

**PUNJAB ENGINEERING COLLEGE**  
(DEEMED TO BE UNIVERSITY)  
**CHANDIGARH**

**PROSPECTUS**

**Academic Session 2019-20**

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(A Deemed University under Section 3 of UGC Act, 1956)

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## BOARD OF GOVERNORS (BOG)

S.No.	Constituency as per Memorandum of Association	Nomination	Designation in Board
1.	An eminent educationist/ industrialist to be selected by the Chandigarh Administration	: Sh. Rajinder Gupta	Chairman
2.	Secretary, Technical Education, Chandigarh Administration	: Ex-officio	Member
3.	Finance Secretary, Chandigarh Administration	: Ex-officio	Member
4.	Vice Chancellor, Panjab University, Chandigarh or his nominee	: Ex-officio	Member
5.	Special Secretary /Joint Secretary, Technical Education, U.T., Chandigarh	: Ex-officio	Member
6.	Nominee of the Department of Secondary Education & Higher Education, MHRD, GOI	: Ex-officio	Member
7.	Nominee of Ministry of Home Affairs, GOI	: Ex-officio	Member
8.	Director, IIT, Delhi or his nominee	: Ex-officio	Member
9.	Nominee of the Chairman, UGC	: Ex-officio	Member
10.	Chairman, CII, Northern Region	: Ex-officio	Member
11.	Director, CSIO, Chandigarh	: Ex-officio	Member
12 & 13.	Two technologists/ Engineers/ Educationalists to be nominated by Chandigarh Administration	: Sh. Kiran Malhotra, Advisor Business Development in Automotive Industry : Sh. Arun Kumar Grover, Former Vice Chancellor, Panjab University, Chd.	Member
14 & 15.	Two eminent Industrialists to be nominated by the Chandigarh Administration	: Sh. A.K. Taneja, MD & CEO Shriram Pistons & Rings, New Delhi  Sh. Sanjeev Aggarwal, Founder & Senior Managing Director, Helion Ventures	Member  Member
16.	An eminent alumnus of the Institute to be nominated by the Chandigarh Administration	: Sh. Purushottam Kaushik, Senior Advisor, McKinsey and Company, Mumbai	Member
17 & 18.	Two Professors of the Institute to be nominated by the Senate	: Prof. Sanjeev Sofat, Prof. Computer Science  Prof. Siby John, Prof. Civil Engineering	Member  Member
17.	Director, Punjab Engg. College (DU)	: Ex-officio	Member
18.	Registrar, Punjab Engg. College (DU)	: Ex-officio	Member Secretary

## SENATE

### LIST OF MEMBERS

Director	: Ex-officio	Chairman
Deputy Director	: Ex-officio	Member
Head of all the Academic Departments & Centers	: Aerospace Engineering	Member
	: Applied Sciences Deptt.	Member
	: Civil Engineering Deptt.	Member
	: Computer Science & Engineering Deptt.	Member
	: Electrical Engineering Deptt.	Member
	: Electronics & Communication Engg. Deptt.	Member
	: Mechanical Engineering Deptt.	Member
	: Materials & Metallurgical Engineering Deptt.	Member
	: Production & Industrial Engineering Deptt.	Member
	: Centre of Excellence in Industrial & Product Design	Member
	: Centre of Management and Humanities (CMH)	Member
	: Cyber Security Research Center	Member
	: Centre of Total Quality Management (TQM)	Member
Dr. Asha Gupta Dr. Sanjeev Kumar	: Two Professors, other than Deans/ Heads of Department by rotation	Members
Prof. S.K. Sharma Prof. Arun K. Singh	: Two Associate Professors from the departments, elected from amongst the Associate Professors	Members
Prof. R.K. Mahajan Prof. Tejinder Singh Saggu	: Two Assistant Professors from the departments, elected from amongst the Assistant Professors	Members
Dr. Sanjay Sood, Joint Director, CDAC, Mohali	: Two persons from educationists of repute or persons from any other field related to the activities of the Institute who are not in the service of the Institute, nominated by the Chairman of the Board of Governors.	Members
Prof. M. Rajiv Lochan, Deptt. of History, Panjab University, Chd.		
Ms. Seema Vasishta Sh. Sushil Kumar	: Two persons who are not members of the teaching staff, co-opted by the Senate for their specialized knowledge.	Members
Registrar	: Ex-officio	Secretary

#### Special Invitees:

:

1. Dean Academic Affairs
2. Associate Dean (UG)
3. Associate Dean (PG)
4. Associate Dean (Ph.D.)

**DIRECTOR, DEPUTY DIRECTOR & REGISTRAR**

Director	:	Prof. Dheeraj Sanghi
Deputy Director	:	Prof. Uma Batra
Registrar (Ad-interim)	:	Prof. Sushant Samir

**APPELLATE AUTHORITY UNDER RTI ACT**

<b>Authority</b>		<b>Name (Prof./ Dr./ Sh./ Ms.)</b>
Appellate Authority	:	Deputy Director

**HEADS OF DEPARTMENTS**

<b>Department</b>		<b>Name (Prof./ Dr./ Sh./ Ms.)</b>
Head, Aerospace Engineering	:	Rakesh Kumar
Head, Applied Sciences	:	Harminder Kaur
Head, Civil Engineering	:	R.R. Singh
Head, Computer Science & Engineering	:	Sanjeev Sofat
Head, Electrical Engineering	:	Tilak Thakur
Head, Electronics & Communication Engineering	:	Neelu Jain
Head, Mechanical Engineering	:	P.S. Satsangi
Head, Material & Metallurgical Engineering	:	Uma Batra
Head, Production & Industrial Engineering	:	M. M. Gaud

**DEANS & ASSOCIATE DEANS**

<b>Deans</b>	<b>Name (Prof./ Dr./ Sh./ Ms.)</b>	<b>Associate Dean</b>	<b>Name (Prof./ Dr./ Sh./ Ms.)</b>
Faculty Affairs	Balwinder Singh (Elect. Engg.)	-	Suman Kant (Prod. Engg. Deptt.)
Academic Affairs	Parveen Kalra (Production Engg.)	Ph.D. & Coordinator for all examinations/ recruitment for external agencies through PEC/ in PEC Campus	Sushant Samir (Mechanical Engg.)
		(i) M.Tech (ii) IPR	Rintu Khanna (Electrical Engg.)
		(i) U.G. (ii) IQAC	Sucheta Dutt (Applied Sciences)
Sponsored, Research & Industrial Consultancy	Tripta Goyal (Civil Engg.)	-	-
Student Affairs	Sanjeev Kumar (Applied Sciences)	Hostels	Arun K. Singh (Electronics & Communication Sciences)
		Societies/ Clubs	Raminder Kaur (Electrical Engg.)
		Sports	Sanjay Batish (Computer Centre)
		Chief Security Officer	Dina Nath
Alumni & International Affairs	J D Sharma (Officiating) (Mat. & Mett Engg)	-	-

**CAREER DEVELOPMENT AND GUIDANCE CENTRE:**

<b>Name of Centre</b>	<b>Name (Prof./ Dr./ Sh./ Ms.)</b>
Head, Career Development and Guidance Cell	: Divya Bansal, CSE Deptt.
Coordinator Career Development and Guidance Cell	: Tushar Siag, Aero Space Deptt.
H.R. Executive	: Kamaljeet
Counselor, Personality Development	: Neelam Vats

**HEAD OF CENTERS**

<b>Name of Center</b>	<b>Name (Prof./ Dr./ Sh./ Ms.)</b>
Cyber Security Center	: Divya Bansal, Computer Science
Industrial & Product Design	: Parveen Kalra, Production Engg.
Manufacturing Engineering & Zero Defect Zero Effect (QCI Centre) (at inception stage)	: N.M. Suri, Production Engg.
Computer Center	: Sanjay Batish, Computer Center
Workshop and Skill Development Center	: R.M. Belokar, Production Engg.
Centre of Management & Humanities	: Sharda Kaushik, Visiting Faculty

**CHAIRPERSONS**

<b>Name of Activity</b>	<b>Name (Prof./ Dr./ Sh./ Ms.)</b>
Continuing Education	: Neena Gupta, Electronics & Comm.
Working Women Sexual Harassment Complaint Committee	: Rintu Khanna, Electrical Engg.
Estate & Works	: Sarbjit Singh, Mech. Engg.
Time Table	: Asha Gupta, Applied Sciences
Centre of Renewable Energy (at inception stage)	: Tarlochan Kaur, Electrical Engg.
Communication, Information & Media Cell	: J.D. Sharma, Material & Metallurgy Engg.

**CHIEF WARDENS**

<b>Name of Hostel</b>	<b>Name (Prof./ Dr./ Sh./ Ms.)</b>
Kurukshetra	: Sushil Kumar, Computer Centre
Aravali	: Sukhwinder Singh, Electronics Engg.
Himalaya	: R.S. Walia, Production Engg.
Shivalik	: Arun Kumar Singh, Electronics Engg.
Vindhya	: Padmavati, Computer Science
Kalpana	: Prem Lata, Electronics Engg.

**LIAISON OFFICERS**

<b>Name of Activity</b>	<b>Name (Prof./ Dr./ Sh./ Ms.)</b>
Women, Faculty & Staff	: Shobhna Dhiman, Applied Sciences
Minority Faculty & Staff	: Md. Afaq Alam, Civil Engg.
SC & ST Faculty & Staff	: Sarbjit Singh, Mechanical Engg.



OBC/ BC Faculty & Staff	:	Harminder Kaur, Applied Sciences
PwD Faculty & Staff	:	R.M. Belokar, Production Engg.
	:	Bipan Chand Kaushal, Electronics & Communication Engg.

### STUDENT ADVISERS

Name of Activity		Name (Prof./ Dr./ Sh./ Ms.)
OBC/ BC Students	:	Harminder Kaur, Applied Sciences
PwD Students	:	R.M. Belokar, Production Engg.
	:	Bipan Chand Kaushal, Electronics & Communication Engg.
SC & ST Students	:	Sarbjit Singh, Mechanical Engg.
Minority Students	:	Md. Afaq Alam, Civil Engg.
Student Counseling	:	Raminder Kaur, Electrical Engg.
International Students	:	Puneet Arora, Electrical Engg.
Girls Students	:	Divya Dhawan, E&CE

### OTHER ACTIVITIES

Name of Activity		Name (Prof./ Dr./ Sh./ Ms.)
Communication, Information and Media Cell	:	<ul style="list-style-type: none"> <li>J.D. Sharma, Head CIM</li> <li>Prabhsimran Singh, Computer Centre</li> <li>Seema Vashishtha, Central Library</li> </ul>
Horticulture, Sanitation, Furniture, Electrical Installation, Telephone Exchange, Air Conditioning, Fire Extinguisher & Civil Maintenance	:	University Engineer, attached with Chairman (Estate & Works)
O/I Guest House	:	Har Amrit Singh Sandhu, Civil Engg.
Chief Vigilance Officer	:	R.M. Belokar, Production Engg.
CPIO	:	Sanjeev Kumar, Mechanical Engg.
Estate Officer	:	Sushil Kumar, Computer Centre
Central Purchase & Disposal Officer	:	Sarita Singla, Civil Engg.

### COORDINATORS

Activity	Coordinator (Prof./ Dr./ Sh./ Ms.)
TEQIP – III	Sanjay Batish, Computer Centre
Centre of Management & Humanities	Anju Singla, Applied Sciences
Newsletter & Publications	Tejbir Kaur, Mechanical Engg.
NCC	Kamal Kumar, Mechanical Engg. attached with DSA
NSS	Loveleen Kaur, Electrical Engg. attached with DSA

Entrepreneurship & Innovation Cell & PEC Incubator	Anju Singla, CMH
Alumni & International Affairs	J.D. Sharma attached with Dean, Alumni
AIU	Seema, Central Library
Heritage furniture	Dina Nath, Production Engg.
Centre for Renewable Energy	Jaimala Gambhir, Electrical Engg.
Smart City Innovation Centre	Sanjay Batish, Computer Centre
NIRF Ranking	Sanjay Batish, Computer Centre
DBT Scholarships	ACF&A and Prabhsimran Singh
Court appointed inspection committees in reference to Building & allied works	Sarbjit Singh, Mechanical Engg.
Condemnations, Disposal of Stores including auction	Er. Dina Nath, Production Engg.
UGC/ AICTE/ NBA	Sanjeev Sofat, Computer Science Engg.

### CLUBS

Name of Clubs		Coordinator (Prof./ Dr./ Sh./ Ms.)
Speaker's Association & Study Circle (SAASC)	:	Arun Kr. Singh, E&EC Engg.
Dramatics Club	:	Jaimala Gambhir, Electrical Engg.
Music Club	:	Chandrakant Susheel, Mechanical Engg.
Energy & Envirovision Club	:	Har Amrit Singh Sandhu, Civil Engg.
Projection & Design Club	:	Ankit Yadav, Mechanical Engg.
Art & Photography Club	:	Sandeep Kaur, Electrical Engg.
Rotaract Club	:	Sudesh Rani, CSE Department

### GAMES

Name of Games		Coordinator (Prof./ Dr./ Sh./ Ms.)
Badminton, Table Tennis, Basketball	:	Mohit Kumar, Civil Engg.
Lawn Tennis, Squash Racket, Swimming	:	Gurjit Singh, Mechanical Engg.
Football, Volleyball, Handball	:	Ankit Yadav, Mechanical Engg.
Cricket, Hockey, Softball, Baseball & any other game(s)	:	Rakesh Kumar, Applied Sciences

### SOCIETIES

Society		Coordinator (Prof./ Dr./ Sh./ Ms.)
Aeronautical Society of India (AESI) and Aeromodelling	:	T.K. Jindal, Aerospace Engg.
American Society of Civil Engineers (ASCE)	:	Har Amrit Sandhu, Civil Engg.
Institute of Electronics & Electrical Engineers (IEEE)	:	Rintu Khanna, Electrical Engg.
Solar Energy Society of Indian (SESI)	:	Jaimala Gambhir, Electrical Engg.
Institute of Electronics & Telecommunications Engineers (IETE) & Indian Society for Technical Education (ISTE)	:	Jyoti Kedia, E&CE Engg.
Indian Institute of Metals (IIM)	:	Rajiv Kumar, M&M Engg.
Robotics	:	Manavjeet Kaur, Computer Science & Engg.
Society of Automobile Engineers (SAE)	:	Ankit Yadav, Mechanical Engg.
Society of Manufacturing Engineers (SME)	:	R.M. Belokar, Production Engg.

## **1. INTRODUCTION**

### **1.1 Brief History**

The Punjab Engineering College, (Deemed to be University), Chandigarh was originally established as Mugalpura Engineering College at Lahore (now in Pakistan) on November 9, 1921. The name of the institute was later changed to MacLagan Engineering College and it started functioning under this name on March 19, 1924. In the year 1931, the institute got affiliated to Punjab University, Lahore. After partition in 1947, the institute was shifted to Roorkee (India) and was renamed as East Punjab Engineering College. In the year 1950, the word 'East' was dropped and it came to be known by its now popular name – PEC (Punjab Engineering College).

Towards the end of December 1953, the institute shifted to its present campus in Chandigarh to function under Govt. of Punjab. In 1966, with the formation of Union Territory of Chandigarh, the institute came under the control of the Chandigarh Administration.

In October 2003, the Govt. of India notified the Punjab Engineering College as a Deemed to be University. The institute is governed by a Board of Governors and gets a grant-in-aid from the Chandigarh Administration.

The institute, in its new set up has introduced policies and programmes which are at par with those at IITs and other best institutions in the world.

### **1.2 Location**

The institute campus is situated in Sector-12 at the northern end of Chandigarh. It is a few minutes walk from Rajendra Park, the Punjab and Haryana Civil Secretariat, the Panjab University and the Post-graduate Institute of Medical Education and Research (PGI). The Campus is 9 km from the Chandigarh Railway Station and 8 km from the main Bus Stand.

Chandigarh is the first planned city of India. It is at present the capital of the States of Punjab and Haryana and the Union Territory of Chandigarh. The average temperature during winter varies from 4° C to 28° C and during summer from 34° C to 45° C.

### **1.3 Campus**

The institute campus extends over an area of 146 acres of land situated close to the beautiful Shivalik Hills. The campus is divided into various functional zones like hostels, main institute building, administrative block, residential complex for faculty and staff and a shopping centre. In addition to lecture theatres, tutorial rooms and drawing halls, the institute has auditorium, library, computer centre, reading rooms, workshops and well equipped laboratories. The institute has spacious playgrounds, tennis courts, squash courts, swimming pool, gymnasium and a student centre. Banking facilities with nationally connected ATMs along with a computerized post office are available. Adequate hostel facilities for both boys and girls are available on the institute campus.

## **2. ACADEMIC PROGRAMMES**

### **2.1 Undergraduate Programmes**

Four year undergraduate programmes leading to the degree of Bachelor of Technology (B.Tech.) are offered in the following disciplines

1. Aerospace Engineering
2. Civil Engineering
3. Computer Science & Engineering
4. Electrical Engineering
5. Electronics and Communication Engineering
6. Mechanical Engineering
7. Materials & Metallurgical Engineering
8. Production and Industrial Engineering

***For detailed Rules and Regulations of Undergraduate Programmes, see Annexure I***

### **2.2 Postgraduate Programmes**

#### **2.2.1 M.Tech. Programmes**

Two year programmes leading to the degree of Master of Technology (M.Tech.) are offered in the following disciplines:

1. Civil Engineering (Transportation Engineering)
2. Civil Engineering (Water Resources Engineering)
3. Civil Engineering (Structural Engineering)
4. Civil Engineering (Environmental Engineering ) - An Inter disciplinary Programme
5. Computer Science & Engineering
6. Computer Science & Information Security – A self-supporting Programme
7. Electrical Engineering
8. Electronics Engineering
9. Electronics (VLSI Design)
10. Industrial Materials & Metallurgy
11. Mechanical Engineering
12. Production & Industrial Engineering
13. Industrial Design – A self-supporting, Inter disciplinary Programme

***For detailed Rules and Regulations of M.Tech. Programmes, see Annexure II***

#### **2.2.2 Ph. D. Programmes**

The Institute has a regular Ph. D. programme leading to the degree of Doctor of Philosophy (Ph.D.) in areas of Basic Sciences, Management and different disciplines of Engineering.

***For detailed Rules and Regulations of Ph.D. Programmes, see Annexure III***

### 3. DEPARTMENTS & CENTERS

#### 3.1 Department of Aerospace Engineering

##### Faculty Members

S.No.	Name	Designation	Field of Specialization
1	Dr. Rakesh Kumar, Ph.D.	Professor & Head	Flight Mechanics
2	Dr. Tejinder Kumar, Ph.D	Professor	Rotodynamic Machines, Pulse Detonation
3	Sh. Rajesh Kumar M. Tech.	Assistant Professor	Computational Fluid Dynamics (CFD)
4.	Sh. Tushar Siag M.Tech.	Assistant Professor	Aerodynamics
5.	Sh. M.S. Rajeshwaran M.Tech	Assistant Professor	Propulsion
6.	Dr. Amarjit Singh, Ph.D.	Visiting Faculty	Aerodynamics
7.	Dr. R.S. Pant, Ph.D.	Adjunct Faculty	Flight Mechanics
8.	Dr. Jimmy Kansal, Ph.D.	Adjunct Faculty	Design
9.	Sh. Jitendra Singh.	Adjunct Faculty	Flight Testing
10.	Sh. Yogesh Kumar	Adjunct Faculty	Design

##### Programmes offered

###### (a) Bachelor of Technology

The Aeronautical Engineering Department was established in 1962. This department has been producing Aeronautical Engineers of national and international repute. The course curriculum is made broad based with the inclusion of the subjects for Civil Aviation/maintenance and Space Dynamics. Emphasis is given on the area of Computational Fluid Dynamics as well. As of now, this department has contributed to the progress of Aerospace industry through its illustrious graduate Aeronautical Engineers at national and international level.

###### (b) Doctor of Philosophy

The department provides facilities for research leading to the degree of Doctor of Philosophy in the fields of Aerospace Engineering

##### Laboratory Facilities

Apart from the common laboratories and workshop facilities in other sister departments, the Department of Aerospace Engineering has well equipped laboratory facilities of its own in the areas of Aerodynamics, Aircraft Structures, Aircraft Propulsion, Aircraft Instruments and Computational Fluid Dynamics. The Department has also a Workshop in which the students are given training on typical manufacturing processes in the field of Aerospace Engineering.

##### Research and Consultancy

Facilities exist in the area of fluid mechanics, wind tunnel testing and testing of gaseous and liquid fuels. Research facilities on Pulse Detonation Engine have been set-up in collaboration with TBRL, DRDO, Chandigarh. It is being further developed as in-house project funded by the Institute. An open jet supersonic Wind Tunnel Research facility also has been installed under in-house project. Sponsored Research projects on 'Design optimization of turbo-generator for Fuze applications' & 'Parametric study of Pulse Detonation Engine' are in progress.

### 3.2 Department of Applied Sciences

#### Faculty Members

S.No.	Name	Designation	Field of Specialization
1	Dr. Harminder Kaur Ph.D.	Professor & Head	Organometallics , Environmental Chemistry , Nanomaterials and Chemical Sensors
2	Dr. Ranjeet Kaur Sehmi Ph.D.	Professor	Number Theory
3	Dr. Vasundhara Singh Ph.D.	Professor	Synthetic Organic Chemistry, Heterogeneous Catalysis, Green Chemistry , Nanomaterials, Waste Water treatment
4.	Dr. L .N .Sharma Ph.D.	Professor	Geology, Remote Sensing
5	Dr. Sucheta Ph.D.	Professor	Modern Algebra, Computer Graphics
6	Dr. Asha Gupta Ph.D.	Professor	Topology
7	Dr. Sanjeev Kumar Ph.D.	Professor	Nano Materials, Ferroelectric Materials, Magnetoelectric Composites
8	Dr. Shobhna Dhiman Ph.D.	Associate Professor	Experimental Nuclear Physics
9	Dr. Prem Lata Ph.D.	Assistant Professor	Analytical Chemistry
10	Ms. Sumati Mahajan M. Phil.	Assistant Professor	Mathematics
11	Dr Rakesh Kumar	Assistant Professor	Fluoro Organic , Heterocyclic Chemistry

The department comprises of Chemistry, Engineering Geology, Mathematics, and Physics Sections.

