure for M.Tech. Programmes (Detailed fee structure is in Section 2.10) :

- Note 1 : The fee structure may be revised from time to time with the approval of competent authority.
- Note 2 : Admission on the basis of GATE does not guarantee the GATE Scholarship. However, Scholarship shall be offered as sanctioned by AICTE, New Delhi.

CHAPTER - VII

M.B.A. PROGRAMME (SET-IV)

The objective of M.B.A. programme is to inculcate ethical professional and managerial skills for effectively managing the various functions of business in the era of globalization and privatization.

(a) Eligibility:

- Candidates should be GATE qualified or should have a valid Score of CAT for corresponding year/CMAT-2015
- B.E./B.Tech./B.Sc. (Engineering)/ Equivalent degree from any AICTE recognized Institute/University with aggregate of 60**% (55% in case of candidates belonging to reserved categories**).

(b) Duration: The duration of the M.B.A. programme is 2 years.

(c) Disciplines and Number of Seats: Total number of seats are 50*. **Reservation of seats will be as per Govt. of India rules** (Refer to section 2.9).

Specialization
Marketing Management
Human Resource Development
Material Management
Labour Welfare and Industrial Relations

**** Minimum number of students to run above programmes shall be as per senate decision.***

(d) Admission Procedure:

i) For admission to MBA Programme, Candidates should be GATE qualified or should have a valid Score of CAT for corresponding year/CMAT-2015 and will have to appear for Group Discussion and Interview at SLIET Longowal.

ii) All the candidates aspiring to get admission in MBA Programme will have to fill the online Application Form of SET-2015 as per schedule.

Note: Admission to MBA programme on the basis of GATE/CAT/CMAT does not make a candidate eligible for scholarship.

(e) Merit List :

- Merit list will be prepared on the basis of marks obtained in GATE/ CAT / CMAT - 2015, group discussion and interview.
- For preparing the merit list, the marks obtained in the GATE/ CAT / CMAT-2015 shall be converted out of 400. Marks for GD and interview will be awarded out of 25 each.
- Final merit list will be made on basis of marks scored in all three components out of 450.
- Institute shall decide the minimum cut off marks for CAT/CMAT-2015 separately.

Group Discussion (GD) [25 Marks]:

The Group Discussion is primarily aimed at assessing the oral communication skills, convincing power and other managerial capability of candidate. The GD will fetch 25 marks and time allowed for one GD will be 30 minutes. A group of 10 candidates on random basis would be selected to participate in each GD out of the candidates. The topics given for the GD would be from current affairs, economics and management.

Interview [25 Marks]

The final stage of the selection process will be an Interview for the candidates undergone earlier stages. The interview will be conducted by a panel of experts consisting of eminent faculty members/persons from industry.

Note: *Result for admission to M.B.A. Programme will be prepared on the basis of marks obtained in all the above three components i.e. GATE/ CAT of the corresponding year / CMAT -2015 , group discussion and interview*

(f) Fee Structure for M.B. A. Programmes : Detailed fee structure is in Section 2.10

Note : The fee structure may be revised from time to time with the approval of competent authority.

CHAPTER - VIII

M.Sc. Programmes

The four semester (two years) M.Sc. Programmes based on credit system comprise of a number of core and elective courses and project work. The focus of various M.Sc. Programmes offered by Science Departments would be to generate post-graduates who are confident of applying their knowledge to practical problems of industry including R&D organizations. The curriculum maintains a balance between basic & applied aspects of the subject concerned to develop analytical skills of the students which shall be helpful in their career option in academic, research & teaching also.

(a) Eligibility:

The minimum eligibility for admission to Master of Science (M.Sc.) Programmes will be at least **55% marks (50% in case of candidates belonging to reserved categories)** in the aggregate in qualifying examination as mentioned hereunder:

(i) **M.Sc.(Physics) :** Recognized B.Sc. Degree with **Physics** as one of the subject.
(ii) **M.Sc.(Chemistry) :** Recognized B.Sc. Degree with **Chemistry** as one of the subject.
(iii) **M.Sc.(Mathematics) :** Recognized B.Sc. Degree with **Mathematics** as one of the subject.

(b) Duration: The duration of the M.Sc. Programmes is 02 years

(c) Disciplines & Seats: Available disciplines of study and distribution of seats are as under. **Reservation of seats will be as per Govt. of India rules.** (Refer section 2.9)

Disciplines	**No. of Seats***
M.Sc. in Physics **(PG-PHY)**	20
M.Sc. in Chemistry **(PG-CHY)**	20
M.Sc. in Mathematics **(PG-MATH)**	20

**** Minimum number of students to run above programmes shall be as per senate decision.***

(d) Admission Procedure:

Candidates have to apply for written test to PU-CET(PG) – 2015, Panjab University, Chandigarh (www.puchd.ac.in) /CUCET-2015/JAM-2015. Candidate qualifying in these examinations will have to apply ONLINE to SLIET Longowal. The successful candidates will be admitted in the same discipline in which he/she has appeared. The detailed counseling schedule for admission to M.Sc. will be displayed on institute website www.sliet.ac.in after declaration of PU-CET(PG) – 2015 result.

(e) Fee Structure for M.Sc. Programmes (The detailed fee structure is in Section 2.10) :

Note: The fee structure may be revised from time to time with the approval of competent authority.

CHAPTER - IX

Ph.D. PROGRAMME (SET-V)

9. Ph.D. Programmes

Creative and productive enquiry is the basic concept underlying the research work. The award of the Ph.D. Degree is in respect of high achievements, independent research and application of scientific knowledge to the solution of scientific and technical problems.

(a) Eligibility:

Master's Degree in Engineering / Technology / Science / Humanities / Management with 60% of marks (55% for reserved categories) in relevant disciplines.

(b) Departments : Admission to Ph.D. programmes is available in following categories :

(i) Full Time (with fellowship)
(ii) *Full Time (without fellowship)

*Some of the students from engineering departments may be considered for Research Assistance ship under TEQIP-II subject to availability of scheme and fund.

Reservations will be as per Government of India norms. (Refer section 2.9)

Sr. No.	Department
1	Chemical Engineering (Ph.D. -CE)
2	Chemistry (Ph.D.-CHY)
3	Electrical & Instrumentation Engineering (Ph.D.-EIE)
4	Electronics & Communication Engineering (Ph.D.-ECE)
5	Humanities (English) (Ph.D.-ENG)
6	Food Engineering & Technology (Ph.D.-FET)
7	Management (Ph.D.-MGT)
8	Mathematics (Ph.D.–MATH)
9	Mechanical Engineering (Ph.D.-ME)
10	Physics (Ph.D.-PHY)
11	Computer Science and Engineering (Ph.D.-CS)

Director, SLIET reserves the rights not to fill the seats if suitable candidates are not found.

(c) Admission Procedure:

(I) The candidates can apply online by 31.03.2015 who fulfill the conditions of eligibility criteria as per the norms of MHRD, Govt. of India in respect to the score card of GATE/NET/CSIR etc.

(II) Candidates fulfilling the eligibility criteria can also apply for Ph.D. Programmes (Full Time without fellowship).

(III) The eligible candidates who have qualified UGC / CSIR(JRF) NET with OR without fellowship / NET(ASRB)/ State level eligibility test(SLET/SET)/ GATE are exempted from appearing for the entrance examination, However they should submit the proof of qualifying the examination. The candidates have to appear for the interview.

(IV) **MERIT List (in case of candidates appearing for the All India SLIET Entrance Test [SET-V]):**

(a)Total marks secured in the SLIET Entrance test (SET-V) will be converted out of 70.
(b)The marks secured in the interview out of 30.
(c) Merit list will be prepared based on the total marks [(a)+(b)] secured by the candidate.

(I) MERIT List (in case of candidates exempted from appearing in the Entrance Test) :

The merit list will be prepared on the basis of:

(a) Total percentage of marks* secured in National Level Test (converted out of 70).

(b) The marks secured in the interview (converted out of 30).

(c) Total marks will be out of 100.

*In case no marks / grade is mentioned on the Certificate of National Level Test and only qualifying criterion is there, such candidate will be awarded 50% marks in the test component. However, if he/she wish to improve the marks in the test component he/she can appear in the written test (SET-V) conducted by the institute.

(VI) The interview will be applicable to all the candidates. Admission will be given on the basis of the combined merit list prepared on the basis of above (IV), (V) and recommendations of interviewing selection panel in each department.

(VII) Part-time admissions are meant only for regular employees of the Institute for which separate notification be issued by the Dean (Academics) office.

(VIII) Decision of interview selection panel will be final in respect of suitability of candidate and his / her qualifications for given department.

(IX) All the Ph.D. candidates will have to complete their course work and get their provisional enrolment confirmed as per Ordinances, Rules & Regulations of Ph.D. Program of SLIET, Longowal as enforced from time to time. The course Research Methodology is compulsory for all selected Ph.D. candidates as per the notification by the UGC (The Gazette of India, July 11, 2009).

(X) The ordinances, rules & regulations for Ph.D. programmes of SLIET, Longowal shall be applicable to all the successful candidates as in force time to time.

(e) Entrance Test Schedule :

Test	Date	Time
SET-V (Ph.D.)	26th April, 2015	14.30 – 16.30 Hours

(f) FEE STRUCTURE FOR Ph.D. PROGRAMME FOR ACADEMIC YEAR 2015-16

Ph.D (Full Time)		
A. REFUNDABLE FEES: (WITHOUT ANY INTEREST) To be paid at the time of admission	Caution Money Institute/Hostel	5000
	Total (A)	**5000**
B. NON REFUNDABLE FEES (To be paid at the time of admission)	Admission Related Fund,Students Activity Related Fund & Library Related Fund	5000
	Total (B)	**5000**
C. OTHER FEE PER SEMESTER (Non-Refundable)	Tuition Fee	5000
	Other Charges	1000
	Hostel Fee	2500
	Total (C)	**8500**
	Grand Total (A+B+C) (in ₹)	**18500**

- Student availing mess facility will have to pay Rs 10,000 as caution money (interest free) extra at the time of admission.
- The examination fee towards thesis submission for Ph.D. students is Rs.5000/- (to be paid at time of submission of thesis).
- The fee structure may be revised from time to time with the approval of competent authority.

Note: Any exemption, in any type of fee shall be as per Rules & Regulations for Ph.D. of SLIET Longowal.

SYLLABUS OF SLIET ENTRANCE TEST (SET-V)
For admission to Ph.D. Programme-2015

Pattern of SET-V

SLIET Entrance Test (SET-V) for admission to Ph.D. Programme will consist of one paper of two hours duration. This paper will have 100 objective type questions of 100 marks.

Note : Answers of the objective type questions are to be filled in the OMR answer sheet given separately during the Examination. <u>There will be 25% negative marking for wrong answers</u>.

SYLLABUS

Marks: 100 (100 questions) **Time : 02 Hours**

Ph.D. (Chemical Engineering)

Marks: 100 (100 questions)

General Aptitude(20%)

- Numerical Ability
- Numerical Analysis
- Statistics
- Communication Ability

Subject Paper(80%)

Process Calculations and Thermodynamics:
Laws of conservation of mass and energy; use of tie components; recycle, bypass and purge calculations; Degree of freedom analysis. First and Second laws of thermodynamics.First law application to close and open systems. Second law and Entropy, Thermodynamic properties of pure substances: equation of state and departure function, properties of mixtures: partial molar properties, fugacity, excess properties and activity coefficients; phase equilibria: predicting VLE of systems; chemical reaction equilibria.

Fluid Mechanics and Mechanical Operations:
Fluid statics, Newtonian and non-Newtonian fluids, Bernoulli equation, Macroscopic friction factors, energy balance, dimensional analysis, shell balances, flow through pipeline systems, flow meters, pumps and compressors, packed and fluidized beds, elementary boundary layer theory, size reduction and size separation; free and hindered settling; centrifuge and cyclones; thickening and classification, filtration, mixing and agitation; conveying of solids.

Heat Transfer:
Conduction, convection and radiation, heat transfer coefficients, steady and unsteady heat conduction, boiling, condensation and evaporation; types of heat exchangers, evaporators and their design.

Mass Transfer:
Fick's law, molecular diffusion in fluids, mass transfer coefficients, film, penetration and surface renewal theories; momentum, heat and mass transfer analogies; stagewise and continuous contacting and stage efficiencies; HTU & NTU concepts design and operation of equipment for distillation, absorption, leaching, liquid-liquid extraction, drying, humidification, dehumidification and adsorption.

Chemical Reaction Engineering:
Theories of reaction rates; kinetics of homogeneous reactions, interpretation of kinetic data, single and multiple reactions in ideal reactors, non-ideal reactors; residence time distribution, single parameter model; non-isothermal reactors; kinetics of heterogeneous catalytic reactions; diffusion effects in catalysis.

Instrumentation and Process Control:
Measurement of process variables; sensors, transducers and their dynamics, transfer functions and dynamic responses of simple systems, process reaction curve, controller modes (P, PI, and PID); control valves; analysis of closed loop systems including stability, frequency response and controller tuning, cascade, feed forward control.

Plant Design and Economics:
Process design and sizing of chemical engineering equipment such as compressors, heat exchangers, ultistage contactors; principles of process economics and cost estimation including total annualized cost, cost indexes, rate of return, payback period, discounted cash flow, optimization in design.

Chemical Technology:
Inorganic chemical industries; sulfuric acid, NaOH, fertilizers (Ammonia, Urea, SSP and TSP); natural products industries (Pulp and Paper, Sugar, Oil, and Fats); petroleum refining and petrochemicals; polymerization industries; polyethylene, polypropylene, PVC and polyester synthetic fibers.

Ph.D. (Chemistry)

Marks: 100 (100 questions)

General Aptitude(20%)

- Numerical Ability
- Numerical Analysis
- Statistics
- Communication Ability

Subject Paper(80%)

Physical Chemistry

Basic Principles and Applications of Quantum Mechanics – hydrogen atom, angular momentum; Basics of atomic structure, electronic configuration, shapes of orbitals, Hydrogen atom spectra; Theoretical treatment of atomic structures and chemical bonding; Chemical applications of group theory;
Basic Principles and Application of Spectroscopy – rotational, vibrational, electronic, Raman, ESR, NMR;
Chemical Thermodynamics - Phase equilibria; Chemical equilibria;
Electrochemistry – Nernst equation, electrode kinetics, electrical double layer, Debye-Hückel theory;
Chemical Kinetics – empirical rate laws, Arrhenius equation, theories of reaction rates, determination of reaction mechanisms, experimental techniques for fast reactions; Concepts of catalysis;
Polymer Chemistry - Molecular weights and their determinations; Kinetics of chain polymerization;
Solids - structural classification of binary and ternary compounds, diffraction techniques, bonding, thermal, electrical and magnetic properties; Colloids and surface phenomena.

Inorganic Chemistry

Chemical periodicity; Structure and bonding in homo- and heteronuclear molecules, including shapes of molecules; Concepts of acids and bases;
Chemistry of the main group elements and their compounds. Allotropy, synthesis, bonding and structure;
Chemistry of transition elements and coordination compounds – bonding theories, spectral and magnetic properties, reaction mechanisms;
Inner transition elements – spectral and magnetic properties, analytical applications;
Organometallic compounds - synthesis, bonding and structure, and reactivity; Organometallics in homogenous catalysis; Cages and metal clusters;
Analytical chemistry- separation techniques. Spectroscopic electro- and thermoanalytical methods;
Bioinorganic chemistry – photosystems, porphyrines, metalloenzymes, oxygen transport, electron- transfer reactions, nitrogen fixation;
Physical characterisation of inorganic compounds by IR, Raman, NMR, EPR, Mössbauer, UV-, NQR, MS, electron spectroscopy and microscopic techniques;
Nuclear chemistry – nuclear reactions, fission and fusion, radio-analytical techniques and activation analysis.

Organic Chemistry

IUPAC nomenclature of organic compounds; Principles of stereochemistry - conformational analysis, isomerism and chirality; Reactive intermediates and organic reaction mechanisms; Concepts of aromaticity; Pericyclic reactions; Named reactions; Transformations and rearrangements; Principles and applications of organic photochemistry; Free radical reactions; Reactions involving nucleophotic carbon intermediates; Oxidation and reduction of functional groups; Common reagents (organic, inorganic and organometallic) in organic synthesis; Chemistry of natural products such as steroids, alkaloids, terpenes, peptides, carbohydrates, nucleic acids and lipids; Selective organic transformations – chemoselectivity, regioselectivity, stereoselectivity, enantioselectivity; Protecting groups; Chemistry of aromatic and aliphatic heterocyclic compounds; Physical characterisation of organic compounds by IR, UV-Vis, MS, and NMR.