The department offers core courses in Chemistry, Engineering Geology, Mathematics and Physics. A compulsory course in Mathematics is offered to 1<sup>st</sup> semester students of B Tech first year. In second semester, each branch selects a course in mathematics out of a basket of courses including courses such as Probability and Statistics, Partial differential equations, Fourier Series, Vector Calculus etc. Open electives in Mathematics and Minor Specialization Courses are also offered to B.Tech final year students. Furthermore, a compulsory course in Mathematics is offered to students of 1<sup>st</sup> semester M.Tech. In Physics, for B.Tech 1<sup>st</sup> year and 2<sup>nd</sup> year, the courses like Condensed Matter Physics, Electromagnetic Theory, Oscillations and Optics, Mechanics while in Chemistry for B.Tech 1<sup>st</sup> year and 2<sup>nd</sup> year Applied Chemistry, Physical Chemistry courses are taught. In final year, students have the option to take a Minor degree in Physics, Chemistry and Mathematics by opting 05 additional courses in each of them. Besides this, the department offers few open Elective courses in B.Tech to all branches of engineering along with the major degree.

### **Doctor of Philosophy**

The department provides the facilities for research leading to the degree of Doctor of Philosophy in the fields of Chemistry, Mathematics, Engineering Geology and Physics. Till date 19 research scholars have been awarded a degree of Doctor of Philosophy in Chemistry, Mathematics and Management, 01 research scholar has submitted her thesis and 17 are carrying their research work in Chemistry, Engineering Geology, Mathematics and Physics sections. Joint Supervision of Students in Panjab University, Punjabi University, DRDO, SASE is also undertaken by the faculty.

### **Laboratory Facilities**

The department has well equipped laboratories to impart practical training to the students in the field of Physics, Chemistry and Engineering Geology. State-of-the-art Research Labs (03) in the Chemistry section in the areas of Organic Synthesis and Catalysis, Inorganic Chemistry, Organometallics, Environmental Chemistry nano-materials and in Physics Section Advanced Functional Materials are available to all students.

### **RESEARCH AND CONSULTANCY**

The department provides research facilities in the fields of Organometallics, Environmental Chemistry, Synthetic Organic Chemistry (Natural Products and Green Chemistry), Photo Catalysis, Heterogeneous Catalysis, Fluoro Organic, Heterocyclic Chemistry, Waste Water Treatment, Analytical Chemistry, Adsorption Studies, Explosives, GIS to Water Logging, Land Slides, Road Networking and Ground Water Engineering, Number Theory, Topology, Algebra, Coding Theory, Theoretical Physics, Materials Science, Ferroelectrics, Application of Remote Sensing and.

Consultancy and testing facilities exist in the Chemistry Section for problems relating to Chemical Industry and in the Geology Section for Rock Testing and Field Survey.

In the department several workshops, seminars, National conferences, expert lecturers and short term course are organized for the benefit of the industry, academia and students.

### 3.3 Department of Civil Engineering

#### Faculty Members

S.No.	Name	Designation	Field of Specialization
1.	Dr. R.R. Singh, Ph.D, FIE, MISTE. MICI, MIBC	Professor & Head	Construction Technology & Management
2.	Dr. R.K. Khitoliya, Ph.D., FIE, LLB, MISGE, LLM, Executive MBA(H.R.)	Professor	General Civil Engineering
3.	Dr. Siby John, Ph.D.	Professor	Environmental Engineering
4.	Dr. Tripta Goyal, Ph.D., FIE , MIRC, MISTE, MIUT	Professor	Highway Engg; Traffic & Transportation Engineering
5.	Dr. S.K. Singh, Ph.D.	Professor	Soil Mechanics & Foundation Engineering
6.	Dr. Umesh Sharma, Ph.D, MIRC, MIE, MIUT	Professor	Highway Engineering; Geotechnical Engineering
7.	Sh. Satander Kumar Sharma, M.E.	Associate Professor	Environmental Engineering
8.	Dr. Geeta Arora, Ph.D.	Associate Professor	Environmental Engineering
9.	Dr. Pardeep Kumar Gupta, Ph.D., DIM, MIE, MISTE, MIRC, MASCE, MACI	Professor	Highway Engineering; Geotechnical Engineering
10.	Dr. S.K. Verma, Ph.D.	Professor	Structural Engineering
11.	Prof. Mohd. Afaq Alam, Ph.D.	Associate Professor	Water Resources Engineering
12.	Dr. Shakti Kumar, Ph.D.	Professor	Environmental Engineering
13.	Mrs. Anita Khanna, M.E.	Associate Professor	Structural Engineering
14.	Dr. Sarita Singla, Ph.D.	Professor	Structural Engineering
15.	Dr. Kamal Kumar, Ph.D	Assistant Professor	Water Resources Engineering
16.	Ms. Sovina Sood, M .E.	Assistant Professor	Highway Engineering
17.	Sh. Arshdeep Singh, M.E.	Assistant Professor	Structural Engineering
18.	Sh. Mohit Kumar, M.Tech.	Assistant Professor	Hydraulics Engineering
19.	Sh. Yatindra Kumar, M.Tech.	Assistant Professor	Water Resources Engineering
20.	Sh. Har Amrit Singh Sandhu, M.Tech.	Assistant Professor	Remote Sensing, GIS and Photogrammetry
21.	Sh. Kuldeep Kumar M.E.	Assistant Professor	Structural Engineering



## **Programmes offered**

### **(a) Bachelor of Technology**

The undergraduate curriculum is broad based and is designed to introduce the students to a wide range of problems encountered by Civil Engineers in the field. A large number of elective subjects are offered to enable a student to study the area of his special interest in depth. Students are given practical problems of different areas as their projects. Survey camps and practical training are a part of the curriculum aimed at familiarizing the students with actual problems. The main areas of study are Structural Engineering, Transportation Engineering, Water Resources and Irrigation Engineering, Geotechnical Engg., Environmental Engineering and Construction Technology & Management.

### **(b) Master of Technology**

Regular courses are offered in M.Tech. (Civil) in the following specializations:

#### **1. Transportation Engineering:**

This programme imparts advanced training to B.Tech. Civil Engineering Graduates in the fields of Traffic and Transportation Engineering, Pavement Materials, Design of Pavements, Soil Mechanics and Foundation Engineering.

#### **2. Water Resources Engineering:**

In this programme, advanced courses in the fields of Fluid Mechanics, Hydrology, Dams, Ground Water Engineering, Water Resources, Planning and System Engineering, Computer Programming and Optimization Techniques, Irrigation and Drainage Design etc. are offered.

#### **3. Structural Engineering:**

In this programme, advanced courses in the fields of Concrete, Steel, Structural Analysis, Computer Programming, Experimental Stress Analysis and Pre-stressed Concrete etc. are offered.

#### **4. Environmental Engineering:**

In this inter-disciplinary programme, advanced courses in the fields of Air and Noise Pollution, Water and Land Pollution, Advanced Water and Waste Water Treatment, Solid Waste Management, Microbiology, Ecology and Limnology, Environmental Legislation, Environmental Impact Assessment and Rural Environmental Sanitation etc. are offered.

### **(c) Doctor of Philosophy**

The department has experimental and computer facilities for doing research work leading to the degree of Doctor of Philosophy in the field of Structures, Transportation, Geotechnical Engineering, Project & Construction Management, Water Resources Engineering and Environmental Engineering.

## **Laboratory Facilities**

The department has excellent laboratory facilities for experimental work. The major laboratories are in the fields of Experimental Stress Analysis, Highways Materials, Photogrammetry, Traffic Engg., Structural Engineering, Hydraulics, Concrete, Structural Models, Surveying, Soil Mechanics, Environmental Engineering, Fluid Mechanics and Materials Testing, Air, Water and Noise, Quality Testing.

## **Research and Consultancy**

In addition to normal facilities, latest and precision equipment is available for conducting advanced research in the fields of Fiber Reinforced Concrete, Three Dimensional Photo-elasticity, Full-scale Testing, Highway Materials, Pavements, Soil Mechanics, Photogrammetry, Water Resources Engineering, Design of Regulators, River Training, and Sediment Transport etc.

Facilities exist for providing consultancy in the fields of design of Multi-storeyed Buildings, Bridges, Thermal Power Plants, Building Tunnels, Dams, Controlled Concrete Mixes, Steel Structures, Transportation and Airports, Bituminous Mixes, Industrial Structures, Water Tanks, Investigation of Soil for different types of Structures, Hydraulic Testing of Pipes, Model Testing, Ground Water Testing etc.

### 3.4 Department of Computer Science and Engineering

#### Faculty Members

S.No.	Name	Designation	Field of Specialization
1	Dr. Sanjeev Sofat Ph.D.	Professor & Head	Image Processing, IOT, Security
2	Dr. Rajesh Bhatia Ph.D	Professor	Test Cases Prioritization and Selection Software Clone Detection, Information Retrieval, Hidden Web Crawlers
3	Dr. Shailendra Singh Ph.D	Professor	Bioinformatics, Artificial Intelligence, Machine Learning, Soft Computing, Speech Technology
4	Dr. Trilok Chand Ph.D.	Professor	Medical Imaging, IoT, Wireless and Mobile, Networks, Sensor Networks, Machine Learning and related area in CSE
5	Dr. Divya Bansal Ph.D	Professor	IoT and Mobile Sensing, Data Science and Machine Learning, Information Warfare, Social Network Analysis
6	Dr. Padmavati PhD.	Assistant Professor	IoT, Wireless Sensor Networks, Deep Learning
7	Ms Alka Jindal ME.	Assistant Professor	Deep Learning Data Security, Image Processing, steganography, Machine Learning
8	Dr. Rupali Verma Ph.D.	Assistant Professor	Data Analytics, Cryptography, Artificial Intelligence & Virtual Reality
9	Dr. Poonam Saini Ph.D.	Assistant Professor	Big Data Analytics, Blockchain Technology Fault-tolerant Distributed Computing, Social Network Analytics
10	Ms. Sudesh Rani M.E.	Assistant Professor	Computer Networks, Ad Hoc Networks, Security
11	Ms. Shilpa M.E.	Assistant Professor	Data mining, Information Retrieval and Filtering, Software Engineering
12	Dr. Sandeep Harit Ph. D.	Assistant Professor	Software Defined Networks, IoT, Network Security, Intelligent Transport System & Mobile Communication
13	Dr. Manish Kamboj Ph.D.	Assistant Professor	Information Retrieval, Web Crawling, Machine Learning
14	Ms. Amandeep Kaur M.E	Assistant Professor	Digital Image Processing, Machine Learning, Data Analytics
15	Mr. Mayank M.E.	Assistant Professor	Machine Learning, Natural Language Processing
16.	Mr. Anoop Dhobal M.E.	Contractual Faculty	Image Processing, Information Extraction and Retrieval
17.	Ms. Rattandeep Kaur M.E.	Contractual Faculty	Field of expertise: Computer Networks, Wireless Sensor Networks.
18.	Ms. Rajni Sethi M.E.	Contractual Faculty	Image Processing, Soft Computing

## **Programmes offered**

### **(a) Bachelor of Technology**

Besides imparting theoretical knowledge, a lot of stress is laid on hands-on training and overall development of individual's personality. The teaching programs have been devised keeping in view close interaction with the industry. The students of this programme are exposed to subjects related to Computer Science & Engineering. The major subjects covered in this programme include Introduction to Computing, Data Structures, Computer Architecture, Microprocessors, Database Management Systems, Computer Graphics, Computer Networks, Operating System, Software Engineering and Project Management, Artificial Expert System, Network Security & Cryptography, System Software, Theory of Computation, etc.

The competence of the department is reflected in the growing demand for its fresh graduates. The number of recruiting companies has multiplied many folds in the last few years. Many alumni of the department are offering their expertise in India and abroad with companies like MICROSOFT, CISCO, IBM, SEAGATE etc.

### **(b) Master of Technology**

The Department is offering two years program leading to the degree of Master of Technology in "Computer Science & Engineering" with 25 students.

Some of the major courses offered to M.Tech. students are Advanced Algorithms, Distributed Operating System, Artificial Intelligence, Image Processing and Computer Vision, Object Oriented Modeling & Design, Digital System Design, Network System Security, Advanced Computer Networks, Multimedia Communication Systems, Wireless LANs & Mobile Computing, Cloud Computing, Design of Experiments & Research Methodology, Soft Computing.

### **(c) Doctor of philosophy**

Department also offers PhD program, Research is one of the most significant activities of the department and the thrust areas include Information Security, Wireless Networking, Computer Vision & Image Processing, Wireless Sensor Networks, Bioinformatics etc.

## **Laboratory Facilities**

All the Laboratories in the Department are very well equipped with all state of the art facilities ranging from basic equipment to advanced specialized equipment. Laboratories in the Department include Wireless Networks & Mobile Computing Laboratory, Embedded Operating System and Microprocessor Laboratory, Computer Networks laboratory, Software Engineering & Programming Lab, Multimedia & Computer Graphics Lab, High Performance Computing Laboratory, Cyber Security Research Center, Artificial Intelligence Laboratory and Data Base Management System Laboratory.

Different software and hardware which have been added to the Laboratories from time to time include Qualnet Simulator, Exata Emulator, Sea Max Analyzer Pro: Encoder / Generator software IEEE Wi Max 802.16- 2004-2005 standard, Biometric Authentication & Access Control Device, IBM Rational Rose Suite, Oracle 10g, Allegro Lisp 6.0, Borland C++, Apple iMacs, Network Cameras, Handy Cams, Laptops, Apple and HCL servers, etc.

## **Research and Consultancy**

Sponsored research projects which have been successfully undertaken in the Department include:- Design and Development of Dependable, Secure and Efficient Protocols for Wireless Mesh Networks (WMN): Sponsored by DIT, "Development of cloud based framework for delivering security as a service" (Sponsored by DIT, Ministry of Communication & IT, and Govt. of India, "CARTS :Communication Assisted Road Transportation systems" (Sponsored by ITRA, Media Laboratory Asia, "IBM Shared University Research Grant Award" (Sponsored by International Business Machine Corporation (IBM), "Data Mining and Analysis of Indian Origin Academicians in Foreign Universities for exploring opportunities of Academic Interaction" (sponsored by NSTMIS, DST, "Real time Ambient Air Quality Monitoring & Repositions Using sensor's – A Pilot Study" (Sponsored by DST, Chandigarh Administration,

### 3.5 Department of Electrical Engineering

#### Faculty Members:

S.No.	Name	Designation	Field of Specialization
1.	Dr. Shiv Narayan Ph.D.	Professor	Control Systems
2.	Dr. Tilak Thakur, Ph.D. IIT(Dhan)SMIEEE,FIE(I)	Professor & Head	Power Systems, Electronics, Instrumentation, Mechatronics, Energy Management Auditing
3.	Dr. Balwinder Singh Ph.D,MIEEE, FIE(I)	Professor	Power Apparatus & Systems
4.	Dr.(Ms) Tarlochan Kaur Ph.D., MIE, LMISTE	Professor	Power Systems
5.	Dr. Jagdish Kumar Ph.D., SMIEEE	Professor	Power Electronics & Control System
6.	Dr.(Ms) Rintu Khanna Ph.D, MIEEE, LMIE	Professor	Power Systems Renewables Appl. of Neural fuzzy systems, FACTS, DSM
7.	Ms. Sulata Bhandari M.Tech., LMISTE	Associate Professor	Control Systems
8.	Dr. PuneetChawla Ph.D	Associate Professor	Power Systems, Machine Design
9.	Dr. JaimalaGambhir Ph.D	Associate Professor	Integrated Power Systems, Renewables Biomedical
10.	Dr.Loveleen Kaur Ph.D. LMISTE	Assistant Professor	Power Systems, Transmission and Application of Distribution
11.	Dr. Raminder Kaur Ph.D	Associate Professor	Power Systems, Power Electronics Operation and control
12.	Dr. Sandeep Kaur Ph.D	Assistant Professor	Power Systems, Distributed Generation planning, Demand side Management
13.	Sh. Dhiraj Bharat M.Tech.	Assistant Professor (On study leave at IIT Kanpur)	Power Electronics, Power Conditioning, Induction Generator.
14.	Dr. Tejinder Singh Saggu Ph.D	Assistant Professor	Power Systems, Power Electronics, Renewable Energy Systems
15.	Ms. AmitaKumari M.Tech	Assistant Professor	Power Systems, Power Electronics
16.	Sh. Rajanish Kaushal M.Tech.	Contractual Faculty	Power Systems, Renewable Energy
17.	Sh. Abinash Singh M.Tech.	Contractual Faculty	Power Systems
18.	Sh. Anupam M.Tech.	Contractual Faculty	Renewable Energy System

#### Programmes Offered

##### (a) Bachelor of Technology

The undergraduate programme has been developed to provide a sound foundation in Electrical Engineering covering wide range of subjects with depth in cores/subjects like Electrical Circuits, Electrical Measurement, Electric Power Generation, Transmission and Distribution, Electrical Machines,

Mechatronics, Digital Electronic Circuits and Devices, Control Engineering, Digital Systems and Microprocessor, Electromagnetic field theory, Microprocessors and Interfacing, Power Electronics, Computer Aided Power System Analysis, Electrical Machines Design, Electric Drives, Bio-Medical Engineering, Analog and Digital Communications, Elect. Engg. Economics, High Voltage Engg., Modern Instrumentation systems, Systems and Operations Research, Illumination Engineering.

The students of third year 6<sup>th</sup> semester undergo for internship to industries, academic and research organization of repute all over world to enhance their field experience to real life. Students of final year take up various projects on Practical/industrial problems in the areas related to Power Systems, Electrical Machines, Power Electronics, Electric Drives, Control Systems with interface to hardware/software for design, develop and control a system (Project) based on their knowledge.

#### **(b) Master of Technology**

Department offers two years Master of Technology programme in Electrical Engineering with electives in the areas of Electrical Power Systems, Power Electronics & Electric Drives and Control Systems. Theoretical courses are covered in one year and following year/is for their thesis completion specially, industry based project.

#### **(c) Doctor of Philosophy**

Department also offers Ph.D. programme facilitating students to carry out research in different areas of Electrical Engineering such as power system, power electronics, control, instrumentation and renewable energy and hybrid system. Interdisciplinary research are also encouraged through interface of other departments also.

#### **Laboratory Facilities:**

The department has excellent laboratory facility for conducting experimental and research work. Major equipment and software available in the laboratories include:

Digital Earth Testers, Power Quality Analyser, Digital Storage Oscilloscope, Interactive Grounding System Analysis software, Portable Load Manager, ETAP Software, PSCAD/EMTDC Software, MATLAB with Toolboxes and SIMULINK, SPARD Software, ECG ANSYS machine, Goniometer, ICAP-4-SPICE, CASPOC, P-SPICE (CADENCE ORCAD 16.0), Photo voltaic kit, Pneumatic kit, Workstations

#### **Research & Consultancy**

The department provides research in the following areas of Electrical Engineering:

Power System Stability, Power Flow Studies, Grounding, Finite Element Analysis, Illumination, Energy auditing, Power Electronics & Drives and hybrid systems, Mechatronics.

The Departmental laboratories have facilities for providing consultancy in the fields of design of Electrical Transmission and Distribution System, Power Flow Studies, Computation of Short Circuit Currents, Steady State and Transient Stability Studies of Power Systems and Computation of Dynamic Over Voltage in Power System, Design of Industrial Power Systems, Grounding, Design and Testing of Illumination, High Voltage Testing of Power Apparatus, Finite Element Analysis of Field Problems and Systems Optimization, Energy saving Auditing, Control Systems. Third Party Quality Assurance (TPQA).

### 3.6 Department of Electronics and Communication Engineering

#### Faculty Members:

Sr. No.	Name of Faculty	Designation	Area of Specialization(s)
1	Dr. (Ms.) Neelu Jain Ph.D., MIETE	Professor & Head	Digital Signal Processing, Digital Image Processing, Embedded Systems
2	Dr. Deepak Bagai Ph.D.	Professor	Communication Networks, Electronic Waste Management
3	Dr. (Ms.) Neelam Rup Prakash Ph.D.	Professor	Digital System Design, VLSI Design, Communication, Assistive Technologies
4	Dr. (Ms.) Neena Gupta, Ph.D., MIEEE, FIETE	Professor	Communication, Optical Communication, Optoelectronics
5	Sh. Nagendra Sah M.E	Associate Professor	GSM, Computer Networking, Wireless Communication, VLSI Design
6	Dr. (Ms.) Divya Dhawan Ph.D.	Associate Professor	Optical Communication, Photonics
7	Dr. Arun Kumar Singh, Ph.D.	Associate Professor	Nanoelectronics, Transparent Electronics, Microwave Imaging, Antenna, Solar Cells
8	Dr. (Ms.) Rita Mahajan, Ph.D.	Assistant Professor	Parallel Processing, VLSI Design, Virtual Instrumentation
9	Dr. Sukhwinder Singh, Ph.D. MIEEE	Assistant Professor	Virtual Instrumentation, image Processing, Embedded Systems, Communication
10	Dr. (Ms.) Jyoti Kedia	Assistant Professor	Photonic Integrated Circuits Design, Optical Network on chip, Digital VLSI Design, VHDL
11	Dr. (Ms.) Jasbir Kaur Ph.D.	Assistant Professor	Digital Design, Communication Systems, Verilog/VHDL, VLSI Design
12	Mr. Bipan Chand Kaushal, M.E	Assistant Professor	Analog Electronics, Microelectronics
13	Mrs. Kalpana Lamba, M.E.	Contractual Faculty	Optical Communication, Wireless Communication, Analog Electronics
14	Mr. Anshul Kumar M.E	Contractual Faculty	Digital Image Processing, Optical Communication
15	Ms. Shruti M.E.	Contractual Faculty	Digital Image Processing, Signal Processing
16	Mr. Shonak Bansal Pursuing Ph.D.	Contractual Faculty	Optical Communication, Nano-photonics, Soft computing approaches
17	Prof. Charanjit Singh Bhatia Ph.D.	Adjunct Faculty	Magnetic Data Storage System,

#### Programmes offered

##### (a) Bachelor of Technology

The department offers B.Tech. programme in Electronics & Communication Engineering. The students are exposed to subjects related to Materials, Components and Processes/Systems involved in Electronics. Major subjects covered in this programme include Analog Devices and Circuits, Microwave Engineering, Digital Design, Communication Engineering, Satellite Communication, VLSI,

Microprocessor & Microcontroller, Digital Signal Processing, Computer Architecture, Computer Networks. The curriculum has been devised keeping in view close interaction with industry.