Ph.D. (Computer Science & Engineering)

Marks: 100 (100 questions)

General Aptitude(20%)

- Numerical Ability
- Numerical Analysis
- Statistics
- Communication Ability

Subject Paper(80%)

Programming Concepts: Programming in C; Functions, Recursion, Parameter passing, Scope, Binding; Abstract data types, Arrays, Stacks, Queues, Linked Lists, Trees, Binary search trees, Binary heaps.

Theory of Computation: Regular languages and finite automata, Context free languages and Push-down automata, Recursively enumerable sets and Turing machines, NP completeness. Distributed Computing, Introduction to Grid and Cloud Computing, Issues of Grid and Cloud Computing.

Digital Logic: Logic functions, Minimization, Design and synthesis of combinational and sequential circuits; Number representation and computer arithmetic (fixed and floating point).

Computer Organization and Architecture: Machine instructions and addressing modes, ALU and data-path, CPU control design, Memory interface, I/O interface (Interrupt and DMA mode), Instruction pipelining, Cache and main memory, Secondary storage.

Algorithms: Analysis, Asymptotic notation, Notions of space and time complexity, Worst and average case analysis; Design: Greedy approach, Dynamic programming, Divide-and-conquer; Tree and graph traversals, Connected components, Spanning trees, Shortest paths; Hashing, Sorting, Searching.

Operating System: Processes, Threads, Inter-process communication, Concurrency, Synchronization, Deadlock, CPU scheduling, Memory management and virtual memory, File systems, I/O systems, Protection and security.

Databases: ER-model, Relational models, Database design (integrity constraints, normal forms), Query languages (SQL), Transactions and concurrency control. Data Warehouse environment, Architecture of a data warehouse methodology" analysis, design, construction and administration, Extracting models and patterns from large databases, data mining techniques, regression, clustering, summarization, dependency modeling, link analysis, sequencing analysis, mining scientific and business data.

Computer Networks: LAN technologies (Ethernet, Token ring), Flow and error control techniques, Routing algorithms, Congestion control, TCP/UDP and sockets, Basic concepts of hubs, switches, gateways, and routers. Mobile Ad-hoc Networks, Technologies for Ad-hoc Network, Issues in Ad-hoc wireless Networks, IEEE 802.11 Basic Sensor Network Architectural Elements, Applications of Sensor Networks, Comparison with Wireless Networks, Challenges and Hurdles. Architecture of Wireless Sensor Networks (WSNs), Hardware components

Image Processing: Digital Image Fundamentals, image formation, geometric and photometric models, digitization including sampling, quantization and digital image visual details.

Ph.D. (Electrical and Instrumentation Engineering)

Marks: 100 (100 questions)

General Aptitude(20%)

- Numerical Ability
- Numerical Analysis
- Statistics
- Communication Ability

Subject Paper(80%)

Electrical Technology and Networks: Introduction to electrical systems, DC and AC circuits, basic electrical components, electromagnetism, alternating quantities, AC power, single phase series and parallel circuits, resonance, Comparison between Magnetic and Electric circuits, Electromagnetic Induction, Magnetic Effects of Electric Current, Current carrying conductor in Magnetic field, Law of Electromagnetic Induction, Self-Inductance, Mutual Inductance, Coupling Coefficient between two magnetically coupled Circuits, Transformer: principle, construction, working, efficiency, application. D.C. Generator: principle, construction, working, application, D.C. Motor: principle, construction, working, application. Three phase Induction Motor: principle, construction, working, application. Nodal and mesh

analysis, network theorems, superposition. Thevenin, Norton, reciprocity, Millman's, Tellegen's theorems, star-delta transformation, steady state sinusoidal analysis using phasors, Fourier series, linear constant coefficient differential and difference equations; time domain analysis and frequency domain analysis of RLC series and parallel circuits, convolution, 2-port network parameters, driving point and transfer functions, state equation for networks, attenuators (lattice, T-type, P-type, L-type, ladder type, balanced), conventional filters, passive network synthesis (positive real functions, LC network, synthesis of dissipative network, two terminal R-L and R-C network).

Electronics Principles: Characteristics and equivalent circuits (large and small signal) of diodes (pn junction, zener, schottky, varactor), BJT, JFETs, UJT, and MOSFET; clipping, clamping, rectifier; biasing and bias stability of transistor and FET amplifiers, single and multistage coupling, differential, operational, feedback and power. Analysis of amplifiers, frequency response of amplifiers. op-amp circuits, filters, sinusoidal oscillators, criterion of oscillation, function generators and wave-shaping circuits, power supplies, display units.

Power Electronics- Introduction to thyristor family V-I characteristics of SCR, SUS, PUT, SCS, GTO, LASCR. Principle of operation of SCR. Two transistor analogy. Turn on methods of a thyristor Switching characteristics of thyristors during turn-on and turn-off. Gate characteristics. Firing of thyristors. Gate triggering circuits. Series and parallel, operation of SCRs and their triggering circuits. Thyristor specifications; such as latching current and bolding current, dv/dt and di/dt, PTV etc. Protection of SCR from over voltage and over current. Snubber circuits. Power dissipation. Introduction to phase angle control. Single phase half wave controlled rectifiers. Single phase half controlled and fully controlled bridge rectifiers. Three phase fully controlled bridge rectifiers. Effect of resistive, inductive and resistive cum inductive loads. Basic circuit and principle of operation of Dual Converter, circulating current mode and non-circulating current mode of operation. Introduction to inverter. Operating principle and already state analysis of single phase, voltage source, bridge inverter. Modified Mcmurray half-bridge and full bridge inverter. Three phase bridge inverter. Voltage control (PWM control etc.) and reduction of harmonics in the inverter output voltage.

Digital electronics and microprocessors : Number systems and arithmetic (binary, Gray , BCD , Excess-3). Boolean algebra, minimization of Boolean functions, logic gates, IC families, combinational and sequential circuits, sample and hold circuits, ADCs and DACs, semiconductor memories, ALU design, microprocessor (8085), architecture, programming, memory and I/O interfacing chips (8255, 8253, 8251, 8279, 8259), introduction to microprocessor 8086 and microcontroller 8051.

Transducers and Instrumentation: Measurement of voltage, current, power, energy and power factor for Bridges and potentiometers, PMMC moving iron, dynamometer and induction type instruments, instrument transformer, digital voltmeters and multi-meters, phase, time and frequency measurement, Q-meter, oscilloscope, potentiometric recorders, error analysis, transducers-elastic, resistive, inductive, capacitive, thermo-electric, piezo-electric, photo-electric, electro-mechanical, electro-chemical and ultrasonic measurement of displacement, velocity, acceleration, shock, vibration, force, torque, power, strain, stress, pressure, flow, temperature, humidity, viscosity and density.

Control Theory : Basic control system components, block diagram description, signal flow graphs, reduction of block diagrams, input test signals, properties of systems, linearity, time-invariance, stability, open loop and closed loop (feedback) systems, properties of linear time-invariant (LTI) systems, transient and steady state analysis of LTI system and frequency response. LTI control system analysis, root loci, Routh Hurwitz criterion, polar plots, Bode and Nyquist plots, elements of lead and lag compensations, state space representation of systems, state equations, decomposition, direct, cascade and parallel, solution of state equations, Laplace method, Calay-Hamilton method, diagonalization method and Sylvester method. Digital control, Configuration of the basic Digital control scheme, Principles of signal conversion, Basic Discrete-Time signals, Time-Domain Models for Discrete – Time Systems, Transfer function Model, Stability in the Z-Plane & Jury stability criterion, Sampling as impulse modulation, Sampled spectra & Aliasing, Filtering, Practical aspects of the choice of sampling rate, Principles of Discretization,

Programming concepts: Algorithms, programming in C and C++, data types, console/file input and output, arrays, structures, pointers, functions, command line arguments, passing of parameters from one function to other, concept of OOPs.

Power Systems: Basic power generation concepts; transmission line models and performance; cable performance, insulation; corona and radio interference; distribution systems; per-unit quantities; bus impedance and admittance matrices; load flow; voltage control; power factor correction; economic operation; symmetrical components; fault analysis; principles of over-current, differential and distance protection; solid state relays and digital protection; circuit breakers; system stability concepts, swing curves and equal area criterion, HVDC transmission and FACTS concepts.

Ph.D. (Electronics & Communication Engineering)

Marks: 100 (100 questions)

General Aptitude(20%)

- Numerical Ability
- Numerical Analysis
- Statistics
- Communication Ability

Subject Paper(80%)

Electronic Devices and Circuits: Semiconductor physics, diffusion current, drift current, mobility, and resistivity. Generation and recombination of carriers. p-n junction diode, Zener diode, tunnel diode, BJT, JFET, MOS capacitor, MOSFET, LED, p-i-n and avalanche photo diode, Basics of LASERs. Device technology: integrated circuits fabrication process, oxidation, diffusion, ion implantation, photolithography. Small Signal Equivalent circuits of diodes, BJTs, MOSFETs and analog CMOS. Simple diode circuits, clipping, clamping, rectifier. Biasing and bias stability of transistor and FET amplifiers. Amplifiers: single and multi-stage, differential and operational, feedback, and power. Frequency response of amplifiers. Simple op-amp circuits. Filters. Sinusoidal oscillators; criterion for oscillation; single-transistor and op-amp configurations. Function generators and wave-shaping circuits, 555 Timers. Power supplies.

Digital Systems: Boolean algebra, minimization of Boolean functions; logic gates; digital IC families (DTL, TTL, ECL, MOS, CMOS). Combinatorial circuits: arithmetic circuits, code converters, multiplexers, decoders, PROMs and PLAs. Sequential circuits: latches and flip-flops, counters and shift-registers. Sample and hold circuits, ADCs, DACs. Semiconductor memories. Microprocessor(8085): architecture, programming, memory and I/O interfacing.

Signal Processing: Laplace transform, continuous-time and discrete-time Fourier series, continuous-time and discrete-time Fourier Transform, DFT and FFT, z-transform. Sampling theorem. Linear Time-Invariant (LTI) Systems: definitions and properties; causality, stability, impulse response, convolution, poles and zeros, parallel and cascade structure, frequency response, group delay, phase delay. Signal transmission through LTI systems.

Control Theory: Basic control system components; block diagrammatic description, reduction of block diagrams. Open loop and closed loop (feedback) systems and stability analysis of these systems. Signal flow graphs and their use in determining transfer functions of systems; transient and steady state analysis of LTI control systems and frequency response. Tools and techniques for LTI control system analysis: root loci, Routh-Hurwitz criterion, Bode and Nyquist plots. Control system compensators: elements of lead and lag compensation, elements of Proportional-Integral-Derivative (PID) control. State variable representation and solution of state equation of LTI control systems.

Communication Systems: Random signals and noise: probability, random variables, probability density function, Auto-correlation, power spectral density. Analog communication systems: amplitude and angle modulation and demodulation systems, spectral analysis of these operations, superheterodyne receivers; elements of hardware, realizations of analog communication systems; signal-to-noise ratio (SNR) calculations for amplitude modulation (AM) and frequency modulation (FM) for low noise conditions. Fundamentals of information theory and channel capacity theorem. Digital communication systems: pulse code modulation (PCM), differential pulse code modulation (DPCM), digital modulation schemes: amplitude, phase and frequency shift keying schemes (ASK, PSK, FSK), matched filter receivers, bandwidth consideration and probability of error calculations for these schemes. Basics of TDMA, FDMA and CDMA, wireless and cellular communication, GSM, wireless networks and sensors.

Electromagnetics & Microwaves: Elements of vector calculus: divergence and curl; Gauss' and Stokes' theorems, Maxwell's equations: differential and integral forms. Wave equation, Poynting vector. Plane waves: propagation through various media; reflection and refraction; phase and group velocity; skin depth. Transmission lines: characteristic impedance; impedance transformation; Smith chart; impedance matching; S parameters, pulse excitation. Waveguides: modes in rectangular waveguides; boundary conditions; cut-off frequencies; dispersion relations. Basics of propagation in dielectric waveguide and optical fibers. Strip line structures, Basics of Antennas: Dipole antennas, antenna parameters, microwave components and circuits.

Ph.D. (English)

Marks: 100 (100 questions)

General Aptitude(20%)

- Numerical Ability
- Numerical Analysis
- Statistics
- Communication Ability

Subject Paper(80%)

Literary Critical Theory: Main features and major exponents/works: New Criticism, Stylistics, Structuralism, Deconstruction,Discourse Analysis, Feminism, Post Colonialism, Postmodernism

Study of Language **:**Study of Language, Speech Mechanism, Vowels, Consonants, ELT

Indian English Literature: Nissim Ezekiel, Kamala Das, A.K. Ramanujan, Mulk Raj Anand, Raja Rao, R.K. Narayan, Bhabani Bhattacharya, Manohar Magonkar, Anita Desai, Arun Joshi, Nayantara Sehgal, Shashi Deshpande, Shobha De, Amitav Ghosh, Kiran Desai, Githa, Hariharan, Girish Karnad, Mahesh Dattani, Vijay Tendulkar, Nirad C. Chaudhary, Khushwant Singh
Drama: British Drama, Greek Drama, Shakespearean Drama, Jacobean Drama, Restoration Drama, Theatre of the Absurd, American Drama, African American Theatre
Poetry: Chaucer, Metaphysical Poetry, Neo Classical Poetry, Romantic Poetry, Victorian Poetry, Post Modernist Poetry, American Poetry
Fiction: Women Novelists, Victorian Novelists, Early 20th Century Novelists, English Novelists of Post 1950's, American Novelists
Diasporic Literature: V.S. Naipaul, Salman Rushdie, Bharati Mukherjee, Vikram Seth, Rohinton Mistri
Post Colonial Literature: Chinua Achebe, Wole Soyinka, Nadine Gordimer, Michael Ondaatje, Margaret Atwood

Ph.D. (Food Engineering &Technology)

Marks: 100 (100 questions)
General Aptitude(20%)

- Numerical Ability
- Numerical Analysis
- Statistics
- Communication Ability

Subject Paper(80%)

Food Analysis: Texture analysis of foods, Microscopic techniques in food analysis (light microscopy, SEM, TEM, XRD, particle size analysis, image analysis etc.), Thermal methods in food analysis (Differential scanning colorimetry and others), Chromatographic methods in food analysis and separation, Enzymatic methods of food analysis, application of biosensors in food analysis.
Food Quality and Management: Quality attributes- physical, chemical, nutritional, microbial, and sensory; their measurement and evaluation; Total Quality Management; GMP/GHP; GLP, GAP; Sanitary and hygienic practices; HACCP; Indian & International quality systems and standards like Food Safety and Standards Act, 2006, ISO and Food Codex.
Food Engineering: Engineering properties of foods, steady state and unsteady state heat transfer, Mass transfer, Death rate kinetics, thermal process calculations, heat and. mass balance in single effect and multiple effect evaporator, methods to improve steam economy, Drying Rates, theories of drying, Freezing curves, freezing time calculations, membrane separation techniques, centrifugation and fluidization, viscometry and food rheology.
Food Process Technology: Mechanism and application of High Pressure processing, Ultrasonic processing, Microwave and radio frequency processing high intensity light, pulse electric field, ohmic heating, IR heating, inductive heating and hurdle technology in food processing and preservation.
Food Process Equipment Design: Basic Scientific and Engineering principles of equipment design, Riveted and welded joints, corrosion mechanism and corrosion control, Design of vessels and storage tanks.
Bioprocess Engineering: Fundamentals of growth kinetics, Media sterilization, Air Sterilization, Bioreactor fermenter, Aeration and Agitation. Bioprocess instrumentation, Bioprocess modeling and simulation and its application in industrial fermentation, scale-up of fermentation processes.

Ph.D. (Management)

Marks: 100 (100 questions)

General Aptitude(20%)

- Numerical Ability
- Numerical Analysis
- Statistics
- Communication Ability

Subject Paper(80%)

Unit-1: Managerial Economics-Demand Analysis, Production Function, Cost-Output relation, Market Structures, Pricing Theories, Capital Budgeting
The concept and significance of organizational behavior, Personality-Perception-Values-Attitude-Learning & Motivation Communication-Leadership-Managing Change, Organizational Development, Concepts & perspectives on HRM HRP-Objectives, Process & Techniques, Job Analysis-Selection-Induction-Training & Development, Performance Appraisal & Evaluation, Industrial Relations & Trade Unions, Dispute resolution and Grievance management
Unit-2: Financial Management-Nature & Scope, Capital Budgeting Decisions, Capital Structure & Cost of capital Dividend policy-Determinants, Mergers & Acquisitions, Marketing Information System & marketing research, Demand measurement & Forecasting, Market Segmentation-Targeting & positioning, Product life cycle, Pricing methods & strategies, Marketing Management, Marketing Mix, Customer Relation shift Management, Role & Scope of Production management, Facility Locations- Layout Managing & Analysis, Production Scheduling, Statistical Quality Control
Unit-3: Probability Theory, Probability, Distribution-Binomial, Poisson, Normal, Correlation & Regression Analysis, Sampling Theory & Sampling Distribution, Tests of Hypothesis-t, Z,F, chi-square tests, Concepts of corporate streategy-Ans off's growth vector, BCG Model, Porters generic strategies,Competitive strategy & Corporate Strategy, Competitive advantage of nations,RTP & WTO, Innovation & Entrepreneurship, Concept of Govt. Policy for promotion of small & Tiny Enterprises, Detailed Business Plan Preparation –Managing small industries –sickness in small enterprises
Unit-4: Ethics & Management System, Value based organizations, Ethical pressure on individual in organization Environmental ethics, Social responsibilities of Business, Corporate Governance, Research-Meaning, types, objectives, process survey based research-types of survey-specific-periodic & transaction drivers, Identification of research problem analysis of research problem, Categorization & sampling, Planning a survey Project-resources budget-schedule, Preparation of Questionnaire,-Data Collection analysis & compilation of Survey report.