### **(b) Master of Technology**

Two full time M.Tech. programmes namely M.Tech. (Electronics) and M.Tech. (VLSI Design) are being offered by the department. Some of the major courses offered are Communication Systems, Opto Electronics, Wireless Sensors Networks, Advanced Digital Signal Processing, Digital VLSI Design, Computer Aided VLSI Design, Testing & Fault Tolerance.

### **(c) Doctor of Philosophy**

The department also offers Ph.D. program. Major research areas include Optical Communication, Digital Signal Processing, VLSI Design, and Nanotechnology.

### **Laboratory Facilities**

The major laboratories in the department include Basic Electronics, Embedded System, VLSI Design, Optical Communication, Virtual Instrumentation Lab, Microwave Lab, Videocon Lab, Nanoelectronics Lab, Communication Lab. All the labs are well equipped with state of art facilities. Major equipments & software available in the labs are VPI Photonics, Silvaco, OPTSIM, MODESYS, Beamprop, MATLAB, Bloom with Digital Signal Processing, NI Lab View 8, ORCAD, Quartus II, Microwind 3, Qualnet, Flow Code, XILINX, IE3D Microwave wizard, Proteus, Active/passive components of Microwave and antennas, Visual TCAD, PCB Prototype Machine, Hand Held Spectrum Analyzer, Kits for Wireless Sensor Networks, DSP, Microcontroller, FPGA, etc.

### **Research and Consultancy**

Research lab in Electronics and Communication Engineering Department provides an excellent platform to students for conducting state-of-art research activities in the area of micro-/nano-electronic devices. The high end workstations equipped with simulation software's including Silvaco TCAD, HyperLynx 3D EM and Ansys HFSS are being utilized for the design and development of Nano-electronic devices, Nano-photonics, Nano-antennas, Metamaterials, HF circuits etc. In addition, lab houses various characterization equipment's including Vector network Analyzer (20 GHz), Source Measurement Unit (SMU), Probe Station System, 6.5" Digit Multimeter, Multi Xchannel DSO, Dual channel DC supply etc.

The laboratory is currently involved in executing various projects funded/sponsored by National Funding agencies such as Department of Sciences and Technology (DST), Defence Research and Development Organization (DRDO), Ministry of Electronics and Information Technology (MeitY) etc. Facilities and expertise for research and consultancy also exist in the areas of Telecommunication, Digital Design, Optical Communication, Microprocessor applications, Microwave communication, VLSI and Digital Signal Processing.



### 3.7 Department of Mechanical Engineering

#### Faculty Members

Sr. No.	Name of Faculty	Designation	Specialization
1.	Dr. P.S. Satsangi Ph.D.	Professor & Head	Adv. Manufacturing Process, Production and Operations Management, Maintenance Engg
2.	Dr. A. Manna Ph.D.	Professor	Micro manufacturing, Nano-finishing, Traditional, Non-traditional, Hybrid and Micro Machining, Fabrication of Composite and Ceramics
3.	Dr. V. P. Singh Ph.D.	Professor (Under Re-employment)	Design, Vibration, Strength of Materials, Theory of Machines.
4.	Dr. Sanjeev Kumar Ph.D.	Professor	Advanced Manufacturing, Mechanical Metallurgy Material Science
5.	Dr. S.K. Mangal Ph.D.	Professor	Semi-active Vibration Control, F.E.M. in Engineering
6.	Dr. Perminderjit Singh Ph.D.	Professor	Environmentally conscious manufacturing, Thermal Engineering
7.	Dr. Sushant Samir Ph.D.	Professor	Thermal, I.C Engine and Automobile Engineering
8.	Dr. D.R. Prajapati Ph.D.	Professor	Quality Management, Production & Operation Management, Industrial Engg.
9.	Prof. Rakesh Dang Ph.D.	Assoc. Professor	Thermal Engineering
10.	Prof. Rajesh Kumar Kanda Ph.D.	Assoc. Professor	Ergonomics, Mechanical Design
11.	Prof. S.K. Soni M. Tech.	Assoc. Professor	Solar Energy, Thermal Engineering
12.	Dr. Sarbjit Singh Ph.D.	Assoc. Professor	Conventional and Unconventional processing of Composites, Metal matrix composites, welding technology, Simulation using ANSYS and ABAQUS
13.	Dr. Sandeep Salodkar Ph.D.	Assistant Professor (Away on Lien)	CAD/CAM, Manufacturing
14.	Prof. Tejbir Kaur M. E.	Assistant Professor	Vibration and Control, Automation & Robotics
15.	Prof. A.N. Dubey M. Tech.	Assistant Professor (On study leave)	Product Design and Development, Manufacturing & Quality Engineering.
16.	Dr. Kamal Kumar Ph.D.	Assistant Professor	Advance Manufacturing Processes, EDM, WEDM, Bio-compatible and Biodegradable Metallic Materials
17.	Prof. Gurjeet Singh M. Tech.	Assistant Professor	Heat Transfer & Fluid Dynamics, Computational Fluid Dynamics, Energy, Exergy and Exergoeconomics, Thermodynamics
18.	Prof. Ankit Yadav M. Tech.	Assistant Professor	Solar energy, refrigeration and air conditioning, computational fluid dynamics

19.	Dr. Chander Kant Susheel Ph.D.	Assistant Professor	Active Vibration control, Functionally Graded Materials, Optimization
20.	Prof. Gurpreet Singh M. Tech.	Contractual Faculty	Advanced Manufacturing Processes
21.	Dr. Chetan Ph.D.	Contractual Faculty	Machining Processes
22.	Dr. Harshit Kumar Khandelwal Ph.D.	Contractual Faculty	Mechanical metallurgy

## **Programmes offered**

### **(a) Bachelor of Technology**

The course aims at providing basic knowledge in Mechanical Engineering in areas like Manufacturing Processes, Fluid Mechanics, Strength of Materials, Dynamics of Machinery, Thermodynamics and Engineering Drawing etc. It further acquaints the students with Machines of Energy, Automotive Systems, Refrigeration & Air Conditioning, Non Conventional & Renewable Energy, Robotics. The programme also includes advanced subjects in areas of Design Engineering, Production Engineering, Techniques of Management, Computer Programming and Numerical Analysis and CAD/CAM, Optimization, Maintenance Engineering, Reliability of Systems. I.C. Engines etc.

### **(b) Master of Technology**

The course work provides advanced knowledge of Mathematical Modeling and Simulation, Advanced Manufacturing Processes, Design of Experiment and Research Methodology, Finite Element Methods etc. Different allied courses like Mechanical Behavior of Materials, Advanced Vibration Engineering, Advanced Heat and Mass Transfer Computational Fluid Dynamics Power Plant Engineering etc. are also offered. Course also attempts to improve Technical Communications for report writing and presentation.

### **(c) Doctor of Philosophy**

The department has facilities for research leading to Ph.D. degree in various disciplines of Mechanical Engineering i.e. Thermal Engineering, Machine Design, Advance and Micro Manufacturing , Production and Industrial Engineering, Quality Control, Vibration & Control etc.

## **Laboratory Facilities**

The department has excellent facilities for practical and research work in the laboratories of Dynamics of Machines, Hydraulic Machines, Thermal Engineering, Heat Transfer, Refrigeration & Air Conditioning, Strength of Materials and CAD. Some of the important areas covered are:  
Mechanical Design, CAD/CAM, Mechanical Vibrations, Balancing, Dynamics of Machines, Welding, Thermo Fluid Mechanics, Gas turbine, Compressible Fluid Flow, Metal Working, CAM, CNC, Robotics, Industrial Management , Operation Research and Quality Control, Heat and Mass Transfer, Heat Exchangers, Solar Air Conditioning, Automobiles and Advanced Manufacturing.

**Research & Consultancy**

Facilities exist for consultancy work in Material Testing, Heat Transfer, Machine Design, Fluid Mechanics, Machines and Automobiles and Workshop. Thirty part quality Assurance jobs are also undertaken in consultancy. Continuing education programmes are also organized for imparting latest domains knowledge and skill up gradation to the participants.

### 3.8 Department of Materials & Metallurgical Engineering

#### Faculty Members:

S. No	Name of Faculty	Designation	Field of Specialization
1	Dr. (Ms.) Uma Batra, PhD	Professor & Head	Structure-property correlation, Austempered Ductile Iron, Failure Analysis, Biomaterials, Ti-Alloy Bio Implants, Lead free solder development
2	Dr. JD Sharma, PhD	Associate Professor	Management for Metallurgical Process waste, Transparent Ceramics, Conducting Ceramics and Thin films, Materials Degradation and selection
3	Sh. RK Mahajan, ME	Assistant Professor	Industrial Waste Management and its Judicious/Effective Usage, Foundry, Forging, Heat Treatment, Cast Irons, Failure Analysis/Case Studies, Steel Melting
4	Sh. Suresh Chand, M.E.	Assistant Professor	Materials Science
5	Dr. Rajiv Kumar, Ph.D.	Assistant Professor	Powder Metallurgy and Corrosion Science
6	Dr. (Ms.) Mamta Sharma, PhD	Contractual Faculty	Materials development and their characterization, Physical Metallurgy
7	Dr. Ranvir Singh, PhD	Contractual Faculty	Metal Matrix composite, Tribology, Nano Materials
8	Dr. Sumit Bhardwaj, PhD	Contractual Faculty	Polymer Composites Materials, Multiferroic Materials, Ceramics, Nanotechnology
9	Dr. Ravi Kant, PhD	Contractual Faculty	Composite Materials, Nanomaterials and Wear

#### Programmes Offered

##### (a) B.Tech. Programme

The Department offers B.Tech. Degree programme in Materials & Metallurgical Engineering. The programme is NBA accredited for five years from July 2014-2019. The programme aims at providing basic knowledge in the areas of making, shaping and treatment of metals and materials. The major subjects of study offered are Mechanical Behavior of Materials, Material Science & Engineering, Engineering analysis and Design, Physical Metallurgy, Phase Transformation and Heat Treatment, Metal Casting, Failure Analysis of Materials, Material Joining Technology, Electro Metallurgy and Corrosion, Ceramics, Extractive Metallurgy for non ferrous Metals, Iron making technology, steel making technology, Thermodynamics of materials etc.

##### (b) M.Tech. Programme

The department started a part time M.E. Programme in 'Industrial Materials and Metallurgy' in July 1996. The programme was attracting candidates from engineering industries and academia. Currently the programme is full time and student intake is 18+5(Supernumerary). The M.Tech. Programme is NBA accredited for two years from 2017-2019. The programme offers the variety of core & elective courses such as Advanced Physical Metallurgy, Industrial Materials, Material Characterization, Computer Application & Simulation in Metallurgy, Design of Experiments & Research Methodology, and Environmental Degradation of Materials, Failure Analysis followed by the Material Processing Laboratory, Material Characterization Laboratory, Case Histories & Industry Experiences along with Seminar & Term Paper enables students to have practical exposure to industry in the relevant areas.

The subjects offered to the undergraduate and post graduate students are regularly updated by incorporating the recent trends in the fields of Metallurgy and Materials engineering in consultation with eminent personalities from industry, academic and research institutions.

### **(c) Doctor of Philosophy**

The department pursues active research in different areas which include Advance Materials including Biomaterials, Materials Joining, High Strength Ferrous Materials for Automobile Industry, Surface Engineering, Corrosion and Tribology, Transparent Ceramics, Lead free solder development.

### **Laboratory Facilities:**

Laboratory facilities exist in the department in the areas of Biomaterials Laboratory, Physical Metallurgy Laboratory, Industrial Metallurgy Laboratory, Extractive Metallurgy Lab, Materials Characterization Laboratory, Mineral Engineering Laboratory, Particulate Metallurgy Lab, and Computer Simulation Lab.

The Biomaterials Laboratory is equipped with Programmable Furnace, Dip Coating Unit, Spin Coating Unit, Digital pH meter, Ultrasonic Cleaning Apparatus, Bacteriological Incubator, Viscosity Meter, Mechanical stirrer, Rota mantle, Oil bath, Electro-chemical Work Station with FRA Module-Potentiostat, High Energy ball mill, Hydraulic press. The Physical Metallurgy Laboratory is equipped with Dry/Wet Polishing Machine, Muffle Furnaces, Metallurgical Microscopes, Inverted Microscope, Neophote II, Image Analyzer, Jominey End Quench Test Equipment, and Abrasive Cutter. The Industrial Metallurgy Laboratory is equipped with Melting Furnace, Programmable Muffle Furnaces, Vacuum Sintering Furnace, Surface Grinder, and Rolling Mill. The Extractive Metallurgy Laboratory is equipped with Bomb Calorimeter, Programmable Muffle Furnace, Surface roughness Tester, Conductivity meter, Carbon Sulphur apparatus, LCR meter and Weighing Balances with 0.1 mg sensitivity etc. The Materials Characterization Laboratory is equipped with Jeol SEM, Digital Rockwell Hardness Tester, Vicker's Hardness Tester, Wear & Friction Monitor, and Ultrasonic Flaw Detector. The Mineral Engineering Laboratory is equipped with Crusher, Ball Mill, Flootation Cell, Magnetic Separator, Cone classifier, Pot Mill, Sieve Shaker and Metallurgical stereo microscope. Computer Simulation Lab is equipped with MATLAB, Auto Cad, J-Mat Pro, ANSYS software.

### **Research and Consultancy**

The department has the competency to carry out research and consultancy work in the area of development of Austempered Ductile Iron for Engineering Applications, Coatings, 3<sup>rd</sup> generation Solar Cells, Metallurgical Waste Management, Transparent Ceramics: Synthesis and Characterization, Heat Treatment Cycle Optimization using JmatPro Software, Failure Analysis, Microstructures Evaluation on-Destructive Testing, Die Penetrant Test, Ultrasonic Flaw detection, Macro Examination of Steels to Determine Sulphur, Phosphorus Chemical Analysis of Elements in Steels, Cast Iron, Aluminium, Copper and other alloys, Thin Film Coatings for Wear & Corrosion Resistant Applications, Welding Fluxes Improvement or Development, Lead free Solder- Development, Material Selection Ferrous (Steels & Cast Irons), Non-Ferrous (Aluminum, Copper etc. alloys) Casting Design & Defect Analysis, Hardness Testing. In the recent past, we have successfully completed research & consultancy projects of Mahindra & Mahindra Ltd, Mahle Engine Components Ltd, Modern Steels Ltd and soon, we shall start working on a project related to arc furnace slag offered by Vardhman Special Steels Ltd.

### 3.9 Department of Production & Industrial Engineering

#### Faculty Members

S. No.	Name	Designation	Field of Specialization
1	Dr. Parveen Kalra Ph.D.	Professor	CAD/CAM & Robotics, FEM, Human Engineering
2	Dr. M.M. Goud Ph.D.	Associate Professor and Head	CNC Machines, Machine Tool Design, Advanced manufacturing, FEM
3	Dr. Narendra Mohan Ph.D.	Professor	Welding Engineering, Metal Casting
4	Dr. R.M. Belokar Ph.D., M.I.E.	Professor	Manufacturing System Design, Value Engineering, Non –conventional Machining
5	Dr. R.S. Walia Ph.D	Professor	Advanced Manufacturing, FEM, Work System Design.
6	Dr. Suman Kant Ph.D.	Associate Professor	Industrial Engineering, Design of Experiment
7	Dr. C.S. Jawalkar Ph.D.	Associate Professor	Advanced Manufacturing, Machining and Supply Chain Management
8	Dr. Rahul O Vaishya Ph.D.	Assistant Professor	CAD/CAM, Tool Design, FRP
9	Sh. Dina Nath B.E	Associate Superintendent	Machine Drawing, Jig Tool & Die Design
10	Dr. Ajay Singh Verma	Contractual Faculty	Composite Materials, Manufacturing Technology

#### Programmes offered

##### 2. Bachelor of Technology

The department offers a B.Tech. Degree Programme in Production and Industrial Engineering with an intake of 40 students.

The curriculum of Bachelor of Technology has been designed to provide competency in designing, implementing and managing manufacturing systems. The curriculum is a blend of theory and practical courses in the areas of design, manufacturing, industrial engineering and management. The 24 weeks in-plant compulsory industrial training in industries of repute is a unique feature of the curriculum.

##### (b) Master of Technology

The department is offering 2 year Master of Technology programme in Production & Industrial Engineering with an intake of 18 full time and 5 sponsored / part time students. The curriculum is a blend of advanced courses in Manufacturing and Industrial Engineering apart from courses in Advanced Mathematics and Design of Experiments and Research Methodology. The program requires two semesters of research work on an appropriate topic of Production / Industrial Engineering and submission of dissertation after completion of research work.

The Production & Industrial Engineering department is the cognate department of a self – supporting Interdisciplinary Programme (IDP) –M.Tech. in Industrial Design. This Masters programme started in July 2011 and provides in depth knowledge of design processes and latest design tools like 3D scanning, rapid product development, high performance visualization, laser engraving etc. Availability of well-trained graduates in industrial design would result in upgradation of quality of engineering design, process design, design materials and also result in environmentally sound and socially and culturally relevant designs. The duration of this programme for regular students is two years.

### **(c) Doctor of Philosophy**

The department has facilities to carry out research leading to Ph.D. in the areas of Robotics and Computer Integrated Manufacturing, Non-Conventional Machining Processes, Machining, Welding Engineering, Industrial Engineering and Human Engineering.

### **Laboratory Facilities**

The department has well equipped Laboratories in the fields of Machine Tools and Metal Cutting with , Casting, Welding, Metrology, Non-Conventional Machining, CAD/CAM and Human Engineering. Moreover department has established foundry lab with latest sand testing equipments. Besides, department also purchased new equipments for research work like Vacuum casting machine (Renishaw make), 3 in 1 Vacuum investment casting machine (Nikunj make), C.N.C Mini Mill (HAAS Make), Electronic Tensometer (Ashian Make) in modern manufacturing Lab. Department also established the special casting machines for research like vacuum type stir casting bottom pouring machine for development of Al and Mg alloys/composite. Advanced welding equipments like Ultrasonic plastic welding machine, wire but welding is also established. Metallurgical Microscope with image analysis is also established in Metrology lab for material characterization.

### **Research and Consultancy**

Facilities exist for taking up research projects and industrial consultancy in the areas of Welding Engineering, Non-Conventional Machining, Industrial Automation, Work Design & Ergonomics, Plant Layout and Material Handling, CNC Operations, Total Quality Management, Value Engineering, Industrial Design and Human Engineering.

### 3.10 Centre of Excellence in Industrial & Product Design

#### Faculty Members

S. No.	Name	Designation	Field of Specialization
1	Dr. Parveen Kalra Ph.D.	Professor & Coordinator	CAD/CAM & Robotics, FEM, Human Engineering, Additive Manufacturing
2	Dr. Neelam R. Prakash Ph.D.	Professor & Co-coordinator	Digital System Design, VLSI Design, Healthcare Technologies
3	Dr. Sanjeev Kumar Ph.D.	Professor & Co-coordinator	Manufacturing, Mechanical Metallurgy, Material Science
4	Dr. Jagjit Singh Randhawa Ph.D.	Assistant Professor	Human Engineering, Rapid Prototyping, Welding Engineering
5.	Dr. Rakesh Sharma	Adjunct Faculty	Innovation and Ventures
6.	Dr. Chetan Mittal	Adjunct Faculty	Biomedical instrumentation and Design of medical devices
7.	Dr. Ramesh Kumar Sen	Adjunct Faculty	Health Care & Design Applications
8.	Sh. Mandeep Chhatwal	Adjunct Faculty	Industrial Engineering, Healthcare with focus on Commercialization, Technology Transfer, Promotion of Start-ups.

#### Programmes offered

##### a) Master of Technology

Availability of well-trained graduates in industrial design would result in upgradation of quality of engineering design, design materials and also result in environmentally sound and socially & culturally relevant designs. M. Tech. in Industrial Design was started as a self-supporting interdisciplinary programme in July, 2011. This Master's programme provides in depth knowledge of human engineering, design processes and latest design tools like 3D scanning, rapid product development, high performance visualization etc. The duration of this programme for regular students is two years.

##### b) Doctor of Philosophy

The department has state of art facilities for research leading to Ph.D. degree in the area of Human Engineering and Design Applications in Medical Sciences.

#### Laboratory Facilities

The Human Engineering laboratory is well-equipped to carry out experimentation and research work in the areas of whole body and hand arm vibration exposure, anthropometry, seat design, ergonomic evaluation of industrial systems and consumer products. The main equipment in the laboratory includes Portable EMG system, Biopac MP-45 system for EDA, PPG measurement, Portable physiological monitoring system, Kinect V2 IR Cameras, Whole body and Hand arm vibrations analysis kit, Electronic dynamometer, Electronic pinchmeter, Pressure mapping system (seat and back), Delmia Human software, Anthropometric kit, Oxygen analyser, EEG-EMG system, Jack Software and Portable Gait System

The prototyping laboratory has equipments for additive manufacturing based on extrusion and polyjet technologies. It also has facilities for conversion of CT scan images to 3D models, measurement of physiological parameter monitoring and design and fabrication of PCBs. The facilities in this laboratory are being used for development of products for medical applications, assembly tools and workplace organizational aids. Equipment in the laboratory includes 3D scanning system and software, MIMICS Innovation suite (Mimics, 3-matic and Magics RP software), Fused Deposition Modeling (FDM) : Fortus 400 MC (Small), Polyjet Prototyping Machine : EDEN 260V, NI Simulator, NI DAQ



cards and Data logger cards, Lab VIEW, Controllers, sensors and actuators, Altium software and PCB prototyping machine

The Embedded system laboratory has equipments for development of embedded systems based on Intel atom boards. The facilities in this laboratory are being used for development of products for medical applications and workplace organizational aids. Equipment in the laboratory includes Intel Boards, Health Sensors and Health kits.

### **Research and Consultancy**

Facilities and expertise for research and consultancy exist in the areas of Human Engineering, Design Applications in Medical Sciences, Advanced CAD, FEM, Digital System Design, VLSI Design, Healthcare Technologies and Additive Manufacturing. Collaborative research is being undertaken in these areas with leading organizations such as PGIMER Chandigarh, Dr. Harvansh Singh Judge Institute of Dental Sciences & Hospital Punjab University Chandigarh, Minda Corporation Limited Noida, ABB Bangalore, Intel Bangalore, NITIE Mumbai.

### 3.11 Centre of Management and Humanities (CMH)

#### Faculty Members

S.No	Name	Designation	Field/Area of Specialization
1.	Dr. Sharda Kaushik	Professor & Head	Linguistics, Communication Skills, Educational Planning & Management, Writing for Newspapers
2.	Dr. Anju Singla	Associate Professor	General Management, Corporate Finance, Entrepreneurship
3.	Dr. Kamna Singh Ph.D.	Contractual Faculty	Communication Skills
4.	Ms. Anupreet Kaur Arora, MA	Contractual Faculty	Psychology
5.	Cdr. Dr. Avikshit	Visiting Professor	Management
6.	Mr. Jagannath K	Adjunct Faculty	Sales Management, Negotiations & Strategic Networking
7.	Mr. Chand Narayan	Adjunct Faculty	Media, Consulting & Training
8.	Ms. Shonali Gupta	Adjunct Faculty	Financial Market and Services
9.	Sh. Manish Kumar	Adjunct Faculty	Management

#### Programmes Offered

The Centre of Management and Humanities (CMH) was established on 01.09.2016 by carving out a section of academics pertaining to Management and Humanities from the Department of Applied Sciences. It began to operate as an independent Centre, following similar norms as other Departments of the Institute, from 03.01.2017 in the New Academic Block of the Institute campus.

The Centre offers courses such as Ethics and Self Awareness, Communication Skills (Basic and Advanced), Economics, Sociology, Psychology and French to B.Tech 1<sup>st</sup> & 2<sup>nd</sup> year students. In addition to a compulsory course in Management to B.Tech 8<sup>th</sup> semester students, minor specialization in various Management subjects (Financial Management, Principles of Management, Business Environment & Business Laws, Managing Innovation and Change, Human Resource Management, Marketing Management, Business Research, etc.) are offered to B.Tech 7<sup>th</sup> and 8<sup>th</sup> semester students.

It also offers Soft Skills and Management courses consisting of Communication Skills, Management & Entrepreneurship/IPR and Professional Ethics to M.Tech 1<sup>st</sup> year students for enhancing their knowledge and skills. The Centre also offers PhD in different domains of Management and English disciplines.

#### Laboratory Facilities

The Centre has a Language Lab functioning with 25 Computers installed with English Edge Software. The software provides opportunities to the students to practice English for functional and situational purposes, group discussions, grammar and usage, presentation skills, etc.

The Centre is on its way to establishing a new Digital Lang Lab to provide students with the opportunity to learn English using new modes, methods and materials of learning. The facilities in the Lang Lab can be utilized to promote learning of other languages too. The integration of technology and its software facilitates access to CALL or Computer Assisted Language Learning, providing added motivation to students and teachers.

### 3.12 Cyber Security Research Center

It is a unique, first of its kind Research Centre having NASSCOM as consortium of industries, PEC as academia and DIT, Chandigarh Administration as administration amongst its collaborators. It has been established to provide research, training and advice to various stakeholders. CSRC aims at bridging gaps by being think tank for the nation using institutional frame work to bridge the divide between, the Government the military and the industry. CSRC also aims at bridging an ecosystem of academia and industry with much longer tenures. The Cyber Security Research Centre closely collaborates with Industry, Government, Academia and other International Forums to foster research in the area. The Center is progressing well to become a valuable regional and national asset for the development of readiness and incidence response for protecting nation's Cyberspace. The Centre now has an established professional reputation in the area of Information security with peers overseas Universities and research institutions. The faculties have worked with several banks to aid and advise them in handling cyber frauds and other economic crimes. Faculty is also involved in various outreach activities, trainings and awareness campaigns relevant to different stakeholders. In this endeavor, more than 300 police officers and defense personnel from all the tri services have been trained at CSRC in handling cybercrimes and investigations.

#### Mission of CSRC

- Conduct high quality applied research in emerging areas of InfoSec including social media, pervasive computing, and crowd sourcing and perform analytics to extract Intelligence.
- Create indigenous innovative solutions via commercial applications of research.
- Create opportunities for the transfer of skills, knowledge and ideas between CSRC and the community at large.
- Aid and advice organizations in cyber security policy enforcements, conduct of security audits and incident handling.
- Train the manpower in InfoSec related skills.

#### Collaboration

- Various Government, academia and industry stack holders are
  - **Government** –HQ IDS under Ministry of Defence, Meity, DST, Media Lab Asia, Ministry of Defence.
  - **Academic** – IIT Bombay, IIT Kharagpur, NIT Durgapur, Singapore Management University, University of California, Riverside.
  - **Strategic Departments**- National Security Agencies.
  - **Industry** – DbauX, Microsoft Research Centre, Xerox Systems, Data Security Council of India, TCS Innovation Labs
  - **Citizens**

#### MoU with CSRC

Memorandum of Understanding Between **Defence Information Assurance and Research Agency**, Headquarters Integrated Defence Staff, Ministry of Defence, Government of India and **Cyber Security Research Centre**, Punjab Engineering College (Deemed to be University), Chandigarh for 'Academic and Research Cooperation'.

### **Faculty Members**

<b>S.no.</b>	<b>Name</b>	<b>Designation</b>	<b>Field/ area of specialization</b>
1.	Dr.Divya Bansal	Head CSRC Professor, CSE	Information Security, Cyber Warfare, Pervasive Sensing, Cloud Computing & Security, Cyber Threat Intelligence, Social Media Analytics
2.	Dr.Manvjeet Kaur	Assistant Professor	Biometric Security, Latent fingerprint Processing, Image Processing, Machine Learning
3.	Dr.Gurdit Singh	Assistant Professor (C)	Mobile Sensors, Wireless network, cryptography and cryptanalysis, secure wireless networks
4.	Prof. Sawinder Kaur	Assistant Professor (C)	Cloud Computing, Discrete Mathematics and Cryptographic Algorithms
5	Col. PavithranRajan	Adjunct Faculty	Director, Dbau Limited, Bangalore
6	Lt. Cd. L R Prakash	Adjunct Faculty	(Director and Centre Head of CDAC, Chennai. Professional Certifications in CCNA, CISP, CSA, CEH, & IIA-ISO 27001)

### **Board of Advisors :-**

<b>S.no.</b>	<b>Name</b>	<b>Affiliation</b>
1	Dr. ShekharDutt	Former Governor of Chattisgarh, Deputy NSA, Defense Secretary
2	Dr. SD Pradhan	Former Deputy NSA, Chairman JIC
3	Dr. KanwalSibal	Former foreign secretary, Member, NSAB
4	Mr. PradyotHaldar	Former Director Intelligence Bureau, Member NSAB
5	Lt. Gen. DS Hooda	Former GOC-in-C Northern Command
6	Prof. Maninder Agarwal	Professor CSE, IIT Kanpur

### **Programmes Offered**

**M.Tech Programme** - A PG course offering M. Tech. in Computer Science and Information Security is being successfully run under the Centre since 2010, with faculty working in several key research areas of national interest. The course Curriculum is up-to-date and covers a wide range of courses which spans through all the cutting edge technologies.

**Ph.D Programme**- A doctorate Programme is also offered in various key areas like

- Information Warfare
- Behavioral studies using Social Computing
- Wireless Network Security
- Biometric Security
- Data Privacy
- Smartphones based user tracking and localization
- Cybercrime, Investigations & Forensics
- Human Aspects of Security
- Information Security Management
- Network Security
- Threat Intelligence and Penetration Testing
- Security and Privacy Measurements
- Cryptography

### **Research and Consultancy Facilities: -**

CSRC has state of the art well equipped laboratory facilities. The laboratory is updated on frequent basis with the cutting edge technologies. Tools like

- Maltego (useful for network reconnaissance and scouting, hierarchal representation of entities and link analysis),
- Keyhole (Trend analysis/ Influencer analysis/ post trends over twitter, Facebook)
- Meaning Cloud (entity recognition, Contextual mining etc.)
- The lab also includes SPLUNK (Big Data Analytics)
- Mobile Forensic Kit (Data Extraction from mobiles and analysis)
- Reflected Ultraviolet Imaging System (RUVIS- for capturing latent fingerprints).
- Various sensors and development kits like Arduino & Raspberry Pi (Development of IoT based projects are also available in lab)
- A digital data-wall for data analytics and visualization.

### **Internships bagged by M.Tech CS&IS students**

The students got internship offers from NXP Semiconductors, SAP Labs, Ericsson India Global Service India Pvt Ltd., IIT Delhi, CPA Global, DbauX Technologies, Nokia and Striker Global Technology Centre Pvt. Ltd

### 3.13 Centre of Total Quality Management (TQM)

#### Faculty Members

S.No	Name	Designation	Field/Area of Specialization
1.	Dr. NM Suri	Professor & Head	Welding, Casting and advanced manufacturing
2.	Prof. Naresh Chawla	Visiting Professor & Program co-coordinator	Six Sigma, Quality tools & techniques, Quality Management System, Business Excellence Frameworks, Statistical Quality Control, DoE/Taguchi Method, Lean Manufacturing
3.	Dr. A.K. Srivastava	Adjunct Faculty	Quality Tools & Techniques, Statistical Quality Control and Quality Management Systems

Students are mentored by our faculty having rich industrial experience in pertinent quality management practices and application of quality management tools and techniques, Quality experts and practitioners from QCI and Industry regularly visit the Centre to deliver lectures and interact with the students.

Centre actively supports the activities of QCI in the region to support the cause of establishing an eco-system for quality. Centre has helped QCI in organizing programs for promoting Zero Defect Zero Effect (ZED) initiative of Ministry of MSME, GoI.

#### Programmes offered

Centre for Total Quality Management was set up in 2015 after entering into a MoU with Quality Council of India (QCI). PEC started ME (TQEM) in 2011 and since then program has been further fortified through its association with QCI and renamed as M.Tech (TQM) since 2015. The program is highly practice- oriented and provides a good opportunity to the students to learn the concepts in real life scenario by working on live projects in the industry.

Curriculum has been designed after consulting industry practitioners which was further vetted by Quality Council of India. It includes the application based knowledge of following subjects:

Management Practices for Business Excellence, Quality Management Systems & Standards, Problem Solving Tools & Techniques, Quality Tools & Techniques, Project Management, Statistical Process Control, Acceptance Sampling, Six Sigma Quality Management, Design of Experiments and Research Methodology, Reliability Engineering, Performance Management & Systems Measurement System & Analysis, Internet of Things, Machine Learning, Communication Skills Management and Entrepreneurship, Professional Ethics

The key focus of the Centre is to improve employability. Learning outcomes of the program includes the development of following skill set:-

Evolving quality culture through cascading the strategic business objectives to different layers of management, designing, implementing and assessing Quality Management Systems (ISO 9000/ISO 14000, IATF 16949, OHSAS) and excellence frameworks, applying problem solving methodologies, QC tools and statistical techniques for planning, controlling, assuring and improving capability, formulating, analyzing, interpreting and take decisions using scientific and experimental methods, improving the operational efficiencies through Lean Six Sigma and Japanese practices, using Microsoft Excel, statistical software and other emerging computing techniques for data collection, data modeling and data analysis, excelling in Business Communication

## **4. INTER DISCIPLINARY PROGRAMMES AND RESEARCH GROUPS**

### **4.1 Interdisciplinary Programmes**

Two year Inter disciplinary programmes leading to the degree of Master of Technology (M.Tech.) are offered in the following disciplines:

1. Civil Engineering (Environmental Engineering )
2. Industrial Design – A self-supporting Programme

### **4.2 Research Groups**

Twenty five research groups are actively working in various thrust areas like Pulse Detonation ,High Performance Concrete, Remote sensing, Nanomaterials, Information Security Systems, Power System, VLSI, Microcontroller based System, Aerodynamics, Photonic Systems and Network Design in various departments. Various projects, expert lectures, involvement of B.Tech./M.Tech./PhD students in the projects are the activities undertaken by the research groups. Funding from TEQIP-II is available to all research groups. Students are also paid under the 'Earn While You Learn' scheme.

## **5. CENTRAL FACILITIES**

### **5.1 Computer Centre**

The Computer Centre administers and manages the entire Campus Network which includes Departments, Centres, Main Administrative Block, Hostels and the Guest House of the Institute. Computer centre is a central computational facility, remains open from 8.00 AM to 8.00 PM on all working days & Saturdays. The Computational facility in Computer Centre includes HP, ACER, HCL Servers, 80 desktop computers and other peripherals. Windows & Linux environment are available to the users. Computer Centre also has video conferencing facility and virtual class room.

The Computer Centre is central place for campus-wide networking and Internet connectivity. Backbone connectivity initiates from this Centre and caters to more than 2000 nodes (wired/ wireless) across the campus. The Server Room of Centre has uninterrupted power supply facility and is equipped with: Servers (Web Server, Academia Server, E- Mail Server, Anti-Virus Server), Application Servers (Robot Studio, MATLAB, ESTINET, English edge language server), and Security Appliances (Cisco ASA 5000, Unified Threat Management System), Internet Bandwidth of 32 Mbps (1:1) of through leased line connectivity is available in the institute, PEC is a partner of National Knowledge Network (NKN). The NKN is a state-of-the-art multi-gigabit pan-India network for providing a unified high speed network backbone for all knowledge related institutions in the country. Campus network is based on Gigabit technology with layer-3, layer-2 manageable switches, routers, with optical fiber cable backbone.

For the security and accountability of Internet access, Centre has adopted a log based authenticity system which accounts for user time and surfing activities. Hardware based *Security wall* is configured to help, cut-out the Intrusion Activity. Security wall has in-built Intrusion Detection System (IDS).

Computer Centre has also extended the network/ Internet connectivity on wireless (Wi-Fi) to whole campus and hostels.

### **5.2 Workshop**

The Institute Workshop is as old as the institute itself. The workshop imparts basic workshop training to the students in regular semester. The Workshop also undertakes, repair and maintenance work of all the departments. It is being used as a central facility for the fabrication of projects and other research & developmental works. The Workshop is equipped with Machine, Fitting, Electrical, Welding, Sheet Metal, Carpentry, Foundry, Smithy, Automobile, Electroplating and Pattern Shops which are handled by well experienced and qualified staff.

### 5.3 Career Development & Guidance Centre

Career Development & Guidance Centre offers all round Career Solution to the students. Career Development & Guidance Centre guides students to decide and pursue their dream career in different sectors. The whole placement process is organized and executed by this centre. The campus interviews are held under the supervision and jurisdiction of this centre and the relevant feedback is obtained from the industry. Career Development & Guidance Centre works hard to arrange full semester industrial internship, which is stipulated under the academic curriculum. The centre has kept a close liaison with many companies in the county.

The centre also arranges career talks for dissemination of knowledge regarding the employment opportunities in the industry related to the relevant fields and interest of the students. Centre keeps record of the students who undergo internships and the companies which come for recruitment. In addition, Finishing School/Soft Skill & Employability Skill Development workshops are also organized to improve the communication skills of students. It encourages visits to the industries by the institute students and arranges industrial problems to be worked out by students as part of their projects. It also takes suggestions from members of the industry regarding designing/changing of curriculum. It takes care of:-

- i. Career Development & Guidance Program.
- ii. Internship & Full Time Placement Activities.
- iii. Facilitate Pre-Placement visits to the Companies.
- iv. Communication, Networking & Relationship building with the Potential Recruiters.

#### Top Recruiters:-

- |                           |                                 |
|---------------------------|---------------------------------|
| • Microsoft               | • Samsung R&D                   |
| • Salesforce              | • Havells                       |
| • Amazon                  | • Cummins                       |
| • Mckinsey                | • Accolite                      |
| • GwynnieBee              | • Deutsche bank                 |
| • Goldman Sachs           | • Publicis Sapient              |
| • Myntra                  | • Shell IT                      |
| • WDC (Sandisk)           | • Uber                          |
| • ITC                     | • Nestle India                  |
| • Texas Instruments       | • CRL-BEL                       |
| • Cypress                 | • Havells                       |
| • Arcesium                | • Nokia                         |
| • Royal Bank of Scotland  | • Loreal                        |
| • Hero                    | • Cummins                       |
| • Exxonmobil              | • Amadeus                       |
| • Indus valley Partners   | • Tata Motors                   |
| • L & T Constructions     | • J P Morgan                    |
| • NXP Semiconductor       | • Apollo Munich                 |
| • American Express        | • Trident Groups                |
| • Maruti Suzuki           | • India Mart                    |
| • Bombardier              | • Oyo                           |
| • Fiat                    | • ABB                           |
| • One Assist              | • Hilti                         |
| • Carrier Midea           | • Bajaj Auto                    |
| • Nagarro                 | • Ittiam                        |
| • Ramboll India           | • Rate gain Travel Technologies |
| • Loreal                  | • Optum (UHG)                   |
| • Bharti Airtel           | • Jugnoo                        |
| • Vardhman Special Steels | • Yodlee                        |



### Placement Data (2018-19):-

- Pre Placement Offers: 83
- Highest Package: 42 LPA
- Average Package: 9.41 LPA
- Highest Internship Stipend: Rs.1,00,000/-pa

### 5.4 Library

Central Library is a well-organized library housed in an area of about 27000 sq. Feet. It is organized into various sections, which are manned by professionally qualified staff. Having centrally air-conditioned facility with 385 seats, the library works with open access system to maximize the use of library resources. All students, faculty, staff, and alumni are entitled to make use of the library facilities provided they enroll themselves as members of the library. Library Reading Halls remain open from **Monday to Friday from 9 am to 10 pm** and on Saturday from 9 am to 5 pm. The working hours of the Circulation Section and Reference Section are from Monday to Friday from 9 am to 5 pm. During Exam Days (Mid-term & End-semester), the library remains open on **all seven days of the week from 9 am to 12 midnight**.

Central Library has a collection of **1,20,504** volumes (as on 31.5.2019), comprising of books, standards, theses, bound volume of journals on physical sciences, engineering, and technology, computer and information technology, social sciences and management. The library has an active collection of **31,208 books** under Book Bank Scheme to support SC/ST as well as General categories students. The reference collection in the library is maintained separately and is categorized into Atlases, Bibliographies, Handbooks, Directories, Dictionaries, Encyclopedias, and Technical data. To keep its readers abreast with the latest developments in Engineering & Technology, the library provide access to over **3289 full-text e-journals** in addition to e-standards, bibliographic databases etc. from a number of publishers and aggregators through [E-ShodhSindhu](#) (outcome of merging of three consortia initiatives, namely UGC-INFONET Digital Library Consortium, NLIST and INDEST-AICTE Consortium). Full-text e-journals are accessible from various commercial publishers/aggregators/learning societies such as IEL (IEEE), ASME, ASCE, Science Direct, Springer Link, Emerald Engg. Collection, ACM, Taylor and Francis, APS, Sage, OSA, OUP, and AIP. All these resources are available through campus LAN. The library has also acquired more than **3400 e-books** from EBSCO, Pearson, Springer, Wiley, CRC, and McGraw-Hill to let users experience the advantages such as text searching, hyperlinks, embedded hypermedia, etc. over the conventional printed books. As Library is subscribing to a number of online databases for the benefit of its students and faculty, sometimes precious time of the users' is spent in clicking the mouse umpteen times in accessing the full text of e-resources from different platforms. This time could be saved if all the e-resources from diverse platforms are made available in the form of one-stop-search facility to satisfy the information needs of the users. One such platform is **EBSCO Discovery Service** and access for the same had been activated through TEQIP-II in March 2017.

PEC library has a well-developed computer and network infrastructure in the form of **Digital Library** with a provision of **32 computers** to facilitate the access of various digital collections. The library hosts a comprehensive Home Page as a part of the institute's web site. The Library Home page, <http://pec.ac.in/library/Library.asp>, serves as an integrated interface for all computer and web-based services available from the library. Central Library is also having a good collection of the most popular mode of education, i.e., Electronic Media, with the help of ICT Technology. The library has a collection of 1737 CDs, 143 Floppies, 25 DVDs and 581 videocassettes on various disciplines of engineering and technology. The library has also procured and installed NPTEL video and web courses on LAN of the Institute for the benefit of the students.

Plagiarism has emerged as one of the most troublesome issues bothering academia. PEC is struggling continuously to curb this menace. As a remedial measure, the library has provided access to **anti-plagiarism software Turnitin** in the year 2014, with the 100 user licenses, which has been raised to 250 in the year 2018. The library acts as a nodal agency to check the similarity index of the Ph.D. thesis.

**Grammarly** is an app that automatically detects potential grammar, spelling, punctuation, word choice, and style mistakes in writing. Grammarly's algorithms flag potential issues in the text and suggest context-specific corrections for grammar, spelling, wordiness, style, and punctuation to improve the writing.

All in-house activities in the Library, including Acquisition, Cataloguing, Circulation, and Serials Control, are fully computerized using LibSys Software Package. The Online Public Access Catalogue (OPAC) of the Library is operational and accessible on the intranet at <http://172.31.50.30:8380/opac/>. It can be accessed online to search more than 1,05,114 bibliographic records, available in the Library database through a web-based search interface or with a window client of the LibSys on the intranet. The editing and updating activities are done regularly. Recently, in 2014, Library implemented **RFID enabled Automation and Surveillance** Project under TEQIP-II. Every document in the Library is being tagged with RFID tags, and users are being issued smart cards. One self-service station is installed to facilitate the users with self-issue/return of documents. Two security gates, i.e., theft detection pedestals, have been installed at the entrance and exit gates of the library to check the movement of unissued books outside the library. The library is under electronic surveillance through 29 CCTVs installed since Jan 2017.