Ph.D (Mathematics)

Marks: 100 (100 questions)
General Aptitude(20%)

- Numerical Ability
- Numerical Analysis
- Statistics
- Communication Ability

Subject Paper(80%)
Linear Algebra: Finite dimensional vector spaces; Linear transformations and their matrix representations, rank; systems of linear equations, eigen values and eigen vectors, minimal polynomial, Cayley-Hamilton theroem, diagonalisation, Hermitian, Skew-Hermitian and unitary matrices; Finite dimensional inner product spaces, Gram-Schmidt orthonormalization process, self-adjoint operators.
Complex Analysis: Analytic functions, conformal mappings, bilinear transformations; complex integration:Cauchy's integral theorem and formula; Liouville's theorem, maximum modulus principle; Taylor and Laurent's series; residue theorem and applications for evaluating real integrals.
Real Analysis: Sequences and series of functions, uniform convergence, power series, Fourier series, functions of several variables, maxima, minima; Riemann integration, multiple integrals, line, surface and volume integrals, theorems of Green, Stokes and Gauss; metric spaces, completeness, Weierstrass approximation theorem, compactness; Lebesgue measure, measurable functions; Lebesgue integral, Fatou's lemma, dominated convergence theorem.
Ordinary Differential Equations: First order ordinary differential equations, existence and uniqueness theorems, systems of linear first order ordinary differential equations, linear ordinary differential equations of higher order with constant coefficients; linear second order ordinary differential equations with variable coefficients.
Algebra: Fundamental theorem of arithmetic, divisibility in Z, congruence, Chinese Remainder Theorem, Euler's ϕ function, primitive roots. Normal subgroups and homomorphism theorems, automorphisms; Group actions,Sylow's theorems and their applications; Euclidean domains, Principle ideal domainsand unique factorization domains. Prime ideals and maximal ideals in commutative rings; Fields, finite fields.

Functional Analysis: Banach spaces, Hahn-Banach extension theorem, open mapping and closed graph theorems, principle of uniform boundedness; Hilbert spaces, orthonormal bases, Riesz representation theorem, bounded linear operators.
Numerical Analysis: Numerical solution of algebraic and transcendental equations: bisection, secant method, Newton-Raphson method, fixed point iteration; interpolation: error of polynomial interpolation, Lagrange, Newton interpolations; numerical differentiation; numerical integration: Trapezoidal and Simpson rules, Gauss Legendre quadrature, method of undetermined parameters; least square polynomial approximation; numerical solution of systems of linear equations: direct methods (Gauss elimination, LU decomposition); iterative methods (Jacobi and Gauss-Seidel); matrix eigenvalue problems: power method, numerical solution of ordinary differential equations: initial value problems: Taylor series methods, Euler's method, Runge-Kutta methods.
Partial Differential Equations: Linear and quasilinear first order partial differential equations, method of characteristics; second order linear equations in two variables and their classification; Cauchy, Dirichlet and Neumann problems; solutions of Laplace, wave and diffusion equations in two variables; Fourier series and Fourier transform and Laplace transform methods of solutions for the above equations.
Mechanics: Generalized coordinates, Lagrange's equations, Hamilton's canonical equations,Hamilton's Principle and principle of least action, Two dimensional motion of rigid bodies, Euler's dynamical equations for the motion of rigid body about an axis, theory of small oscillations.
Topology: Basic concepts of topology, product topology, connectedness, countability and separation axioms, Urysohn's Lemma. Compactness.
Probability and Statistics: Probability space, conditional probability, Bayes theorem, independence, Random variables, joint and conditional distributions, standard probability distributions and their properties, expectation, conditional expectation, moments, Sampling distributions, Testing of hypotheses, standard parametric test based on normal χ^2 ,t, F-distributions.
Linear programming: Linear programming problem and its formulation, convex sets and their properties, graphical method, basic feasible solution, simplex method, big-M and two phase methods; infeasible and unbounded LPP's, alternate optima; Dual problem and duality theorems, Balanced and unbalanced transportation problems, u -u method for solving transportation problems; Hungarian method for solving assignment problems.

Ph.D. (Mechanical Engineering)

Marks: 100 (100 questions)
General Aptitude(20%)

- Numerical Ability
- Numerical Analysis
- Statistics
- Communication Ability

Subject Paper Part- A
(40 % of Content)

Engineering Materials: Structure and properties of engineering materials and their applications; effect of strain, strain rate and temperature on mechanical properties of metals and alloys; heat treatment of metals and alloys, its influence on mechanical properties.
Engineering Mechanics: Free body diagrams and equilibrium; trusses and frames; virtual work; kinematics and dynamics of particles and of rigid bodies in plane motion, including impulse and momentum (linear and angular) and energy formulations; impact.
Strength of Materials: Stress and strain, stress-strain relationship and elastic constants, Mohr's circle for plane stress and plane strain, thin cylinders; shear force and bending moment diagrams; bending and shear stresses; deflection of beams; torsion of circular shafts; Euler's theory of columns; strain energy methods; thermal stresses.
Theory of Machines and Design: Displacement, velocity and acceleration analysis of plane mechanisms; dynamic analysis of slider-crank mechanism; gear trains; flywheels.
Design for static and dynamic loading; failure theories; fatigue strength and the S-N diagram; *principles* of the design of machine elements such as bolted, riveted and welded joints, shafts, spur gears, rolling and sliding contact bearings, brakes and clutches.
Vibrations: Free and forced vibration of single Degree of freedom systems; effect of damping; vibration isolation; resonance, critical speeds of shafts.

Thermal Engineering: Fluid mechanics - fluid statics, Bernoulli's equation, flow through pipes, equations of continuity and momentum; thermodynamics - zeroth, first and second law of thermodynamics, thermodynamic system and processes, calculation of work and heat for systems and control volumes; air standard cycles; basics of internal combustion engines and steam turbines; heat transfer - fundamentals of conduction, convection and radiation, heat exchangers.

Subject Paper Part- B
(40 % of Content)

Metal Casting: Casting processes - types and applications; patterns - types and materials; allowances; moulds and cores - materials, making, and testing; casting techniques of cast iron, steels and nonferrous metals and alloys; solidification; design of casting, gating and risering; casting inspection, defects and remedies.
Metal Forming: Stress-strain relations in elastic and plastic deformation; concept of flow stress, deformation mechanisms; hot and cold working - forging, rolling, extrusion, wire and tube drawing; sheet metal working Processes, analysis of rolling, forging, extrusion and wire /rod drawing; metal working defects.
Advanced Welding Processes: Welding processes - manual metal arc, MIG, TIG, plasma arc, submerged arc, electro slag, thermit, resistance, forge, friction, and explosive welding, inspection of welded joints, defects and remedies; - ultrasonic, electron beam, laser beam; thermal cutting.
Machining and Machine Tool Operations: Basic machine tools; machining processes, mechanics of machining ,Merchant's analysis; selection of machining parameters; tool materials, tool wear and tool life, thermal aspects of machining, cutting fluids, machinability; principles and applications of nontraditional machining processes - USM, AJM, WJM, EDM and Wire cut EDM, LBM, EBM, PAM, CHM, ECM.
Metrology and Inspection: Limits, fits, and tolerances, interchangeability, selective assembly; linear and angular measurements by mechanical and optical methods, comparators; design of limit gauges; interferometry; measurement of straightness, flatness, roundness, squareness and symmetry; surface finish measurement; inspection of screw threads and gears; alignment testing of machine tools.
Computer Integrated Manufacturing: Basic concepts of CAD, CAM, CAPP, cellular manufacturing, NC, CNC, DNC, Robotics, FMS, and CIM. Principles of good product design, tolerance design; quality and cost considerations; product life cycle; concurrent engineering.
Facility Design: Facility location factors and evaluation of alternate locations; types of plant layout and their evaluation; computer aided layout design techniques; assembly line balancing; materials handling systems.
Production Planning and Inventory Control: Forecasting techniques ,aggregate production planning; MRP and MRP-II; order control and flow control; routing, scheduling and priority dispatching; push and pull production systems, concept of JIT manufacturing system; logistics, distribution, and supply chain management; inventory models,
Operations Research: Linear programming, simplex method, duality and sensitivity analysis; transportation and assignment models; network flow models, constrained optimization and Lagrange multipliers; simple queuing models; dynamic programming; simulation - manufacturing applications; PERT and CPM,
Quality Management: Quality - concept and costs, quality circles, quality assurance; statistical quality control, acceptance sampling, zero defects, six sigma; total quality management; ISO 9000; design of experiments - Taguchi method.