## **5.5 Hostels**

Punjab Engineering College, (Deemed to be University), Chandigarh has adequate hostel facilities for both boys and girls. There are six hostels out of which four hostels are for boys namely Shivalik (1<sup>st</sup> year students), Himalya, Kurukshetra and Aravali and two hostels for girls namely Kalpana Chawla and Vindhya hostels.

### **Administration:**

The Dean Student Affairs (DSA) is the overall in charge of all students activities of the institution along with Associate Dean Student Affairs-I. Associate Dean Student Affairs-I is the In-charge of all hostels organizations. He/She is assisted by Chief Warden/Warden of each hostel, and students representatives of the hostels. Hostel accommodation is provided to most of the students as per the availability of room in hostels.

### **Facilities:**

Following facilities are provided by the hostel management:

- 1) Residential facility for students fulfilling the basic necessities and amenities.
- 2) Dining facility with healthy and hygienic conditions, quality food material and other eatable.
- 3) Common room facility for recreational activities with provision of newspapers, magazines, television and equipments for indoor/outdoor games.
- 4) Internet/Wi-Fi facility in all hostels
- 5) Other basic amenities like washing facility etc.

## **5.6 PEC-Centre for Consultancy in Engineering (PEC-CCE)**

PEC-Centre for Consultancy in Engineering (PEC-CCE), is a consultancy centre at PEC catering to the needs of various Government and other organizations for providing timely solutions to all technical problems related to different disciplines of Engineering. PEC-CCE is working on Engineering Projects of various departments and Industry in surrounding areas as well as far away states for successful implementation by using faculty and students of PEC and a pool of resource experts, such as retired Senior Engineers/ officers of various departments having practical experience of 3 to 4 decades, thus providing the best technical solutions to the clients. PEC-CCE is an interface to strengthen linkages of PEC with Industry, Government and other research institutions and contributing to enhance the existing

brand name of PEC by promoting technology developments. PEC-CCE also provides corporate trainings on cutting edge technologies to various organization/Institutions by involving faculty of PEC & other reputed Institutes like IITs in addition to subject experts from Industry. PEC-CCE also providing trainings on running projects to under-graduate Engineers of PEC and other institutes.

## **6. SCHOLARSHIPS, AWARDS AND MEDALS**

### **6.1 Undergraduate Programmes**

#### **6.1.1 Medals**

1. Eight gold plated medals are awarded to the eight students who stand first in the institute among all candidates, appearing in the B.Tech. Final Examination of Aerospace, Civil, Computer Science and Engineering, Electrical, Electronics and Communication, Mechanical, Materials & Metallurgical Engineering and Production & Industrial Engineering respectively.
2. Eight silver plated medals are awarded to the nine students who stand first in major project / project II in the 8<sup>th</sup> semester Examination of Aerospace, Civil, Computer Science and Engineering, Electrical, Electronics and Communication, Mechanical, Materials & Metallurgical Engineering and Production & Industrial Engineering respectively.
3. Administrator's Gold Medal is awarded to a B.Tech. graduate at the time of annual convocation on the basis of his / her overall outstanding performance in the activities like academic, sports and games, cultural, technical, NCC / NSS etc.
4. Advisor's Gold Medal for the best sportsperson is awarded to a B.Tech. graduate at the time of annual convocation on the basis of his/her over all outstanding performance in sports.
5. Kalpana Chawla Memorial award, instituted by the Chandigarh Administration in the memory of Dr. Kalpana Chawla, a distinguished alumnus of the Aerospace Engineering Department of PEC, Chandigarh is given to the student standing first in the B.Tech. Aerospace Engineering. It carries a Gold Medal, a certificate and a cash award of ₹25,000/-.
6. Aditya Miglani Memorial Gold Medal is instituted in the memory of Aditya Miglani, an ex-student of this institute of the Computer Science & Engineering Department. It is awarded to the student standing first in the B.Tech. Computer Science & Engineering.
7. Sheilly Sachdev Gold Medal for Social Activities is instituted in the memory of Smt. Sheilly Sachdev and is awarded to a B.Tech. graduate at the time of annual convocation on the basis of his/her overall performance in social activities.
8. Charu Puri Excellence Award is awarded in the memory of Ms. Charu Puri to a final year B.Tech. student of PEC for augmented excellence in club/cultural activities and academics. It carries a silver medal, a certificate and a cash award of ₹5000/-.
9. Sarvnipun Chawla Memorial Award has been instituted in the memory of Sarv Nipun Chawla, an ex-student of this institute of the Production & Industrial Engineering Department. It is awarded to the student having Best Project in Production & Industrial Engineering. It consists of a cash prize of ₹5000/-
10. Charu Mehta Memorial Award has been instituted in the memory of Charu Mehta who was a student of Production & Industrial Engineering Department. It is awarded to the student of Final year of Production Engineering Department who tops the final exam of this department. The prize consists of a medal, a cash prize & a certificate.

11. Anmol & Pranshu Garg of CSE Awards have been constituted in the memory of late Alumnus Anmol Garg, B.Tech CSE (Passing out 2017) . Two awards will be given annually to two students of UG CSE to recognize their overall achievements in CSE. The award consist of Rs. 11,000/-, certificate & medals.

### 6.1.2 SCHOLARSHIPS

#### (i) For Scheduled Caste and Scheduled Tribe Students

Half free-ship on tuition fee shall be admissible to all the students belonging to the Scheduled Castes / Scheduled Tribes, who have cleared all their courses registered during the previous year and do not have a backlog of more than 2 courses and who are not on academic or disciplinary probation.

*(Note:- Free-ship would be discontinued if the student indulges in any act of indiscipline or violates the code of conduct.)*

#### (ii) Merit Scholarship

Merit Scholarship in the form of full free ship on tuition fee would be provided to one student of each branch on the basis of branch-wise merit.

#### Criterion for Award of Merit Scholarships

Merit Scholarships in the form of full free ship on tuition fee shall be awarded to the students on the basis of JEE (Main) rank for the first year, and on the basis of CGPA of previous year in second, third and final year provided it is not less than 6.5 subject to fulfillment of following further conditions:

- The students should have been admitted on the basis of JEE (Main) rank list.
- The student has cleared all the examinations of the previous semester/year in the first available opportunity except for co-curricular activities course.
- The student should not be on disciplinary probation.
- Free-ship would be discontinued if the student fails in any of the subjects in subsequent odd semester except in physical education and/or his/her CGPA in the subsequent odd semester is less than 6.5
- Free-ship would be discontinued if the student indulges in any act of indiscipline or violates the code of conduct.

#### (iii) Fee waiver for Economically Weaker Sections/Women/Persons with Disabilities students

These fee-waivers in the form of full free-ship on tuition fee shall be awarded on the basis of JEE (Main) rank list. Branch wise distribution of these fee waivers is as follows:

	Aerospace Engg.	Civil Engg.	Computer Sc. & Engg.	Electrical Engg.	Electronics & Comm. Engg.	Mechanical Engg.	Materials & Metallurgical Engg.	Production & Industrial Engg.	Total
<b>Women</b>	1	3	3	3	3	3	2	2	20
<b>Persons with Disabilities</b>	1	2	2	2	2	2	1	1	13
<b>Economically Weaker Sections</b>	2	5	5	5	5	5	3	2	32+1*

\* 1 seat will be allotted to Civil and Electrical Engg. department combined and shall be decided on the income criteria.

These fee waivers shall be awarded to a student subject to the fulfillment of following further conditions:

- These fee-waivers in the form of full free-ship on tuition fee shall be awarded on the basis of JEE Mains rank list for the complete duration of the course i.e., for 4 years. However, the awards would be continued in the subsequent years to only those students who have cleared all their examinations up to previous year and who are not on academic probation.
- The total annual income of the family of a student being awarded fee waiver under Economically Weaker Sections category should not exceed ₹2,50,000. For proof of family income from all sources, income certificate shall be accepted when issued by a competent authority, which shall mean Deputy Commissioner / Tehsildar / SDM or the employer as the case may be. In addition to this, an affidavit duly attested by a magistrate, giving full details of the family income should also be submitted.
- He/ She should not be on academic or disciplinary probation.
- Free-ship would be discontinued if the student indulges in any act of indiscipline or violates the code of conduct.

*The following methodology shall be adopted to deal with the situations of non-availability of students in a specific category / branch:*

1. *In case the number of eligible candidates in a branch under a specific category is less than the number of scholarships in that branch, the excess scholarships would be transferred to the eligible candidates of the other branches under that specific category.*

*All such scholarships transferred from other branches within a specific category would be put in a common pool and awarded one by one to eligible candidates under that category as per the following criterion:*

- i. *If the number of such scholarships is less than or equal to the number of branches with eligible candidates left, these scholarships would be awarded on the basis of **JEE (Main) rank list** subject to the condition that not more than one scholarship is awarded to a particular branch.*
  - ii. *If the number of such scholarships is more than the number of branches left (say x) with eligible candidates, then first x scholarships would be awarded on the basis of **JEE (Main) rank list** subject to the condition that not more than one scholarship is awarded to a particular branch.*
  - iii. *The above procedure will be repeated with the remaining scholarships and the remaining candidates till all the scholarships (or candidates) are exhausted.*
2. *In case the number of total eligible candidates in a specific category is less than the number of scholarships in that category, the excess scholarships would be transferred to the other categories.*

*All such scholarships transferred from a category would be awarded to eligible candidates from all other categories clubbed together as per the criterion (i), (ii) and (iii) of 1 above.*

In addition, the Chairman Senate is fully authorized/empowered to financially help a student on compassionate grounds in case of an emergency.

- (iv) In addition to the scholarships given by Punjab Engineering College, Deemed to be University mentioned at (i), (ii) and (iii) above, many other scholarships offered by various other Govt. and non-Govt. organizations are also offered to the students, as and when applicable. A few scholarships under this category are:

1. Top Class Education Scheme for SC students (Central Sector Scheme).
2. Top Class Education Scheme for Student with Disabilities (Central Sector Scheme).
3. Prime Minister's Scholarship scheme for Central Armed Police forces and Assam Rifles.
4. Post Matric Scholarships for SC/ST students

Note: The students who are granted free-ship in either of the categories above cannot avail reimbursement of tuition fee in the form of any other scholarship. They have to give an affidavit that they are not availing any other scholarship from anywhere which reimburses full or part of the tuition fee.

## 6.2 Postgraduate Programmes

### 6.2.1 M.Tech. Programmes

- (a) The students (of each category) admitted to M.Tech. Degree Programmes on the basis of GATE result, may get assistantship as per AICTE norms. Grant of assistantship is subject to the availability of funds and the fulfillment of conditions for such award. The candidates admitted without GATE score shall not be entitled to the above assistantship.
- (b) Every student must submit a formal application for grant of assistantship in the prescribed form within a week from the date of actually joining the Postgraduate Classes duly attested by the concerned Head of the Department.
  - (i) An awardee under post-graduate assistantship scheme will not be allowed to receive additional assistantship or stipend or special allowance from any other source. In case he is in receipt of any such award, the same must be surrendered and the amount received as such should be refunded before the benefit of assistantship is availed of.
  - (ii) Good conduct, a minimum level of academic performance and regularity in attendance are also implied conditions for the continuance of the assistantship.
  - (iii) If any candidate is found to be ineligible for the award of the assistantship for any reasons whatsoever including wrong information given by the student concerned, the assistantship will be cancelled and the total amount paid to him will be recovered in lump-sum.
- (c) Unauthorized absence from the institute will result in forfeiture of assistantship in part or in whole for the period of absence or subsequent to such absence.
- (d) A student who has not appeared in the End Semester Examination due to shortage of attendance or otherwise will be debarred from future payment of assistantship till he clears the Semester Examination in which he has not appeared. No assistantship will be payable for the intervening period.
- (e) Unsatisfactory progress of a student during the course may result in discontinuation of assistantship.
- (f) In order to be eligible to receive the assistantship, the student is required to submit an undertaking on a non-judicial stamp paper that in case he does not fulfill the conditions as laid down by G.O.I. in their Letter No. F.3-16-88 (Part-II) 1.2, dated 7<sup>th</sup> April 1989 as modified from time to time, he will refund the entire amount of assistantship without protest. The conditions to be fulfilled in addition to the general conditions mentioned earlier are:
  - (i) He will undertake 8 to 10 hours per week of work related to teaching and research activities as assigned by the Head of Department of the Course. For this the Schedule of work may be prepared by the respective Head of the department/Departmental Academic Programmes Committee (DAPC) within a week from the admission / start of the semester.
  - (ii) He has to secure a SGPA of at least 6.5 during the first semester, second semester and third semester examinations passing all the subjects of that semester to become eligible for continuance of assistantship during the second, third and fourth semester respectively.

- (iii) He will not leave the course midway or appear in any competitive examination not related to Engineering and Technology.

### **6.2.2 Ph.D Programmes**

Full time GATE qualified Ph.D. students may be given assistantship subject to availability of funds.

## **7. STUDENTS FACILITIES**

### **7.1 Students Council**

Students Executive Council is constituted each year to expeditiously deal with the problems of the students. Thirty four student members are derived from different constituencies. The constituencies have been demarcated so that the elected representatives from these constituencies can realistically represent the interest and problems of the students concerning all areas of their life, namely, Curricular, Extra Curricular, Cultural, Sports, Hostel and Mess etc.

### **7.2 Counseling Services**

The office of the counseling services aims at helping students reach their highest academic and personal potential. This may involve helping with personal, learning and career concerns and promoting success and wellness among them. This office provides a confidential atmosphere in which students can explore any topic or situation and discuss any concerns they may have. The students are helped to work through their problems, to develop self awareness, and to overcome problems.

The office of the student counseling services offers free and confidential counseling to students on individual or group basis. The services of a professional counselor for personal counseling are available to the students. The office also conducts workshops and presentations on a variety of psychological issues. In order to receive counseling, students may walk into the office of the DSA to schedule an appointment with the counselors. Students' referrals from peers, faculty or staff are also welcome.

The Counselling Cell has a Peer Help Group Comprising of nearly 25 students from all branches/year. The Peer Help Group members are basically volunteers, who are willing to spare 6-7 hours a week towards dedicated work for the Counselling Cell. Their main task is to identify the students who need to be counseled, refer them to the counselor, and monitor their improvement.

### **7.3 Sports Facilities**

Keeping in view the importance of sports in today's scientific era and its vitality in the shaping of individual's personality and 'health and fitness', the institute lays considerable emphasis on students' participation in various games, sports and track and field activities. The spacious grounds of the Institute are laid out into playfields for Cricket, Hockey, Football, Handball, Volleyball, Lawn Tennis, Badminton etc. Facilities have also been provided for Yoga, Weightlifting, Wrestling and Kabaddi. A Gymnasium hall equipped with modern scientific machines like Multi-exerciser, a Swimming Pool and two Squash Courts are available for the use of the students. The institute organizes rowing activity with the help of Chandigarh Sports Department and Chandigarh Rowing Association at rowing centre, Sukhna Lake. Hiking and Trekking activity is also undertaken by the students.

Faculty in Physical Education and coaches are available for scientific teaching, training and coaching in various games and sports and physical fitness programme. B.Tech. 1<sup>st</sup> year students have an option to take up "Sports" as a Co-curricular Activities Course.

### **7.4 National Cadet Corps (NCC)**

The N.C.C. Infantry Unit has been started in the Institute from the year 1977 with a limited enrolment. Students desirous of enrolment in Air wing or Naval Units can do so by enrolling themselves in such units in Chandigarh. Students have to adjust themselves to the timing and training programme of these units. Enrolment is made at the time of admission in the Institute.

In the beginning of an academic session, once a student is enrolled in any of the N.C.C. units in the Institute or outside, he will continue in the same unit upto completion of course. He will have to undergo annual training camp and appear in the B and C Certificate examination of N.C.C. conducted by the



Ministry of Defense. Duration of camp is normally 10-12 days. Various adventure courses and leadership training camps are also arranged. There is a reservation of vacancies for 'C' certificate holders while joining defense forces. Reservation of jobs in companies include Sahara and Reliance group.

Non – Indian and Indian students domiciled abroad are required to obtain permission of their respective Government and submit a “No Objection Certificate” before they can be enrolled for the N.C.C. Training.

B.Tech. 1<sup>st</sup> year students have an option to take up N.C.C. as a co-curricular activities Course.

### **7.5 National Service Scheme (NSS)**

This institute is authorized for a National Service Scheme Unit comprising 300 volunteers. The unit enrolls volunteers who have the urge to do Social Service. Any student can enroll in this unit as an alternative to Sports and N.C.C. The students who have done previous N.S.S. work and otherwise satisfy the Institute N.S.S. would be given preference. The volunteers are to carry out the Training and Annual Camp as per programme.

B.Tech. 1<sup>st</sup> year students have an option to take up N.S.S. as an Co-curricular activities.

### **7.6 Medical Facilities**

The institute has a dispensary on campus to meet the first-aid and routine medical requirements of the students free of cost. In this dispensary, the consultation is also provided to the members of faculty/staff residing in campus. A senior medical officer along with other supporting staff, pharmacist, nursing orderly and ward boy attend to students and staff. In case of emergency patients are referred to GMSH-16 or PGI.

### **7.7 Students Clubs**

Each hostel has a well furnished recreation and reading room where newspapers, magazines, television and radio are provided. In addition to the above, the students have their own activity clubs. The different clubs operational in the institute are:

- (i) Art and Photography Club (APC)
- (ii) Music Club
- (iii) Dramatics Club
- (iv) Speakers' Association and study circle (SAASC)
- (v) Projection & Design Club
- (vi) Student Counseling Cell (SCC)
- (vii) Rotaract Club
- (viii) Communication Information Media Cell (CIM)
- (ix) Editorial Boards (English, Hindi, Punjabi)
- (x) Entrepreneurship and Incubation Cell

Students are required to conform to all Club rules which may be enforced from time to time by the Dean Students Affairs with the approval of the Director.

### **7.8 Technical Societies**

In the institute the Student Chapters of following Technical Societies are functional:

- (a) American Society of Civil Engineers (ASCE)
- (b) American Society of Mechanical Engineers (ASME)
- (c) Astronomy & Space Physics Society (ASPS)
- (d) Aero Technical Society (ATS)

- (e) Institution of Electrical and Electronics Engineers (IEEE)
- (f) Institution of Electronics and Telecommunication Engineers (IETE)
- (g) Indian Institute of Metals (IIM)
- (h) Indian Geotechnical Society (IGS)
- (i) Robotics
- (j) Society of Automotive Engineers (SAE)
- (k) Society of Manufacturing Engineers (SME)
- (l) Solar Energy Society of India (SESI)
- (m) Aero-modeling Society (AMC)
- (n) ACM-CSS

Students are encouraged to be members of these and other similar technical societies.

### **7.9 Publications: Magazine, Souvenir and Newsletter**

The institute magazine, known as PECMAG, is published once a year. In this magazine, technical and literary articles contributed by students of the institute are included.

A souvenir containing photographs and personal memoranda of the final year students is also published every year. It contains brief comments which bring out the salient features of each student's personality. These publications are managed by an Editorial Board, comprising of students and members of the staff.

In addition to above two publications, Editorial board releases two newsletters by the students for the activities in the institute. One in English 'SPECTATOR' and other in Hindi named 'MANTHAN' in alternate semesters. The various activities, quizzes and events at AWARD TECHNO-CULTURAL FESTIVAL are worth enumerating.

### **7.10 Shopping Centre**

The shopping Centre of the Institute provides a general merchant shop, Stationary shops, Eateries, Hair-dresser, Computerized Post Office and branches of State Bank of India and Punjab National Bank with ATM facilities.

### **7.11 Travel Concession**

Travel Concession by Rail is admissible to the bonafide students of the institute to visit their Home Town during vacation and travel for training and paper reading etc.

**Rules & Procedures for Undergraduate Programmes**  
*(Applicable to students admitted from Academic Session 2019-20 onwards)*

## 1. INTRODUCTION

Punjab Engineering College, Deemed to be University, Chandigarh is a premier institution in Northern India. Annually, about 752 students are admitted in its undergraduate programmes. Admissions are made once a year in the month of July based on ranks of candidates in JEE-Main (All India Engineering Entrance Examination), conducted by CBSE. The admission to a particular branch of study is decided by the Joint Admission Committee. The normal duration of B.Tech. programme is 8 semesters.

The objectives of the undergraduate programmes are:

- (i) To impart engineering education that prepares the students for immediate employment
- (ii) To develop design capability among students
- (iii) To develop breadth & depth of knowledge in students
- (iv) To develop communication skills, awareness & competence to use information technology, ability to design & perform experiments, ability to work with others, understanding of human, social & business spheres, global view of diversity of world & intellectual pursuits, and ability to recognize and appreciate ethical standards.

The Institute follows a specialized credit based semester system for its academic programmes. This system allows greater freedom to the individual to tailor the programmes to his/her specific needs. The students are required to follow certain regulations and procedures to meet the academic requirements of each semester.

### 1.1 Undergraduate Programmes

**Bachelor of Technology (B.Tech.)** – 4 year (8 semesters) programme in Aerospace Engineering, Civil Engineering, Computer Science and Engineering, Electrical Engineering, Electronics & Communication Engineering, Mechanical Engineering, Materials & Metallurgical Engineering and Production & Industrial Engineering.

### 1.2 Office of the Dean of Academic Affairs

The office of the Dean of Academic Affairs (DAA), called the Academic section, is responsible for the implementation of the decisions taken on academic matters by the Senate and Institute Academic Programme Committee (IAPC). It (i) receives, processes and maintains all records relating to the undergraduate and post graduate programmes including curricula, courses offered, academic calendar, registration, leave, examinations, grades and award of degrees and prizes, (ii) disseminates information pertaining to all academic matters, (iii) issues necessary memoranda/orders, (iv) acts as a channel of communication between the students, instructors, departments and IAPC. It assists the IAPC and its subcommittees in their tasks.

### 1.3 Waiver Clause

The procedures and requirements set out in this manual, other than Point Nos. 3, 6, 7, 8, 10 and 11 may be waived in special circumstances by IAPC. All exceptions are, however, reported to the Senate.

## 2. ADMISSIONS

- Admissions to the B.Tech. programmes are made once a year in July based on rank in JEE-(Main), conducted on an All India level by CBSE.
- The minimum academic qualification for admission is a pass in the final examination of 10+2 or its equivalent with at least 75% marks in aggregate (65% marks in case of S.C./S.T./PwD), conducted by a recognized Board/University/Council. The detailed

procedure and other requirements for admission are specified in the Admission Brochure brought out every year.

- 50% of the seats are reserved for candidates who pass their qualifying examination as regular students of schools located in Chandigarh and recognized by the Chandigarh Administration
- Admission to any undergraduate programme requires that the applicant
  - i) be eligible,
  - ii) go through the laid-down admission procedure, and
  - iii) pay the prescribed fees.
- All admissions to the B.Tech. programmes will be formally approved by the IAPC or its sub-committee formed for the purpose.

## **2.1 Cancellation of Admission**

All students admitted provisionally or otherwise to any programme are required to submit their marks-sheets, provisional certificates, etc. of the qualifying examination and other documents at the time of counselling for admissions. The Senate can cancel the admission of any student who fails to submit the prescribed documents or to meet other stipulated requirement(s). The Senate may also cancel the admission at any stage during the course, if it is found that the student had supplied some false information or suppressed relevant information while seeking admission.

## **2.2 Change of Branch**

The students shall normally pursue the respective B.Tech. programmes allocated to them at the time of admission. However, the senate may permit a limited number of academically meritorious students, as assessed by their performance in the Institute at the end of first semester, to change their branch as per approved guidelines given below:

### **2.2.1 Guidelines for Change of Branch**

A student may be allowed change of branch on the basis of his/her academic performance at the end of first semester provided that:

- (i) Such change will be considered only once at the end of the first semester. All such transfers can be effected only once at the beginning of the second semester of a student. No application for the change of branch will be entertained during the subsequent academic years.
- (ii) Only those students will be eligible for consideration for the change of branch who were admitted against normal seats (supernumerary seats and the seats for NRI category students excluded) and have successfully completed the first semester with CGPA > 8.00.
- (iii) The application for the change of branch has to be submitted in the prescribed proforma, in the office of Dean Academic Affairs at the end of first semester by the date announced for this purpose. The application must clearly specify the branches to which change is sought, in order of preference. The preference given once cannot be changed at a later stage.
- (iv) Merit list of the eligible applicants shall be prepared on the basis of their CGPA of the first semester.
- (v) In case of a tie in CGPA, the student who had a better JEE (Main) rank (on the basis of which admission to B.Tech programme was granted) would be placed higher in merit.

- (vi) The allotment of new branch would be made in order of merit and in accordance with the order of preference specified by the student, subject to the availability of seat with the following constraints:

***The inflow of students into a branch cannot increase the strength of a class beyond the approved intake, while the outflow of students from a branch cannot decrease its existing strength by more than 10 percent.***

### **3.0 ACADEMIC SESSION**

The academic session normally begins in the fourth week of July every year and ends in the last week of May. It is divided into two parts:

**First Semester:** Normally from the fourth week of July to the last week of November

**Second Semester:** Normally from the second week of January to the last week of May

Each of the two semesters is of 15 weeks which includes about 14 weeks of teaching, one week being utilized for the mid-semester examination.

### **3.1 Academic Calendar**

The exact dates of all the important events, such as registration, late registration, commencement of classes, examinations, vacation etc., are specified in the *Academic Calendar* of the Institute as approved by the Senate.

## **5. CURRICULUM**

Every B.Tech. programme has a curriculum and syllabi for the courses approved by the Senate. Details of the curriculum for the undergraduate programmes are contained in the “Courses of Study” bulletin, published periodically by the Institute.

### **4.1 Structure of the B.Tech. Programme**

The B.Tech. programmes consist of courses in Sciences, Mathematics, Humanities & Social Sciences, Engineering and Technology, and other related topics. The programme of instruction will consist of:

- (i) Courses in Basic Sciences, General Science and Humanities & Social Sciences.
- (ii) Engineering Science courses introducing the student to the foundations of engineering.
- (iii) Discipline core courses for the breadth requirement in the chosen discipline of studies of a student.
- (iv) Discipline elective courses enabling a student to take up a group of courses pertaining to the chosen discipline of studies of a student.
- (v) Open elective courses enabling a student to take up courses of interest from all the courses available in the Institute.
- (vi) B.Tech. project in which a student studies the problems of integrated design and which integrates the learning in all the courses that a student undertakes in the institute.

In the engineering courses, the students are exposed to principles of design, which develops in them the ability for physical and analytical modeling, design & development.

The institute allows UG students to do course work at other academic institutes. The credit transfer policy is given in **Annexure III**.

## 4.2 Credit System

### Credit Assignment

Each course has a certain number of credits assigned to it depending upon its lecture, tutorial and laboratory contact hours in a week.

Lectures/Tutorial: one lecture/tutorial hour per week per semester is assigned one credit

Laboratory: One laboratory hour per week per semester is assigned half a credit.

In evaluating the total credits assigned to a course, any fraction is normally rounded off to the next higher digit.

## 6. SUBJECT REGISTRATION & ACADEMIC REGISTRATION

All students are required to register in each semester for the courses to be pursued by them, as per the programme, on the dates specified in the Academic Calendar. A student must ensure that he/she has completed the pre-requisites, if any, for each course to be registered.

*The sole responsibility for registration rests with the student concerned.*

### 5.1 Registration Procedure

A list of courses to be offered during the semester shall be put up on the notice boards and shall be made available to Faculty Co-ordinator by the concerned HoD.

The registration procedure involves:

- (i) filling of the registration form mentioning the courses to be credited in the semester,
- (ii) payment of fees and clearance of all outstanding dues (if any), and
- (iii) signing of the registration roll in the office of the Dean, Academic Affairs.

A student will not get credit for any course for which he/she has not registered.

### 5.2 Registration of a Deficient Student

A deficient student is one who has either not taken or has taken but failed in course(s) of previous semester(s). The deficiency may be poor grades or low credits attained, not registering course(s) because of health and /or other reason(s), etc.

The programme of a deficient student must be framed by DAPC in such a manner that as many backlog courses as are available are included. Further, backlog courses must be arranged as far as possible in the sequence of their accumulation.

The registration of the deficient students is done as per the recommendations of the respective DAPC.

### 5.3 Late Registration

If for any compelling reason like illness etc. a student is unable to register by the date of normal registration, he/she can register by the late registration date (i.e., about two weeks from the beginning of the semester) specified in academic calendar on payment of a late fee. However, if a student seeks prior permission to register late on valid grounds, he /she may be allowed to do so without payment of late registration fee by Chairperson, IAPC.

*No student shall be allowed registration after the last date specified for registration.*

## 5.4 Adding and Dropping of Courses

A student may add or drop course(s) within two weeks of the beginning of the semester or till the last date(s) specified in the Academic Calendar with the permission of the IAPC.

For this, he/she must fill up the appropriate form, get the endorsement of the Instructors– in- Charge and the Convenor, DAPC and submit the form to the Academic Section for approval.

A student may be required to drop a course at any stage if it is found that he/she does not meet the pre-requisites of the course, or if there is a clash in the student's time table preventing him/her from attending the course, or if he/she is found not entitled to register for that course for any other reason.

## 5.5 Academic Load

A student is normally expected to register for six courses every semester as per the respective programme. Each course carries a weightage in terms of credits depending upon the academic load which, in turn, is determined by the number of contact hours (lectures and tutorials) and laboratory hours (if applicable).

A student may, however, be permitted by DAPC to take up an overload of one course to enrich his/her knowledge or clear backlogs as per the approved guidelines.

For backlog courses, a student may take up an overload of more than 1 course in 7<sup>th</sup> / 8<sup>th</sup> semester subject to the condition that his/her total load is not more than six courses.

Similarly, DAPC may allow a student, for bonafide reasons, to take a reduced load. Also, a deficient student may be required to take up a reduced load as per the provisions/ recommendations of DAPC /decisions of the Senate.

## 6. TEACHING AND EVALUATION

### 6.1 Teaching

- a) **Medium** - The medium of instruction and evaluation is English.
- b) **Approval of Courses** - Each course along with its weightage in terms of credits is approved by IAPC & Senate as per the procedures laid down by the Senate. Only approved courses may be offered during any semester.
- c) **List of Courses** -The list of courses to be offered by a department is finalized before the beginning of the semester by the concerned Head, taking into consideration all the requirements and the recommendations of the DAPC. The list of all courses offered by the Institute in an academic term will be made available to the students before the date of registration for that term.
- d) **Conduct of Courses**- Each course is conducted by the Instructor-in-charge, assigned by the Head of Department, with the assistance of the required number of tutors and other instructors. The Instructor-in-charge is responsible for conducting the course, making the question paper, holding the examinations in his/her course, getting the answer scripts evaluated by the team of tutors and other instructors, awarding grades at the end of the semester and transmitting the grades to the Academic Section through the Head of the Department within the prescribed time limit.
- e) **Teaching Assignments** - The Instructors-in-Charge, instructors and tutors for all the courses offered by a department during the semester are designated by the concerned Head. If any other department is also required to participate in teaching a particular course, the respective Head designates the instructor and /or tutor.



- f) A teacher is expected to follow the approved curriculum. However, he/she can deviate from it in case it is felt that such deviation will improve the academic purpose of the course. In no case, this will be treated as a ground for complaint by the students.

## **6.2 Evaluation**

The evaluation of the students is a continuous process and is based on their performance in mid-semester examination, end semester examination, quizzes/short tests, tutorials, assignments, laboratory work (if any), make-up examinations (if applicable), etc.

*In general, there shall be no choice in test/examination papers.*

The Instructor-in-charge, assisted by the team of tutors and other instructors, is responsible for making the question paper, conducting the examination in his/her course, getting the answer scripts evaluated by the team of tutors, and awarding the grades. The grades are forwarded through the Head of the Department who will ensure that proper standards have been followed.

The complete transparency will be maintained in evaluation system. The graded scripts of quizzes, tests, and mid-semester examinations will be returned to the students within a reasonable time. The answer scripts of the final examinations will be shown to the students after marking. All instructors will notify a time for such access within three days of the examination. A student may point out errors or omissions, if any, in marking in writing on the cover sheet of the answer script. The instructor will take these into account before submission of grades.

The final grades earned by all students registered in a course will be submitted by the Instructor-in-charge to the Academic Section through the Head of the Department within the prescribed time limit.

### **a) Schedule of Examinations -**

The end-semester examination and the mid-semester examination will be held within the periods allocated in the Academic Calendar. In exceptional circumstances, the Dean, Academic Affairs may permit holding the examinations outside these periods.

### **b) Make-up Examinations –**

If a student, for bonafide reasons such as illness, etc., fails to appear in the end-semester examination in one or more course(s), he/ she may make a request personally or through parent/guardian to IAPC for a make-up examination within two days of the date of the scheduled examination. Such a request must clearly specify the reasons for failure to appear in the end-semester examination with a certificate from a Government Hospital/Institute Dispensary, in case the failure was due to illness. In case, Govt. hospital/dispensary or institute dispensary is not in the vicinity of the student, the institute shall depute a doctor for medical examination of the student. The expenses for the same will be borne by the student.

Only one make-up examination, for the end-semester examination, is allowed per course. For failures to appear in mid-semester examinations, etc., it is entirely up to the Instructor-in-charge to ascertain the proficiency of the student by whatever means he/she considers appropriate if he/she is satisfied of the student's bonafides.

### 6.3 Grading System

The Institute follows a continuous evaluation system with some freedom being given to the course Instructor in deciding the pattern of evaluation and weightages. A typical break-up for continuous evaluation should be as given below:

i.	Mid-term Examination	:	15 – 25 %
ii.	End-term Examination	:	40 – 50 %
iii.	Assignments, Quizzes (Minimum 3), Projects	:	30 – 40 %

Evaluation of all components, i.e., mid-term examination, end term examination, assignments, quizzes etc. should be done in marks. The total marks thus obtained are to be converted to a letter grade. The conversion to letter grades may or may not be based on the relative performance of the students.

#### Structure of grading for academic performance:

The academic performance of a student shall be graded on a 10 point scale. The letter grades and their equivalent grade points are listed below:

Letter Grade	Performance	Grade Points
A <sup>+</sup>	Outstanding	10
A	Excellent	9
B <sup>+</sup>	Very Good	8
B	Good	7
C <sup>+</sup>	Average	6
C	Below Average	5
D	Poor	4
F	Fail	-
I	Incomplete	-
N	Not Eligible	-
S	Satisfactory	-
X	Unsatisfactory	-

#### Explanation:

**Grade ‘F’:** ‘F’ grade denotes unsatisfactory performance in a course and indicates failure in the course.

**Grade ‘N’:** A student who fails to fulfill the attendance requirement (clause 10.1) for a particular course shall not be eligible to appear in the end semester examination in that course and shall be awarded the grade ‘N’ for that course. He/she shall have to repeat the entire course.

**Grade ‘I’:** For reasons acceptable to the Instructor, an ‘I’ (for Incomplete) grade may be assigned if a student fails to complete any of the required course work by the end of the semester. In all such cases, an Incomplete Contract, which is a formal agreement between the student and the instructor, is to be filed along with the grade report. An Incomplete Contract includes:

- The course work that remains to be completed.
- The date by which the specified work must be completed (no later than one month of the close of relevant semester).
- The final grade to be substituted for the ‘I’ grade, if the specified work is not completed by the specified date.

The Incomplete Contract will be filled by the Instructor and submitted to the Academic Office when the Grade Sheet is submitted.

If the student completes the required work by the specified time, the instructor completes a grade change form indicating the final grade earned. The student should check with the instructor to ensure that a grade change form has been submitted.

If the student does not complete the required work by the specified time, the 'I' grade is automatically replaced with the final grade specified by the Instructor on the Incomplete Contract. If a final grade is not specified, or if an Incomplete Contract is not filed, the **'I' grade automatically reverts to an F grade after one month.**

### Grading System for Large Classes (>30 students)

For large classes (>30 students) the grading should follow a normal distribution for the award of the grade in the course. The marks obtained out of 100 would be converted into grades following the guidelines given below:

The mean ( $\bar{X}$ ) and the standard deviation ( $\sigma$ ) of marks obtained by all the students in a course shall be calculated. The grades shall be awarded to a student depending upon the marks and the ranges as per table given below:

**Award of Grade using Statistical Method**

Lower Range of Marks	Grade	Upper Range of Marks
$\bar{X} + 1.5 \sigma <$	A <sup>+</sup> *	-----
$\bar{X} + 1.0 \sigma <$	A	$\leq \bar{X} + 1.5 \sigma$
$\bar{X} + 0.5 \sigma <$	B <sup>+</sup>	$\leq \bar{X} + 1.0 \sigma$
$\bar{X} <$	B	$\leq \bar{X} + 0.5 \sigma$
$\bar{X} - 0.5 \sigma <$	C <sup>+</sup>	$\leq \bar{X}$
$\bar{X} - 1.0 \sigma <$	C	$\leq \bar{X} - 0.5 \sigma$
$\bar{X} - 1.5 \sigma <$	D	$\leq \bar{X} - 1.0 \sigma$
	F*	$\leq \bar{X} - 1.5 \sigma$

\* The number of students securing A<sup>+</sup> grade should not be more than 10%. The same percentage limit would apply to F grade.

#### Note:

1. Marginal adjustment in lower and upper range of marks may be done to accommodate natural cut-offs.
2. No student having marks  $\geq 35\%$  would be awarded 'F' grade.

### Grading System for Small Classes ( $\leq 30$ students)

For small classes ( $\leq 30$  students) the grades shall be awarded on the basis of absolute marks as given in the table below:

Grade	Marks (M)
A <sup>+</sup>	$M \geq 85$
A	$80 \leq M < 85$
B <sup>+</sup>	$70 \leq M < 80$
B	$60 \leq M < 70$
C <sup>+</sup>	$50 \leq M < 60$
C	$40 \leq M < 50$
D	$35 \leq M < 40$
F	$< 35$

### Measure of student's overall academic performance

A student's overall academic performance within a given semester or in all the courses completed is measured by two grade point averages.

**Semester Grade Point Average (SGPA):** The performance of a student in a particular semester is measured by Semester Performance Index (SGPA), which is a weighted average of the grades secured in all the courses taken in a semester and scaled to a maximum of 10.

If the grade points associated with the letter grades awarded to a student are  $g_1, g_2, g_3, g_4$  and  $g_5$  in five courses and the corresponding credits are  $w_1, w_2, w_3, w_4$  and  $w_5$ , respectively, the SGPA is given by

$$SGPA = \frac{w_1 g_1 + w_2 g_2 + w_3 g_3 + w_4 g_4 + w_5 g_5}{w_1 + w_2 + w_3 + w_4 + w_5}$$

For instance, suppose a student is registered for one 5-credit course, four 4-credit courses, and one 3-credit course during a semester, i.e. a total of 24 credits. If he secures A<sup>+</sup>, A, B<sup>+</sup>, C<sup>+</sup>, C, and D grades, respectively, in these courses, his SGPA will be calculated as follows:

$$SGPA = (5 \times 10 + 4 \times 9 + 4 \times 8 + 4 \times 6 + 4 \times 5 + 3 \times 4) / 24 = 174 / 24 = 7.25$$

**Cumulative Grade Point Average (CGPA)** - The Cumulative Performance Index (CGPA) indicates the overall academic performance of a student in all the courses registered up to and including the latest completed semester. It is computed in the same manner as the SGPA, considering all the courses (say,  $n$ ), and is given by

$$CGPA = \frac{\sum_i w_i g_i}{\sum_i w_i}$$

The grades of any and all repeated courses are included in the official transcripts. However, once a student repeats and passes a course in which he/ she had failed earlier, the earlier fail grade will not enter into the computation of CGPA. Incomplete grades are not included in computing the GPA until an appropriate letter grade is assigned. CGPA of 6.0 or higher is considered to be a 1<sup>st</sup> division (> 60% marks).

### Reappear Examination

Every student will be allowed to take end term exam again in a **maximum of two courses** in which he/ she scores an 'F' grade in a particular semester. If he/ she, on **re-examination**, scores sufficient marks to cross the cut-off for clearing a particular course (adopted during the regular evaluation for that course) then he/ she will be **awarded a 'D' grade**.

**Project Grades** – Project grades finalized as per approved procedure shall be submitted by the last date specified for the submission of grades. If a student wishes to petition against the grade assigned, he/she should approach the Head of the Department within a week of the beginning of the next regular academic term. The HOD will report his recommendations to the Chairman, Senate for the final decision. The Chairman, Senate may also look into such a case directly.

**Grade Report** - A copy of the Grade Report is issued to each student at the end of the semester. A duplicate copy, if needed, can be obtained on payment of the prescribed fee.

**Withholding of Grades** – The grades of a student may be withheld if he/she has not paid his/her dues, or if there is a case of indiscipline pending against him/her, or for any other reason.

## 7. HONOURS /MAJOR/MINOR SPECIALIZATION PROGRAMME

Students with good academic standing (having CGPA>6.5) and desirous of excelling further in their parent specialization itself/attaining a minor specialization will have to take 5 additional courses equivalent to 20 credits from the parent specialization/minor specialization area

## **8. ACADEMIC PERFORMANCE**

### **8.1 Minimum Level of Performance for Movement to Higher Semesters**

- a) No restriction on movement of a student from odd to even semester in a year
- b) (i) Promotion to 3<sup>rd</sup> semester of the programme during his/her second academic session in the institute only if the student has a CGPA  $\geq 5$  **and** he/she does not have a backlog of more than two courses excluding NCC/NSS/Sports course (three courses excluding NCC/NSS/Sports course (in the case of a student who had been on one semester leave during the first year)
- (ii) Promotion to 3<sup>rd</sup> semester of the programme after spending two years in the institute only if the student has completed all course work requirements (including NCC/NSS/Sports course) of the first two semesters with a CGPA  $\geq 5$ . For fulfilling this condition, a student during his/her second academic session in the institute will be allowed to register for the courses, of the first and second semesters in which he/she has F/N grades, and if required, repeat a couple of courses in which he/she has D grades, provided his/her programme has not been terminated at the end of first year as per provisions of section 8.4.
- c) Promotion to 5<sup>th</sup> semester of the programme only if the student has earned at least 63 credits at the end of fourth semester of his/her programme having moved earlier in accordance with the conditions mentioned in 8.1 a), b) above. If a student had completed the course work of the first two semesters of his/her programme with CGPA  $\geq 5.0$  after spending only one year in the institute but failed to earn 63 credits at the end of his two years in the institute, then for fulfilling the condition for moving to the 5<sup>th</sup> semester, a student during his/her third academic session in the institute will be allowed to register for the courses of 3<sup>rd</sup> and 4<sup>th</sup> semesters in which he/she has an F/N grade.
- d) Promotion to 7<sup>th</sup> semester of the programme only if the student has earned at least 88 credits at the end of sixth semester of his/her programme in the institute having moved earlier in accordance with the conditions mentioned in 8.1 a), b) and c) above

**NOTE:** The minimum credit requirements for moving to higher semesters and to continue in the programme (specified in this section and in section 8.4 below) have been fixed on the basis of existing curriculum and keeping in mind that some of the students are slow-learners and they should be facilitated, as far as possible, to complete the programme within the maximum permissible duration

### **8.2 Academic Probation / Warning**

The academic performance of each student shall be reviewed at the end of each regular semester. A student who fails to secure an SGPA of at least 4.5 and/or fails to earn a minimum of 14 credits during any semester will be considered to be on academic probation and a letter of warning shall be issued to him/her with a copy of the same being sent to the student's parents / guardian. This letter will also remind the student / parents / guardians of the conditions under which the programme of the student may be terminated.