Reliability and Maintenance: Reliability, availability and maintainability; distribution of failure and repair times; determination of MTBF and MTTR, reliability models; system reliability determination; preventive maintenance and replacement, total productive maintenance - concept and applications.

Ph.D. (Physics)

Marks: 100 (100 questions)

General Aptitude(20%)

- Numerical Ability
- Numerical Analysis
- Statistics
- Communication Ability

Subject Paper(80%)

Mathematical Methods of Physics :

Dimensional analysis; Vector algebra and vector calculus; Linear algebra, matrices, Cayley Hamilton theorem, eigenvalue problems; Linear differential equations; Special functions (Hermite, Bessel, Laguerre and Legendre); Fourier

series, Fourier and Laplace transforms; Elements of complex analysis: Laurent series-poles, residues and evaluation of integrals; Elementary ideas about tensors; Introductory group theory, SU(2), O(3); Elements of computational techniques: roots of functions, interpolation, extrapolation, integration by trapezoid and Simpson's rule, solution of first order differential equations using Runge-Kutta method; Finite difference methods; Elementary probability theory, random variables, binomial, Poisson and normal distributions.

Classical Mechanics

Newton's laws; Phase space dynamics, stability analysis; Central-force motion; Two-body collisions, scattering in laboratory and centre-of-mass frames; Rigid body dynamics, moment of inertia tensor, non-inertial frames and pseudoforces; Variational principle, Lagrangian and Hamiltonian formalisms and equations of motion; Poisson brackets and canonical transformations; Symmetry, invariance and conservation laws, cyclic coordinates; Periodic motion, small oscillations and normal modes; Special theory of relativity, Lorentz transformations, relativistic kinematics and mass–energy equivalence.

Electromagnetic Theory

Electrostatics: Gauss' Law and its applications; Laplace and Poisson equations, boundary value problems; Magnetostatics: Biot-Savart law, Ampere's theorem, electromagnetic induction; Maxwell's equations in free space and linear isotropic media; boundary conditions on fields at interfaces; Scalar and vector potentials; Gauge invariance; Electromagnetic waves in free space, dielectrics, and conductors; Reflection and refraction, polarization, Fresnel's Law, interference, coherence, and diffraction; Dispersion relations in plasma; Lorentz invariance of Maxwell's equations; Transmission lines and wave guides; Dynamics of charged particles in static and uniform electromagnetic fields; Radiation from moving charges, dipoles and retarded potentials.

Quantum Mechanics

Wave-particle duality; Wave functions in coordinate and momentum representations; Commutators and Heisenberg's uncertainty principle; Matrix representation; Dirac's bra and ket notation; Schroedinger equation (time-dependent and time-independent); Eigenvalue problems such as particle-in-a-box, harmonic oscillator, etc.; Tunneling through a barrier; Motion in a central potential; Orbital angular momentum, Angular momentum algebra, spin; Addition of angular momenta; Hydrogen atom, spin-orbit coupling, fine structure; Time-independent perturbation theory and applications; Variational method; WKB approximation; Time dependent perturbation theory and Fermi's Golden Rule; Selection rules; Semi-classical theory of radiation; Elementary theory of scattering, phase shifts, partial waves, Born approximation; Identical particles, Pauli's exclusion principle, spin-statistics connection; Relativistic quantum mechanics: Klein Gordon and Dirac equations.

Thermodynamic and Statistical Physics

Laws of thermodynamics and their consequences; Thermodynamic potentials, Maxwell relations; Chemical potential, phase equilibria; Phase space, micro- and macrostates; Microcanonical, canonical and grand-canonical ensembles and partition functions; Free Energy and connection with thermodynamic quantities; First- and second-order phase transitions; Classical and quantum statistics, ideal Fermi and Bose gases; Principle of detailed balance; Blackbody radiation and Planck's distribution law; Bose-Einstein condensation; Random walk and Brownian motion; Introduction to nonequilibrium processes; Diffusion equation.

Electronics

Semiconductor device physics, including diodes, junctions, transistors, field effect devices, homo and heterojunction devices, device structure, device characteristics, frequency dependence and applications; Optoelectronic devices, including solar cells, photodetectors, and LEDs; High-frequency devices, including generators and detectors; Operational amplifiers and their applications; Digital techniques and applications (registers, counters, comparators and similar circuits); A/D and D/A converters; Microprocessor and microcontroller basics.

Experimental Techniques and data analysis

Data interpretation and analysis; Precision and accuracy, error analysis, propagation of errors, least squares fitting, linear and nonlinear curve fitting, chi-square test; Transducers (temperature, pressure/vacuum, magnetic field, vibration, optical, and particle detectors), measurement and control; Signal conditioning and recovery, impedance matching, amplification (Op-amp based, instrumentation amp, feedback), filtering and noise reduction, shielding and grounding; Fourier transforms; lock-in detector, box-car integrator, modulation techniques.

Atomic & Molecular Physics

Quantum states of an electron in an atom; Electron spin; Stern-Gerlach experiment; Spectrum of Hydrogen, helium and alkali atoms; Relativistic corrections for energy levels of hydrogen; Hyperfine structure and isotopic shift; width of spectral lines; LS & JJ coupling; Zeeman, Paschen Back & Stark effect; X-ray spectroscopy; Electron spin resonance, Nuclear magnetic resonance, chemical shift; Rotational, vibrational, electronic, and Raman spectra of diatomic molecules; Frank – Condon principle and selection rules; Spontaneous and stimulated emission, Einstein A & B coefficients; Lasers, optical pumping, population inversion, rate equation; Modes of resonators and coherence length.

Condensed Matter Physics

Bravais lattices; Reciprocal lattice, diffraction and the structure factor; Bonding of solids; Elastic properties, phonons, lattice specific heat; Free electron theory and electronic specific heat; Response and relaxation phenomena; Drude model of electrical and thermal conductivity; Hall effect and thermoelectric power; Diamagnetism, paramagnetism, and ferromagnetism; Electron motion in a periodic potential, band theory of metals, insulators and semiconductors; Superconductivity, type – I and type - II superconductors, Josephson junctions; Defects and dislocations; Ordered phases of matter, translational and orientational order, kinds of liquid crystalline order; Conducting polymers; Quasicrystals.

Nuclear and Particle Physics

Basic nuclear properties: size, shape, charge distribution, spin and parity; Binding energy, semi-empirical mass formula; Liquid drop model; Fission and fusion; Nature of the nuclear force, form of nucleon-nucleon potential; Charge-independence and charge-symmetry of nuclear forces; Isospin; Deuteron problem; Evidence of shell structure, single-particle shell model, its validity and limitations; Rotational spectra; Elementary ideas of alpha, beta and gamma decays and their selection rules; Nuclear reactions, reaction mechanisms, compound nuclei and direct reactions; Classification of fundamental forces; Elementary particles (quarks, baryons, mesons, leptons); Spin and parity assignments, isospin, strangeness; Gell-Mann-Nishijima formula; C, P, and T invariance and applications of symmetry arguments to particle reactions, parity non-conservation in weak interaction; Relativistic kinematics.