### **8.3 Reduced Academic Load**

A student placed on Academic Probation / Warning may be permitted a reduced load during the next semester if he/she so desires. However, the courses for which he/she registers will be decided by the appropriate DAPC keeping in mind the required minimum level of performance as per section 8.1 and the termination conditions laid down in section 8.4. The parents / guardians of such a student will be kept informed of his/her progress.

### **8.4 Termination of the Programme**

For the purpose of continuation / termination of the B.Tech. programme, the performance of a student after completion of every academic session will be considered.

A student's programme may be terminated by the Senate on *any of the following grounds* and he/she will have to leave the institute (without degree):

- a) If a student fails to earn at least 21 credits after spending one year in the institute. However, a relaxation of five credits will be given to students belonging to SC / ST categories.
- b) If a student fails to complete all course work requirements of the first two semesters of the programme with a CGPA  $\geq 5.0$  in a maximum period of two years spent in the institute
- c) If a student fails to earn at least 63 credits pertaining to the first four semesters of his/her programme in a maximum period of three years spent in the institute
- d) If a student fails to earn at least 88 credits at the end of sixth semester of his/her programme in the institute
- e) If a student fails to earn at least 110 credits at the end of eighth semester of his programme in the institute (*Also see the note below*)
- f) If a student fails to complete all the programme requirements with a minimum CGPA of 5.0 after spending six years (as per clause 10.2) in the institute
- g) If a student is absent from the institute without authorized leave of absence for more than eight weeks in a semester
- h) If a student involves himself/herself in violation of the code of conduct, ragging etc. and the appropriate committee of the Senate makes a recommendation that the student's programme be terminated

**NOTE:** A student who, at the end of eighth semester of his/her programme, has earned at least 110 credits but has not completed all the curriculum requirements with a minimum CGPA of 5.0 and has not spent six years in the institute, will be allowed to register for the courses of 3<sup>rd</sup> to 8<sup>th</sup> semesters in which he/she has an F/N/X grade, and if required, repeat a couple of courses of these semesters in which he/she has a D grade, in order to complete the course work requirement and to secure a CGPA  $\geq 5.0$  within the maximum permissible duration of the programme.

## **8.5 Appeal against Termination**

- a) A student, whose programme is terminated at any stage, can appeal once to the Chairman Senate within 15 days of the issue of termination letter. In this appeal the student must fully justify as to why he/she should be allowed to continue. The Senate, if convinced of the reasons, may allow the student to continue with his/her programme.
- b) In no case will a second appeal by the same student be entertained for this purpose, in case his/her first appeal is not upheld by the Senate.

## **9. Leave**

### **9.1 Temporary Withdrawal / Semester Leave**

A student is not normally allowed to withdraw from the academic programme temporarily and is expected to complete his/her studies without any break. However, for bonafide reasons and/or in exceptional circumstances, a student may be allowed to withdraw temporarily on leave of absence at the discretion of Senate for an extended period. Such leave of absence(s) shall ordinarily not exceed two semesters with or without break during the entire period of the academic programme.

A student who remains on authorized leave of absence due to ill health is required to submit a certificate from a Registered Medical Practitioner to the effect that he/she is sufficiently cured and is fit to resume his/her studies. The student will be allowed to register only when IAPC is fully satisfied of his/her state of health.

Application for leave of absence have to be addressed and submitted to the Convener DAPC Applied Sciences for 1<sup>st</sup> year UG students and Convener DAPC of respective discipline for 2<sup>nd</sup> to 4<sup>th</sup> year UG students.

## **10. REQUIREMENTS**

### **10.1 Attendance**

All UG/PG students are expected to attend 100% of the classes including lectures, tutorials and practicals, held in a course. In case the attendance of a student in a course is between 50-75%, his/her grade in that course would be lowered by one level; and in case attendance is below 50%, the grade would be lowered by two levels.

However, if a student has earned a pass grade otherwise, his/her grade would not be lowered beyond D due to shortage of attendance.

### **10.2 Minimum and Maximum Duration of the Programme**

The minimum duration to complete the B.Tech. programme is 4 years (8 semesters) and the maximum permissible duration is 6 years (12 semesters) excluding semester leave, if any.

### **10.3 Academic**

A student is required to complete successfully all the courses of the curriculum prescribed for his/her undergraduate programme and attain a minimum level of academic performance, i.e., obtain a minimum CGPA of 5.0

### **10.4 Additional Requirements**

Departments may introduce additional specific requirements with the approval of the Senate during the professional curriculum.

### **10.5 Graduation**

A student is deemed to have completed the requirements for graduation if he/she has

- (i) met the attendance, duration and academic requirements given in Sections 10.1 to 10.3
- (ii) satisfied additional requirements, if any, of the concerned department
- (iii) paid all dues to the Institute and the Hostels, and
- (iv) no case of indiscipline is pending against him/her.

## **11. DEGREES**

### **a) Award of Degrees**

A student, who completes all the graduation requirements specified in Section 10.5, is recommended by the Senate to the Board of Governor (BOG) for the award of the appropriate degree in the ensuing convocation. The degree can be awarded only after the BOG accords its approval.

### **b) Withdrawal of the Degree**

Under extremely exceptional circumstances, where gross violation of the graduation requirements is detected at a later stage, the Senate may recommend to the Board of Governors withdrawal of a degree already awarded.

## **12. CONDUCT AND DISCIPLINE**

### **12.1 Code of Conduct**

Each student shall conduct himself/herself in a manner befitting his/her association with a Institute of national importance. He/she is expected not to indulge in any activity, which is likely to bring down the prestige of the Institute. He/She should also show due respect and courtesy to the teachers, administrators, officers and employees of the Institute, and good neighbourly behaviour to fellow students. Due attention and courtesy is to be paid to visitors to the Institute and residents of the Campus.

Lack of courtesy and decorum, unbecoming conduct (both within and outside the Institute), willful damage and/or removal of Institute property or belongings of fellow students, disturbing others in their studies, adoption of unfair means during examinations, breach of rules and regulations of the Institute, noisy and unseemly behaviour and similar other undesirable activities shall constitute violation of the Code of Conduct for students.

***Ragging in any form is strictly prohibited and is considered to be a serious offence. (See UGC regulations on curbing the menace of Ragging in Annexure VI).***

### **12.2 Disciplinary Actions and Related Matters**

Violation of the Code of Conduct shall invite disciplinary action which may include punishment such as reprimand, disciplinary probation, fine, debarring from examinations, withdrawal of scholarship and/ or placement services, withholding of grades and/or degrees, cancellation of registration and even expulsion from the Institute.

***Use of Unfair Means in examination will invite punishments as given in Annexure V***

The Instructor/Tutor shall have the power to take appropriate action against a student who misbehaves in his/her class.

The Chief Warden of a Hostel has the power to reprimand, impose fine or take any other suitable measure against a resident who violates either the Code of Conduct or Rules and Regulations pertaining to the concerned Hostel.

***Involvement of a student in ragging may lead to his/ her expulsion from the Institute.***

The Senate Student Affairs Committee (SSAC) investigates alleged misdemeanours, complaints, etc. and recommends a suitable course of action. Violation of the Code of Conduct by an individual or of a group of students can be referred to this committee by a student, teacher or other functionary of the Institute. Further, in very exceptional circumstances, the Chairman, Senate may appoint a special committee to investigate and/or recommend appropriate action for any act of gross indiscipline involving an individual or a number of students, which, in his/her view, may tarnish the image of the Institute.

The recommendation for any action other than expulsion may be approved by the Chairman Senate. In case the recommended action is expulsion of a student from the Institute, the matter shall be referred to the Senate for its final decision.

A student who feels aggrieved with the punishment awarded, may, however, appeal to the Chairman, Senate stating clearly the case and explaining his/ her position, seeking reconsideration of the decision.

***The Senate may not recommend a student, who is found guilty of some major offence, to the Board of Governor for the award of a degree even if he/she has satisfactorily completed all the academic requirements.***



### **13. AMENDMENTS**

Notwithstanding anything contained in this manual, the Senate of the Punjab Engineering College, (Deemed to be University), Chandigarh reserves the right to modify/amend without notice, the curricula, procedures, requirements, and rules pertaining to its undergraduate programmes.

**Rules and Procedures *for* Postgraduate Programmes**  
***(Applicable from Academic Session 2019-20 onwards)***

**Punjab Engineering College**  
**(Deemed to be University)**  
**Chandigarh**

## 1. INTRODUCTION

Punjab Engineering College, Deemed to be University, Chandigarh, is a premier institution in Northern India. The broad objectives of the M.Tech programmes are:

- (1) to develop the engineering /technical manpower of the highest quality to cater to the needs of industry, R&D organizations and educational institutions.
- (2) to develop advanced design capability among students.
- (3) to develop a deep understanding of the area of specialization in the students.
- (4) to develop innovative ability in the students to solve new problems, and a capacity to learn continually and interact with multidisciplinary groups.
- (5) to develop among students a capacity for free and objective enquiry, awareness and sensitivity to the needs and aspirations of the society.

With these objectives in view, the programmes are designed to have courses of study & dissertation through which a student may develop his/her concepts and skills.

The admissions to the all M.Tech programmes are regulated through valid GATE (Graduate Aptitude Test in Engineering) scores. Admission to Self-supporting programmes is regulated through GATE/Test conducted by respective departments only. A few seats in each branch of engineering are available for sponsored candidates also. The intake in various branches is approved by the Senate.

The normal duration of M.Tech programme is 2-years (4-semesters). The Institute follows a credit based semester system for its academic programmes. This system allows greater freedom to the individual to tailor the programme to his/her specific needs/aspirations.

This manual contains minimal regulations and procedures to be followed by the students to meet the academic requirements of the programmes. Within this general framework, subject to the approval of the Senate, the various departments and programmes may impose such additional requirements as will serve their particular academic objectives.

### 1.1 M.Tech Programmes

The 2-year (4 semesters) M.Tech programmes are available in following disciplines:

1. Civil Engineering (Structural Engineering)
2. Civil Engineering (Transportation Engineering)
3. Civil Engineering (Water Resources Engineering)
4. Computer Science & Engineering
5. Civil Engineering (Environmental Engg.) – An Inter disciplinary Programme
6. Computer Science & Engineering (Information Security) – A self-supporting Programme
7. Electrical Engineering
8. Electronics Engineering
9. Electronics (VLSI Design)
10. Industrial Design – A self-supporting Programme
11. Industrial Materials & Metallurgy Engineering
12. Mechanical Engineering
13. Production and Industrial Engineering

## **1.2 Office of the Dean of Academic Affairs**

The office of the Dean of Academic Affairs (DAA), called the Academic Section, is responsible for the implementation of the decisions taken on academic matters by the Senate and IAPC. It

- (i) receives, processes and maintains all records relating to the undergraduate and post graduate programmes including curricula, courses offered, academic calendar, registration, leave, examinations, grades and award of degrees and prizes
- (ii) disseminates information pertaining to all academic matters
- (iii) issues necessary memoranda/orders
- (iv) acts as a channel of communication between the students, instructors, departments and IAPC. It assists the IAPC and its subcommittees in their tasks.

## **1.3 Waiver Clause**

The procedures and requirements set out in this manual, other than those in sections 2, 7, 8.2, 8.3 and 8.5 may be waived in special circumstances by the Senate.

## **2. ADMISSIONS**

### **2.1 General Instructions**

- A candidate must have obtained a BE/B. Tech. or an equivalent degree with at least 60 percent marks or an equivalent CGPA with 5% relaxation for SC/ST and Persons with Disability category candidates.
- In each programme 15 percent seats are reserved for the SC candidates and 7.5 percent seats are reserved for the ST candidates. The details of reservation of other categories & other information are supplied in Admission Brochure.
- The admission to all M.Tech programmes is regulated through Centralized Counseling of M. Tech. (CCMT) with valid GATE scores. Admission to Self-supporting programmes is regulated through the GATE/Test conducted by respective departments only. The detailed procedure and other requirements for admission are specified in the Admission Brochure brought out every year.
- Sponsored candidates are also considered for admission to M.Tech programmes. They need not have a valid GATE score. Their admission will be based on the performance in test conducted by the respective departments.
- A sponsored candidate must have been in service of the sponsoring organization for at least two years at the time of admission. The sponsoring organization must specifically undertake to provide full salary to the candidate and to relieve him/her to pursue the programme for its full duration.
- Admission to any M.Tech programme requires that the applicant
  - (i) be eligible
  - (ii) go through the laid down admission procedure, and
  - (iii) pay the prescribed fees.
- All admissions to the M.Tech programmes should be formally approved by the Senate.

### **2.2 Cancellation of Admission**

All students admitted provisionally or otherwise, to any programme are required to submit their mark-sheets, provisional certificates, etc. of the qualifying examination and other documents at the time of

counselling for admissions. The Senate/Chairman Senate can cancel the admission of any student who fails to submit the prescribed documents or to meet other stipulated requirement(s). The Senate/Chairman Senate may also cancel the admission at any stage during the course, if it is found that the student had supplied some false information or suppressed relevant information while seeking admission.

### 3. ASSISTANTSHIP

The students admitted to M.Tech programmes may get assistantships on the basis of valid GATE scores. The said assistantship shall be in accordance with the set procedure and guidelines. The students will have to perform duties and other tasks as specified in the guidelines. The candidates admitted in self supporting programmes without having qualified GATE shall not be entitled to the above assistantship.

### 4. ACADEMIC SESSION

The academic session normally begins in the fourth week of July every year and ends in the middle of May. It is divided into two parts:

**First Semester:** Normally from the fourth week of July to the last week of November

**Second Semester:** Normally from the second week of January to the third week of May

Each of the two semesters is of 15 weeks duration.

#### 4.1 Academic Calendar

The exact dates of all the important events, such as registration, late registration, commencement of classes, examinations, vacation etc., are specified in the *Academic Calendar* of the Institute as approved by the Senate.

### 5. CURRICULUM

#### 5.1 Structure of the M.Tech Programmes

Every M.Tech programme consists of courses in Mathematics, Research Methodology, programme core courses, programme elective courses, in the first, second & third semesters of the programme. The programme elective courses should be in the area which improves student's focus, preferably in the area of dissertation work. The third and fourth semesters are primarily meant for dissertation work, in which a student works on a chosen topic for investigation/study in consultation with the dissertation supervisor. This culminates into submission of dissertation report by the student.

The institute allows PG students to do course work at other academic institutes. The credit transfer policy is given in **Annexure III**.

Salient feature of PG structure is as follow:-

1. Fractal credit system:- In fractal system, a semester is divided into six segments. Each segment is of 7 contact hours and 0.5 credits.
2. Compulsory course on Machine Learning), Soft Skill & Management (with fractal credits for Communication Skills, Management & Entrepreneurship and Professional Ethics) and Engineering Mathematics (with fractal credits for three elective courses from Engineering Mathematics basket).
3. 20% courses per semester can be offered in blended mode with MOOCs/ industry.
4. Mandatory Industrial visit during Summer Vacation.

## 5.2 Credit System

### 5.2.1 Credit Assignment

Each course has a certain number of credits assigned to it depending upon its lecture and laboratory contact hours in a week.

Lectures: One lecture hour per week per semester is assigned one credit

Laboratory: One Laboratory hours per week per semester is assigned half credit

### 5.2.2 Credit Requirements

Total minimum credits required for completion of M.Tech degree = 68

Through course work = 36 credits

Through Dissertation work= 32 credits

## 6 ACADEMIC REGISTRATION

### 6.1 General Instructions

1. All students are required to register each semester for the courses/dissertation work to be pursued by them, as per the programme, on the dates specified in the Academic Calendar. A student must ensure that he/she has completed the pre-requisites, if any, for each course to be registered.  
*The sole responsibility for registration rests with the student concerned.*
2. The DAPC nominates Faculty Co-ordinators to advise students on selection of the courses of the concerned department. The student registering for the dissertation must have a dissertation supervisor assigned to him/her.
3. The academic registration procedure involves:
  - filling of the registration form mentioning the courses/dissertation work, duly approved, to be credited in the semester
  - payment of fees and clearance of all outstanding dues (if any), and
  - signing of the registration roll in the office of the Dean, Academic Affairs.

***A student will not get credit for any course/dissertation work, for which he/she is not registered in any academic term.***
4. All the students who are not on authorized leave must continue to register in the following semester till they submit their dissertation.
5. A new entrant (to the M.Tech programme) who is awaiting the results of the qualifying examination will be allowed to register “provisionally” on submission of a certificate from his/her institution certifying that he/she has appeared in the final qualifying examination (including all papers in theory, practical, project, oral etc.). The candidate will submit attested copies of documents as specified by the Academic Section.
6. In very special cases of students who have completed all the experimental work and analysis related to the dissertation, and are on sanctioned leave, the IAPC on the specific recommendations of DAPC and HOD may allow submission of the dissertation without registration.

## **6.2 Late Registration**

1. If for any compelling reason like illness, etc. a student is unable to register by the date of normal registration, he/she can register by the last date of late registrations (which is about two weeks from the beginning of the semester and is specified in Academic Calendar) on payment of a late fee. However, if a student seeks prior permission to register late on valid grounds, he /she may be allowed to do so without payment of late registration fee by the Chairperson, IAPC.
2. In exceptional cases, the IAPC on the recommendation of the DAPC and HOD may consider the registration beyond the date of late registration. In such cases, the student will be allowed to register for the dissertation only.

## **6.3 Semester Load Requirements**

A semester load may vary from 14-18 credits. All theory courses carry credits from 0.5 to 3 credits). Thus, a student who has registered for a full semester load is expected to attend 6 courses i.e. streams and bridge courses/Audit courses/Mooc courses by respective departments if any. For a well-merited case, the IAPC may permit a student to register for a maximum of 18 credits or a minimum of 10 credits. In case of registration of the dissertation, in a full semester, it will be equivalent 5-6 theory courses.

## **6.4 Adding and Dropping of Courses**

1. A student may add or drop course(s) by the last date(s) specified in the Academic Calendar which is normally two weeks from beginning of the semester with the permission of the IAPC.
2. For this, he/she must fill up the appropriate form, get the endorsement of the Instructor and the Convenor, DAPC and submit the form to the Academic Section for approval.
3. A student may be required to drop a course at any stage if it is found that he/she does not meet the pre-requisites of the course, or if there is a clash in the student's time table preventing him/her from attending the course, or if he/she is found not entitled to register for that course for any other reason.
4. The HOD in consultation with the instructor and with the approval of IAPC may allow a student at his/her request to withdraw from one or more courses during the semester, if he/she has been sick for considerable time and has submitted a certificate to the satisfaction of the HOD, but the reduced load shall not be less than the minimum semester load, as specified in section 6.3.

## **6.5 Change of registration from Full-Time to Part-Time**

A student admitted to full time programme may be allowed to change to part time programme on completion of the course work upon the recommendation through DAPC and with the approval of the Chairman, Senate. His/her remaining period of the programme will be counted on the lines of part time candidates. For part time candidates the thesis period is one year also.

## **6.6 Cancellation of Registration**

Absence for a period of four or more weeks at a stretch during a semester shall result in automatic cancellation of the registration of a student from all the courses in that semester.

# **7. TEACHING AND EVALUATION**

## **7.1 Teaching**

- a) **Medium** - The medium of instruction and evaluation is English.

- b) Approval of Courses** - Each course along with its weightage in terms of credits is approved by the IAPC and Senate. Only approved courses may be offered during any semester.
- c) List of Courses** -The list of courses to be offered by a department is finalized before the beginning of the semester by the concerned Head, taking into consideration all the requirements. The list of all courses offered by the Institute in an academic term will be made available to the students before the date of registration for that term.
- d) Conduct of Courses-** Each course is conducted by the Instructor, assigned by the Head of Department. The Instructor is responsible for conducting the course, making the question paper, holding the examinations in his/her course, getting the answer scripts evaluated, awarding grades at the end of the semester and transmitting the grades to the Academic Section through the HOD within the prescribed time limit.  
A teacher is expected to follow the approved curriculum. However, he/she can deviate from it in case it is felt that such deviation will improve the academic purpose of the course. In no case will this be treated as a ground for complaint by the students.

## **7.2 Evaluation**

The evaluation of the students is a continuous process and is based on their performance in midsemester examination, end semester examination, quizzes/short tests, assignments, laboratory work (if any), make-up examinations (if applicable), etc. In general, there shall be no choice in test/examination papers. The Instructor is responsible for making the question paper, conducting the examination in his/her course, getting the answer scripts evaluated, and awarding the grades. The grades are forwarded through the Head of the Department who will ensure that proper standards have been used. Complete transparency will be maintained in evaluation system. The graded scripts of quizzes, tests, and mid-semester examinations will be returned to the students within a reasonable time. The answer scripts of the final examinations will be shown to the students after marking. All instructors will notify a time for such access within three days of the examination. A student may point out errors or omissions, if any, in marking in writing on the cover sheet of the answer script. The instructor will take these into account before submission of grades. The final grades earned by all students registered in a course will be submitted by the Instructor to the Academic Section through the Head of the Department within the prescribed time limit.

### **a) Schedule of Examinations**

The end-semester examination and the mid-semester examinations will be held within the periods allocated in the Academic Calendar. In exceptional circumstances, the Dean, Academic Affairs may permit holding the examinations outside these periods.

### **b) Make-up Examination**

If a student, for bonafide reasons such as illness, etc., fails to appear in the end-semester examination in one or more course(s), he/ she may make a request personally or through someone to IAPC for a make-up examination within two days of the date of the scheduled examination. Such a request must clearly specify the reasons for the failure to appear in the end-semester examination with a certificate from a Government Hospital/Institute Dispensary, in case the failure was due to illness. Only one make-up examination, for the end-semester examination, is allowed per course. For failures to appear in mid-semester examinations, etc., it is entirely up to the Instructor to ascertain the proficiency of the student by whatever means he/she considers appropriate if he/she is satisfied of the student's bonafides.