APPENDIX - I

INSTRUCTIONS FOR FILLING ONLINE APPLICATION FORM AND SENDING THE REGISTRATION PAGE BY POST

i. Candidate shall log on to **www.sliet.ac.in** and click proceeds for Admission and then registration.

ii. Click on to **new registration** and for already registered users, enter Login & Password.

iii. Before you proceed to register yourself, you must ensure that you have read and understood the eligibility criteria & reservation policy for the COURSE / PROGRAMME you are applying for.

iv. Candidate should fill his / her basic details like Date of Birth (DOB), Address, State, City, Religion, Contact / Mobile Numbers and Email very carefully.

v. Choose your password at least of 6-10 characters. Please remember your password and don't share with others.

vi. Before final submission of online Application Form, read the declaration given on the website carefully and given your consent on it, failing which you will not be able to complete your registration. So, you must check the information details carefully before final submission of Registration Form.

vii. Please note that after successfully submitting the Application Form, the candidate will get a SMS on his / her Mobile that will ensure his/her provisional registration successfully with a Form Number and Password. For this, candidate should provide valid mobile number.

viii. After successfully submitting Online Application Form for SET-2015, kindly note down your Form Number for future reference. The processing of Application Form will begin only after the successful payment of Application Fee.

ix. Select mode of fee payment. If a candidate opts to pay application fee through E-Challan mode, he/she has to effect the payment of application fee within 48 hrs. from the date of registration.

x. Once the payment is confirmed, the online Registration Page for PRINT shall be available to the candidate.

xi. Take PRINT of Registration Page.

xii. OVERWRITING, CUTTINGS, ERASING IN THE REGISTRATION PAGE OR INCOMPLETE REGISTRATION PAGE MAY LEAD TO REJECTION OF FORM AND SHOULD BE AVOIDED. ANY ERROR ARISING ON THIS ACCOUNT SHALL BE THE RESPONSIBILITY OF THE CANDIDATE.

xiii. The Registration Page duly filled in / signed should be sent to THE CHAIRMAN SET-2015, SANT LONGOWAL INSTITUTE OF ENGINEERING & TECHNOLOGY (SLIET), LONGOWAL – 148106 (DISTT. SANGRUR), PUNJAB in the envelope by Registered/Speed Post only, so as to reach **positively by 6th April, 2015**. The candidate must retain photocopy of his / her filled in Registration Page for future correspondence, if required.

xiv. If a candidate submits more than one Registration Page, his / her candidature shall liable to be cancelled and debarred for future examination(s). No communication will be sent in this regard.

xv. **Photograph :** Firmly affix two recent high contrast passport size coloured photograph (taken on or after 15.01.2015) with gum / fevicol (not to be pinned or stapled) in the space provided for it in the Registration Page. The photograph must indicate clearly the name of the candidate along with the date of taking the photograph. It should be without cap or goggles. Spectacles are allowed. **Polaroid photos are not acceptable.** Candidates not complying with these instructions or with unclear photograph are liable to be rejected. Candidates shall keep 10 identical photographs in reserve for use at the time of Entrance Examination / Counselling / Document Verification / Admission.

xvi. Request for change or correction of any information, once given in the Registration Page, shall not be entertained under any circumstances. The SLIET will not be responsible for any consequences arising out of non-acceptance of any correction / addition / deletion in any particular once filled in the application form, whatsoever the reasons may be.

APPENDIX - II

INSTRUCTIONS FOR FILLING-UP OMR ANSWER SHEET DURING EXAMINATION

OMR Sheet will be given in the examination hall for answering the objective type questions with multiple choice. Please carefully read the following instructions for filling up of this OMR Sheet at the time of entrance test.

Fill your Question Booklet No., Roll Number, Centre Code No. and Paper No. in Part A. Also put your signature in the box provided for this purpose.

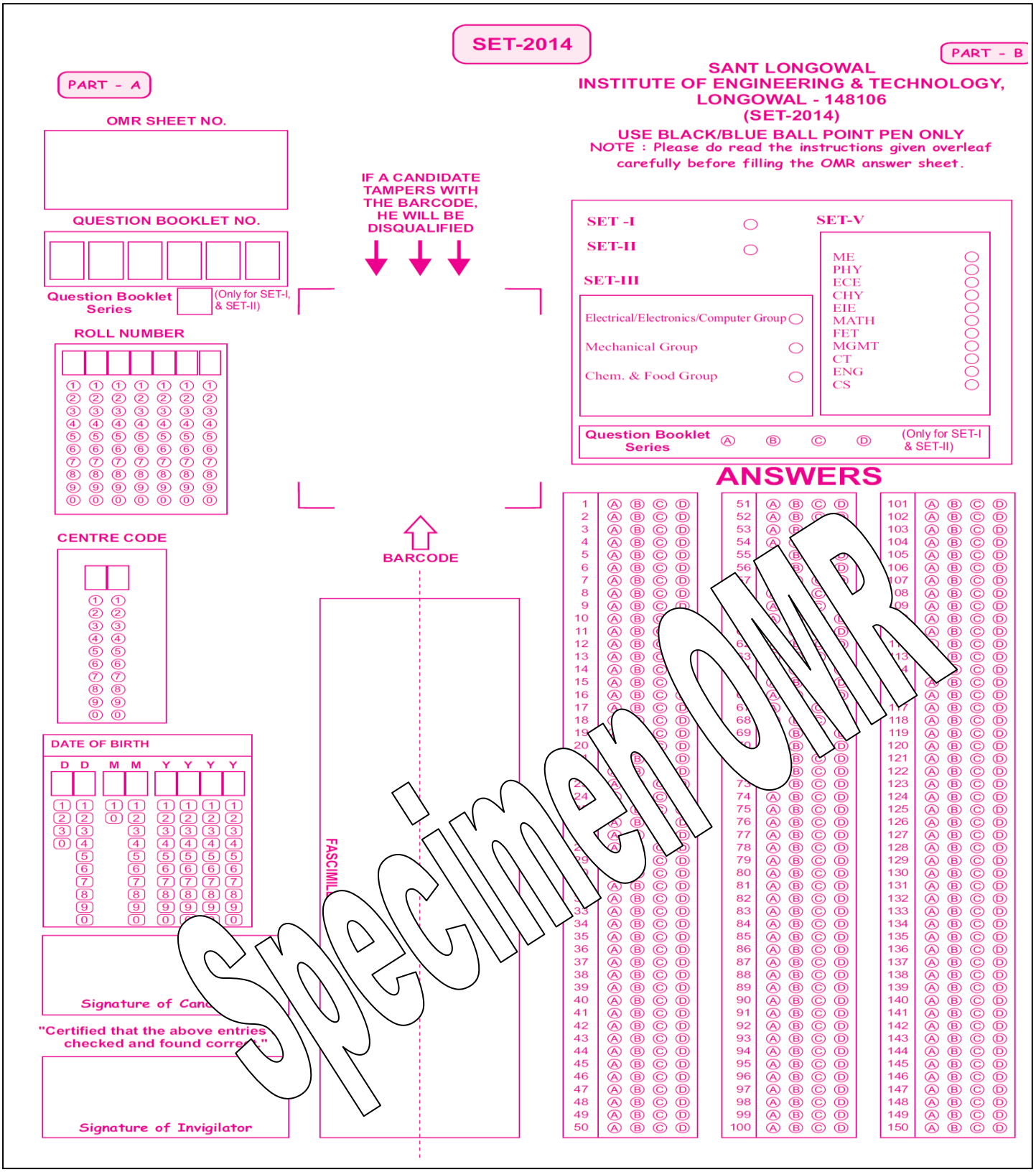
In Part B give answers of the objective type questions by darkening the suitable circle out of the four given against each question no.

IMPORTANT INSTRUCTIONS

1. Write in rectangular boxes (☐) in all items of OMR Answer sheet with **BLUE/BLACK BALL POINT PEN** and darken the corresponding circle (◯) completely with **BLUE /BLACK BALL POINT PEN ONLY.**
2. Ensure that you have correctly filled up your Roll number and Centre Code in the corresponding spaces provided.
3. DO NOT scribble, scratch, cut, tear, fold, wrinkle and not do any rough work on the OMR Answer sheet.
4. Darken only one circle for each answer. If you darken more than one circle, your answer will be treated as WRONG.
5. Answer sheet will be processed by electronic means. Invalidation of answer due to incorrect method of filling will be the sole responsibility of the candidate.
6. **There will be 25% negative marking for wrong Answers.**
7. Use of communication devices such as mobile phone, wireless set etc. is completely prohibited.
8. Use of Calculator (except Programmable calculator) is allowed.
9. Method of Darkening Circle.

Correct Method **Wrong Methods**

10. In case you do not follow the above instructions your answer sheet is liable to be rejected for which you yourself will be responsible.



Note : This OMR Answer Sheet is only specimen. The actual OMR may differ.

APPENDIX - III

SAMPLE FORMAT OF CERTIFICATE for candidates applying for M.Tech. Programmes under INDUSTRY / INSTITUTE SPONSORED CATEGORY

(This Certificate should be on the Letter Pad of the Industry / Institute by the Competent Authority)

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TO WHOM IT MAY CONCERN

This is to certify that Mr./Ms. …………………………………………son/daughter of Sh………………………………………… resident of ……………………………………………… is presently employed in this organization as ………..…………………………………. from ……..…………………….... He/She will be granted study leave for pursuing the M.Tech. Programme in ……..…………………………………. at Sant Longowal Institute of Engineering and Technology (SLIET), Longowal. The candidate would not be withdrawn mid-way till the completion of the course and all the expenses during complete course of study will be borne by the ________________________.

Place………………………

Date………………………..

Signature

Name & Designation

(with official seal)

APPENDIX - IV

OBC Certificate Format

FORM OF CERTIFICATE TO BE PRODUCED BY OTHER BACKWARD CLASSES APPLYING FOR ADMISSION IN THE INSTITUTES UNDER GOVERNMENT OF INDIA

This is to certify that Shri / Smt. / Kum. _____Son / Daughter of Shri / Smt. _____ of Village/Town _____ District/Division _____ in the _____ State belongs to the _____Community which is recognized as a backward class under:

(i) Resolution No. 12011/68/93-BCC(C) dated 10/09/93 published in the Gazette of India Extraordinary Part I Section I No. 186 dated 13/09/93.
(ii) Resolution No. 12011/9/94-BCC dated 19/10/94 published in the Gazette of India Extraordinary Part I Section I No. 163 dated 20/10/94.
(iii) Resolution No. 12011/7/95-BCC dated 24/05/95 published in the Gazette of India Extraordinary Part I Section I No. 88 dated 25/05/95.
(iv) Resolution No. 12011/96/94-BCC dated 9/03/96.
(v) Resolution No. 12011/44/96-BCC dated 6/12/96 published in the Gazette of India Extraordinary Part I Section I No. 210 dated 11/12/96.
(vi) Resolution No. 12011/13/97-BCC dated 03/12/97.
(vii) Resolution No. 12011/99/94-BCC dated 11/12/97.
(viii) Resolution No. 12011/68/98-BCC dated 27/10/99.
(ix) Resolution No. 12011/88/98-BCC dated 6/12/99 published in the Gazette of India Extraordinary Part I Section I No. 270 dated 06/12/99.
(x) Resolution No. 12011/36/99-BCC dated 04/04/2000 published in the Gazette of India Extraordinary Part I Section I No. 71 dated 04/04/2000.
(xi) Resolution No. 12011/44/99-BCC dated 21/09/2000 published in the Gazette of India Extraordinary Part I Section I No. 210 dated 21/09/2000.
(xii) Resolution No. 12015/9/2000-BCC dated 06/09/2001.
(xiii) Resolution No. 12011/1/2001-BCC dated 19/06/2003.
(xiv) Resolution No. 12011/4/2002-BCC dated 13/01/2004.
(xv) Resolution No. 12011/9/2004-BCC dated 16/01/2006 published in the Gazette of India Extraordinary Part I Section I No. 210 dated 16/01/2006.

Shri / Smt. / Kum. _____ and / or his family ordinarily reside(s) in the _____ District / Division of _____ State. This is also to certify that he/she does not belong to the persons/sections (Creamy Layer) mentioned in Column 3 of the Schedule to the Government of India, Department of Personnel & Training O.M. No. 36012/22/93-Estt.(SCT) dated 08/09/93 which is modified vide OM No. 36033/3/2004 Estt.(Res.) dated 09/03/2004.

Dated: _____

District Magistrate / Deputy Commissioner / Competent Authority

Seal

NOTE:
(a) The term 'Ordinarily' used here will have the same meaning as in Section 20 of the Representation of the People Act, 1950.
(b) The authorities competent to issue Caste Certificates are indicated below:
(i) District Magistrate / Additional Magistrate / Collector / Deputy Commissioner / Additional Deputy Commissioner / Deputy Collector / Ist Class Stipendiary Magistrate / Sub-Divisional magistrate / Taluka Magistrate / Executive Magistrate / Extra Assistant Commissioner (not below the rank of Ist Class Stipendiary Magistrate).
(ii) Chief Presidency Magistrate / Additional Chief Presidency Magistrate / Presidency Magistrate.
(iii) Revenue Officer not below the rank of Tehsildar' and
(iv) Sub-Divisional Officer of the area where the candidate and / or his family resides.

APPENDIX - V

ADMISSIONS UNDER PERSONS WITH DISABILITY (PWD) SCHEME OF MHRD, GOVT. OF INDIA

Under Persons with Disabilities Scheme of the Government of India 25 seats are available in 3-Yr Integrated Certificate Diploma (ICD) Programme and 2-Yr Diploma programme for persons having more than 40% disability. Maximum number of seats in any particular branch of ICD Programme will be two. Details of branches /courses is available in this brochure. **It is to clarify that no vertical promotion system is available to students in the Persons with Disabilities Scheme.** Incentives to students under the Scheme:

- No Tuition Fee
- No Hostel Fee
- Mess Bill Payment upto 1000/- PM
- Scholarship @250/- PM
- Books and Uniform Allowance @3000/- per annum

Essential qualifications:

The minimum qualification for admission to the 3 Year ICD Programme is Matric pass (Pass in English, Mathematics and Science is compulsory) from a State Education Board / CBSE / ICSE / National Open School or an equivalent examination recognized / approved by MHRD, Government of India. For admission to 2-Yr Diploma programmes, it is certificate from SLIET, Longowal

Application/Admission Procedure

Step 1: Interested candidates may apply ONLINE to SLIET Longowal free of cost if they satisfy the above eligibility conditions.

Step 2: Eligible candidates can download information brochure SET-2015 from www.sliet.ac.in**.** Brochure and instructions for filling ONLINE application should be studied carefully before filling the ONLINE application form. Candidates desirous of getting admission under the PWD Scheme must mark the PWD column in the ONLINE Application Form. Choice of centre for exam may also be filled carefully.

Step 3: No fee is to be paid for the Entrance Examination.

Step 4: Details of SLIET Entrance Test -2015 and the prescribed syllabi are given in this brochure. The candidates seeking admission in ICD programme are required to appear for SET-I. Applicants shall prepare for entrance test accordingly.

Step 5: Admit Card mentioning their roll number and centre will be available ONLINE.

Step 6: Applicants shall appear for the SLIET Entrance Test- 2015 at the centre allotted to them. They are advised to reach the centre well in time along with the admit card.

Step 7: Result of the Entrance Examination will be declared on the date mentioned in this brochure and the candidates must reach for counseling on the prescribed date and time.

Note: For more details and free application form, contact/write: Project Co-coordinator, PWD Scheme, Mechanical Block, SLIET, Longowal-148106 (Phone: 01672-253276)

DOCUMENTS REQUIRED DURING VERFICATION:

CATEGORY	DOCUMENTS REQUIRED
GEN	➢ Print out of SET Registration Form ➢ Print out of Admit Card ➢ Print out of score Card ➢ Provisional Allotment Letter ➢ UID/Aadhar Card/ Voter ID ➢ 8 photographs (04 for personal file,02 for hostel,01 for library & 01 for Identity card) ➢ Qualifying examination Mark Sheets ➢ Qualifying examination passing certificate ➢ Character Certificate ➢ Medical Fitness Certificate (Eye/Hearing/Blood Group as mentioned at 2.11(e)) ➢ Affidavit by parents ➢ Affidavit by Student(above 18 years) ➢ Migration Certificate (to be submitted before start of 1st sem examinations) ➢ Seat holding fee deposit receipt
OBC	➢ All as required for Gen/Open Candidates ➢ OBC/Caste Certificate ➢ Income/Non creamy layer (certificate issued after 31.03.2015 as per Govt of India format)
SC/ST	➢ All as required for Gen/Open Candidates ➢ SC/ST Certificate
PH	➢ All as required for the respective main category(i.e Gen/OBC/SC/ST) ➢ Physical disability(40% or more disability) certificate issued by Chief Medical Officer of the District
POST MATRIC SCHOLARSHIP	➢ All as required for Gen/Open Candidates ➢ SC/ST Certificate ➢ Domicile Certificate ➢ Income certificate(issued after 31.03.2015)
FEE WAIVER ECONOMICALLY WEAKER SECTIONS	➢ All as required for the respective main category(i.e Gen/OBC/SC/ST) ➢ Income Certificate issued after 31.03.2015
INDUSTRY SPONSORE CANDIDATES	➢ All as required for the respective main category(i.e Gen/OBC/SC/ST) ➢ Copy of appointment letter ➢ Copy of Salary slip ➢ Form 16 ➢ Sponsorship letter from industry