### 7.3 Grading System

The Institute shall continue to follow a continuous evaluation system with some freedom being given to the course Instructor in deciding the pattern of evaluation and weightages. A typical break-up for continuous evaluation of 3 credits courses is given below:

- |      |  |   |           |
|------|--|---|-----------|
| i.   | Mid-term Examination                       | : | 15 – 25 % |
| ii.  | End-term Examination                       | : | 40 – 50 % |
| iii. | Assignments, Quizzes (Minimum 3), Projects | : | 30 – 40 % |

For fractal course of credit less than 3, the evaluation break-up may include test/quizzes and end-term examination.

Evaluation of all components, i.e., mid-term examination, end term examination, assignments, quizzes etc. should be done in marks. The total marks thus obtained are to be converted to a letter grade. The conversion to letter grades may or may not be based on the relative performance of the students.

#### Structure of grading for academic performance:

The academic performance of a student shall be graded on a 10 point scale. The letter grades and their equivalent grade points are listed below:

Letter Grade	Performance	Grade Points
A <sup>+</sup>	Outstanding	10
A	Excellent	9
B <sup>+</sup>	Very Good	8
B	Good	7
C <sup>+</sup>	Average	6
C	Below Average	5
D	Poor	4
F	Fail	-
I	Incomplete	-
N	Not Eligible	-

#### Explanation:

**Grade ‘F’:** ‘F’ grade denotes unsatisfactory performance in a course and indicates failure in the course.

**Grade ‘N’:** A student who fails to fulfill the attendance requirement (clause 8.1) for a particular course shall not be eligible to appear in the end semester examination in that course and shall be awarded the grade ‘N’ for that course. He/she shall have to repeat the entire course.

**Grade ‘I’:** For reasons acceptable to the Instructor, an ‘I’ (for Incomplete) grade may be assigned if a student fails to complete any of the required course work by the end of the semester. In all such cases, an Incomplete Contract, which is a formal agreement between the student and the instructor, is to be filed along with the grade report. An Incomplete Contract includes:

- The course work that remains to be completed.
- The date by which the specified work must be completed not later than one month of the close of relevant semester.

- The final grade to be substituted for the 'I' grade, if the specified work is not completed by the specified date.

The Incomplete Contract will be filled by the Instructor and submitted to the Academic Office when the Grade Sheet is submitted.

If the student completes the required work by the specified time, the instructor completes a grade change form indicating the final grade earned. The student should check with the instructor to ensure that a grade change form has been submitted.

If the student does not complete the required work by the specified time, the 'I' grade is automatically replaced with the final grade specified by the Instructor on the Incomplete Contract. If a final grade is not specified, or if an Incomplete Contract is not filed, the 'I' grade automatically reverts to an F grade after one month.

### Grading System for Large Classes (>30 students)

For large classes (>30 students) the grading should follow a normal distribution for the award of the grade in the course. The marks obtained out of 100 would be converted into grades following the guidelines given below:

The mean ( $\bar{X}$ ) and the standard deviation ( $\sigma$ ) of marks obtained by all the students in a course shall be calculated. The grades shall be awarded to a student depending upon the marks and the ranges as per table given below:

#### Award of Grade Using Statistical Method

Lower Range of Marks	Grade	Upper Range of Marks
$\bar{X} + 1.5 \sigma <$	A <sup>+</sup> *	-----
$\bar{X} + 1.0 \sigma <$	A	$\leq \bar{X} + 1.5 \sigma$
$\bar{X} + 0.5 \sigma <$	B <sup>+</sup>	$\leq \bar{X} + 1.0 \sigma$
$\bar{X} <$	B	$\leq \bar{X} + 0.5 \sigma$
$\bar{X} - 0.5 \sigma <$	C <sup>+</sup>	$\leq \bar{X}$
$\bar{X} - 1.0 \sigma <$	C	$\leq \bar{X} - 0.5 \sigma$
$\bar{X} - 1.5 \sigma <$	D	$\leq \bar{X} - 1.0 \sigma$
	F*	$\leq \bar{X} - 1.5 \sigma$

\* The number of students securing A<sup>+</sup> grade should not be more than 10%. The same percentage limit would apply to F grade.

#### Note:

1. Marginal adjustment in lower and upper range of marks may be done to accommodate natural cut-offs.
2. No student having marks  $\geq 35\%$  would be awarded 'F' grade.

### Grading System for Small Classes ( $\leq 30$ students)

For small classes ( $\leq 30$  students) the grades shall be awarded on the basis of absolute marks as given in the table below:

Grade	Marks (M)
A <sup>+</sup>	$M \geq 85$
A	$80 \leq M < 85$
B <sup>+</sup>	$70 \leq M < 80$
B	$60 \leq M < 70$
C <sup>+</sup>	$50 \leq M < 60$
C	$40 \leq M < 50$
D	$35 \leq M < 40$
F	$< 35$

### Measure of student's overall academic performance

A student's overall academic performance within a given semester or in all the courses completed is measured by two grade point averages.

**Semester Grade Point Average (SGPA):** The performance of a student in a particular semester is measured by Semester Performance Index (SGPA), which is a weighted average of the grades secured in all the courses taken in a semester and scaled to a maximum of 10.

If the grade points associated with the letter grades awarded to a student are  $g_1, g_2, g_3, g_4$  and  $g_5$  in five courses and the corresponding credits are  $w_1, w_2, w_3, w_4$  and  $w_5$ , respectively, the SGPA is given by

$$SGPA = \frac{w_1 g_1 + w_2 g_2 + w_3 g_3 + w_4 g_4 + w_5 g_5}{w_1 + w_2 + w_3 + w_4 + w_5}$$

For instance, suppose a student is registered for one 5-credit course, four 4-credit courses, and one 3-credit course during a semester, i.e. a total of 24 credits. If he secures A<sup>+</sup>, A, B<sup>+</sup>, C<sup>+</sup>, C, and D grades, respectively, in these courses, his SGPA will be calculated as follows:

$$SGPA = (5 \times 10 + 4 \times 9 + 4 \times 8 + 4 \times 6 + 4 \times 5 + 3 \times 4) / 24 = 174 / 24 = 7.25$$

**Cumulative Grade Point Average (CGPA)** - The Cumulative Performance Index (CGPA) indicates the overall academic performance of a student in all the courses registered up to and including the latest completed semester. It is computed in the same manner as the SGPA, considering all the courses (say,  $n$ ), and is given by

$$CGPA = \frac{\sum_i w_i g_i}{\sum_i w_i}$$

The grades of any and all repeated courses are included in the official transcripts. However, once a student repeats and passes a course in which he/ she had failed earlier, the earlier fail grade will not enter into the computation of CGPA. Incomplete grades are not included in computing the GPA until an appropriate letter grade is assigned. CGPA of 6.0 or higher is considered to be a 1<sup>st</sup> division (> 60% marks).

### Re- Examination

Every student will be allowed to take end term exam again in a maximum of two courses in which he/ she scores an 'F' grade in a particular semester. If he/ she, on re-examination, scores sufficient marks to cross the cut-off for clearing a particular course (adopted during the regular evaluation for that course) then he/ she will be awarded a 'D' grade.

**Grade Report** – A copy of the Grade Report is issued to each student at the end of the semester. A duplicate copy, if needed, can be obtained on payment of the prescribed fee.

**Withholding of Grades** – The grades of a student may be withheld if he/she has not paid his/her dues, or if there is a case of indiscipline pending against him/her.

## 7.4 Dissertation/Industry Project

1. Every M.Tech student shall have at least one but not more than two dissertation supervisors from amongst the faculty members of the Institute. A dissertation supervisor, with post graduate qualifications, from industry/research organization may be considered on recommendation by HOD & DAPC and approval by the Chairman, Senate but a co-supervisor should be from the Institute.
2. In case the supervisor proceeds on long leave, resigns, superannuates or otherwise ceases to be a faculty member of the Institute before the submission of the theses, a new supervisor will be appointed by the department, if there is no other supervisor from within the Institute.
3. In case there has been a change/addition in the supervisor(s), the M.Tech dissertation will not be submitted earlier than three months after such change.
4. The M. Tech dissertation will be examined by a committee to be appointed by the Chairperson Senate/ DAA, on the recommendation of the Supervisor and Head of the Department, following the guidelines set by the Senate. The Examination Board for M.Tech dissertation evaluation at end of 3<sup>rd</sup>/ 4<sup>th</sup> Semester would consist of the following:-
  - (i) Chairman DAPC or his/her nominee
  - (ii) Faculty Co-ordinator programme, Convener
  - (iii) Supervisor(s)
  - (iv) One faculty from within the department
  - (v) External examiner from reputed organization.

In case of evaluation at the end of 3<sup>rd</sup> semester, the member at S.No. (v) may be dropped, if not available.

For evaluation of the end of the 4<sup>th</sup> semester, there shall be no limit on the number of dissertations one External Examiner can evaluate.

5. The Dissertation Supervisor will suggest, in a proforma, a panel of three experts to act as external examiner, preferably from IITs and NITs, in the area in which the student has completed his dissertation. The filled up proforma under the signature of Dissertation Supervisor & the Head of the Department will be submitted to the office of Dean Academic Affairs. E-mail addresses & contact numbers of the external examiners are to included in the addresses. Electronic version of the abstract (approx 250 words) should also be communicated simultaneously to Dean Academic Affairs. This will be put up to Chairman, Senate/ DAA who will appoint the Dissertation Examination Committee, tick-marking the names of examiners. The Dissertation Examination Committee so constituted will be notified to all concerned.
6. After Dissertation Examination Committee has been constituted, unbound copies of the dissertation, one for each examiner of the Examination Committee have to be prepared. The dissertation, at the earliest, can be submitted one month before the end of the term in which student is completing the minimum dissertation credits. The Dissertation Examination should be scheduled at least seven days after the submission of the dissertation. Academic Office will arrange to send the copies of the dissertation to the examiners.
7. The consent of the external examiner for his/her availability & date of examination will be obtained by the respective department/ supervisors and dissertation will be dispatched by the Academic Office with intimation to all examiners, HOD & student.
8. The dissertation examination will be conducted in the department & the dissertation evaluation report, in a proforma available in the Academic Office, will be submitted by the dissertation supervisor through the Head of the Department.

9. The candidate shall appear before the examining committee for oral examination and presentation on the scheduled date. The oral examination cannot be scheduled earlier than one week after the submission of the dissertation. The examining committee shall award the final grade in terms of rule 7.5.
10. The score of M.Tech dissertation will be included for computing SGPA/CGPA.

**1.5 M.Tech dissertation evaluation is given as under-  
Report to be submitted by committee till that it is to be followed.**

- 1) There shall be two evaluations of M.Tech Dissertation – the first at the end of third semester (for 12 credits) and the second at the end of fourth semester (for 18 credits). The work done at the end of 3<sup>rd</sup> semester shall be submitted in the form of a report. A Dissertation shall be submitted at the end of 4<sup>th</sup> semester.

- 2) The evaluation criterion shall be as under:-

Evaluation at the end of 3<sup>rd</sup> semester

Subject matter	-	10%
Literature review	-	10%
Objectives and methodology	-	20%

Evaluation at end of 4<sup>th</sup> semester

Dissertation	-	30%
Presentation	-	10%
Viva-voce	-	10%
Publication	-	10%

For publications, the following guidelines are to be followed for award of marks by the Examination Board:

- (i) Up to 10% : Published/accepted for publication in journal, with the consent of the Supervisor.
  - (ii) Up to 8% : To be considered for possible publication in journal after revision with the consent of the Supervisor.
  - (iii) Up to 5% : Communicated for possible publication in a journal/ Presented or accepted/communicated for possible presentation in a Conference with the consent of the Supervisor.
- 3) The Examination Board for M.Tech dissertation evaluation at end of 3<sup>rd</sup>/ 4<sup>th</sup> Semester would consist of the following:-
    - (i) Chairman DAPC or his/her nominee
    - (ii) Faculty Co-ordinator programme, Convener
    - (iii) Supervisor(s)
    - (iv) One faculty from within the department
    - (v) External examiner from reputed organization.

In case of evaluation at the end of 3<sup>rd</sup> semester, the member at S.No. (v) may be dropped, if not available.

The weightages for the various components of evaluation would be distributed between the Supervisor and the Examination Board as follows:

Supervisor(s)	-	50%
Examination Board	-	50%

While evaluating the dissertation, each member of the Examination Board will independently award marks for various components of evaluation. The average of all the marks awarded for each component will be taken as the final marks scored by a student.

- 4) The grand total of marks obtained at the end of 3<sup>rd</sup> and 4<sup>th</sup> semester shall be converted into grades, at end of 4<sup>th</sup> semester as follows:-

<u>M.Tech students 2014 Batch onwards</u>		
<u>Grade</u>	<u>Points</u>	<u>Marks (M)</u>
A+	10	$M \geq 85$
A	9	$80 \leq M < 85$
B+	8	$70 \leq M < 80$
B	7	$60 \leq M < 70$
C+	6	$50 \leq M < 60$
C	5	$40 \leq M < 50$
D	4	$35 \leq M < 40$
F		$< 35$

- 5) In case the M.Tech Dissertation is graded F, the candidate may be allowed to resubmit the M.Tech Dissertation after nine months subject to maximum duration of the programme.

## **8. REQUIREMENTS**

### **8.1 Attendance**

All PG students must have a minimum attendance of 75% of the total number of classes including lectures, tutorials and practicals, held in a course in order to be eligible to appear in the end term examination for that course. A student should meet the above attendance requirement irrespective of the number of days he/she misses classes due to medical or any other reason whatsoever.

### **8.2 Minimum Residence and Maximum Duration**

For regular students, the minimum residence and maximum duration requirements for M.Tech programmes are four (04) semesters and eight (08) semesters respectively.

### **8.3 Academic Requirement**

1. Minimum CGPA requirement for award of M.Tech degree is 5.5
2. For moving to 2<sup>nd</sup> semester of the programme, a student must obtain a CGPA of at least 4.5 in the 1<sup>st</sup> semester.
3. No student (whether regular or part-time) is allowed to move to 3<sup>rd</sup> semester of the programme until he/she completes the course work requirement of first two semesters with  $CGPA \geq 5.5$ . A student, who fails to do so in two years of time, has to discontinue his/her programme. For fulfilling this condition, a student, during his/her second academic session in the institute, will be allowed to register for the courses of first and second semesters in which he/she has an F/N grade, and if required, to repeat courses in which he/she has a D grade, in order to complete the course work requirement of first two semesters and to secure a  $CGPA \geq 5.5$ .

A student (during his/her second academic session in the institute) will be allowed to register even for courses offered in 3<sup>rd</sup> semester of the programme to complete the CGPA requirement. Such a student will, however, be allowed to register for dissertation (dissertation) work only after completing the CGPA requirement.

4. A student will not be allowed to continue the programme if he/she earns  $< 35\%$  marks or 'F' Grades for his/her dissertation work in two consecutive semesters.

5. The DAPC will keep a watch on the progress of every student and whenever a student fails to meet the requirements, will put up the case to Senate that may terminate the programme of the student. If a student's programme is terminated, the Dean Academic Affairs will issue the letter of termination.

#### **8.4 Additional Requirements**

Departments may introduce additional specific requirements with the approval of the Senate during the professional curriculum.

#### **8.5 Graduation Requirements**

A student shall be deemed to have completed the requirements for graduation if he/she has

- a) met the attendance, residence and academic requirements given in Sections 8.1 to 8.3
- b) satisfied additional requirements, if any, of the concerned department
- c) paid all dues to the Institute and the Hostels
- d) no case of indiscipline pending against him/her
- e) satisfied all the requirements specified by the Senate and Ordinances, and
- f) has submitted the dissertation and has been awarded pass grade by the examining committee.

### **9. TERMINATION OF THE PROGRAMME**

The M.Tech programme of a student may be terminated by the Senate if he/she

- (a) is not meeting the academic requirements as given in Section 8, OR
- (b) is absent without authorized leave for more than four weeks in a semester, OR
- (c) involves himself/herself, in violation of the code of conduct, in ragging etc., and the appropriate committee of the Senate makes a recommendation to that effect, OR
- (d) fails to complete the programme within the maximum duration prescribed.

#### **9.1. Appeal against Termination**

A student whose programme is terminated on account of inadequate academic performance or otherwise, has the right to appeal to the Chairman Senate for reconsideration, within 15 days of the issue of the termination letter. While making the appeal against termination, he/she is expected to give reasons for his/her poor academic performance and/or to explain why his/her position merits reconsideration. The Senate shall take a final decision after considering all the available inputs. In no case shall a second appeal by the same student be entertained for this purpose, in case his/her first appeal is not upheld by the Senate.

## **10. DEGREES**

### **(a) Award of Degrees**

A student, who completes all the graduation requirements specified in Section 8.5, is recommended by the Senate to the Board of Governors (BOG) for the award of the appropriate degree in the ensuing convocation. The degree can be awarded only after the BOG accords its approval.

### **(b) Withdrawal of the Degree**

Under extremely exceptional circumstances, where gross violation of the graduation requirements is detected at a later stage, the Senate may recommend to the Board of Governors for the withdrawal of a degree already awarded.

## **12. LEAVE RULES**

### **11.1 General Instructions**

1. Students who are absent from the institute continuously for two weeks without permission from the Head of Department, may not be permitted to continue in the semester and may be asked to drop the semester, unless satisfactory explanation of their absence, as given by them through the Head of Department, is duly accepted by the Chairman Senate.
2. If a student does not turn up after winter or summer vacations, his/her name will be sent to Chairman Senate for termination of the programme. If approved by the Senate, his/her name will be removed from the institute rolls with effect from the date on which he actually appeared in the last semester examination.
3. If a student does not appear in the end semester examination, then the concerned Head of Department will forward the name of the student for termination to the Chairman Senate
4. Students who are in receipt of the GATE scholarship shall be entitled to a total leave of 30 days in a year without loss of scholarship. They are not entitled for vacation.

### **11.2 Semester Leave**

Semester leave for up to a maximum of two semesters for the M.Tech students may be sanctioned for bonafide reasons. Except for medical reasons, such leave would not normally be sanctioned before a student has completed his/her course requirements and in no case before the student has spent two semesters in the programme. However, on medical considerations such leave may be sanctioned after his/her stay of one semester. Leave for more than one semester at a time will not be granted.

## **12. PERMISSION TO PROCEED FOR ACADEMIC WORK OUTSIDE THE INSTITUTE**

The M.Tech students can be permitted to proceed for academic activities outside the Institute to carry out fieldwork, library work, computational work, experimental work, and Laboratory work, and also to attend conferences, courses and to undertake other research work etc. as recommended by the HOD. Permission for a duration up to 15 days may sanctioned by Chairperson, IAPC on the recommendation of the HOD and more than 15 days by the Chairman, Senate on the recommendations of the HOD & Chairperson, IAPC.

## **13. CONDUCT AND DISCIPLINE**

### **13.1 Code of Conduct**

Each student shall conduct himself/herself in a manner befitting his/her association with an Institute of national importance. He/she is expected not to indulge in any activity, which is likely to bring down the



prestige of the Institute. He/she should also show due respect and courtesy to the teachers, administrators, officers and employees of the Institute, and good neighbourly behaviour to fellow students. Due attention and courtesy is to be paid to visitors to the Institute and residents of the Campus.

Lack of courtesy and decorum, unbecoming conduct (both within and outside the Institute), wilful damage and/or removal of Institute property or belongings of fellow students, disturbing others in their studies, adoption of unfair means during examinations, breach of rules and regulations of the Institute, noisy and unseemly behaviour and similar other undesirable activities shall constitute violation of the Code of Conduct for students.

***Ragging in any form is strictly prohibited and is considered to be a serious offence (See UGC regulations on curbing the menace of Ragging in Annexure V.***

### **13.2 Disciplinary Actions and Related Matters**

Violation of the Code of Conduct shall invite disciplinary action which may include punishment such as reprimand, disciplinary probation, fine, debarring from examinations, withdrawal of scholarship and/or placement services, withholding of grades and/or degrees, cancellation of registration and even expulsion from the Institute.

***Use of Unfair Means in examination will invite punishments as given in Annexure IV.***

The Instructor/Tutor shall have the power to take appropriate action against a student who misbehaves in his/her class.

The Warden of a Hostel has the power to reprimand, impose fine or take any other suitable measure against a resident who violates either the Code of Conduct or Rules and Regulations pertaining to the concerned Hostel.

***Involvement of a student in ragging may lead to his/ her expulsion from the Institute.***

The Senate Student Affairs Committee (SSAC) investigates alleged misdemeanours, complaints etc. and recommends a suitable course of action. Violation of the Code of Conduct by an individual or a group of students can be referred to this committee by a student, teacher or other functionary of the Institute. Further, in very exceptional circumstances, the Chairman, Senate may appoint a special committee to investigate and/or recommend appropriate action for any act of gross indiscipline involving an individual or a number of students, which, in his/her view, may tarnish the image of the Institute.

The recommendation for any action other than expulsion may be approved by the Chairman Senate. In case, the recommended action is expulsion of a student from the Institute, the matter shall be referred to the Senate for its final decision.

A student who feels aggrieved with the punishment awarded may, however, appeal to the Chairman, Senate stating clearly the case and explaining his/her position seeking reconsideration of the decision.

***The Senate may not recommend a student, who is found guilty of some major offence, to the Board of Governors for the award of a degree/diploma/certificate even if he/she has satisfactorily completed all the academic requirements.***

## **14. AMENDMENTS**

Notwithstanding anything contained in this manual, the Senate of the Punjab Engineering College, (Deemed to be University), Chandigarh reserves the right to modify/amend without notice, the curricula, procedures, requirements, and rules pertaining to its M.Tech programmes.

**Credit Transfer Policy for UG & PG Students:**

The following guidelines for credit transfer will be followed:-

**Policy:-**

1. The institute shall accept transfer of credits earned by student from the following:-
  - a. Such foreign university, the courses/ programmes of which are recognized as equivalent to those of Indian Universities by the Association of Indian Universities. However the institute should be ranked within top 10 percent institutes in its own country. In addition to this, the ranking should be comparable to the ranking of PEC. Final decision in this regard will be taken by Chairman Senate after the recommendations of respective department.
  - b. Such foreign university with which the institute has signed an MOU.
  - c. Any other University / educational institute that have been approved for the purpose of credit transfer by the Senate of the institute.
2. Request for acceptance of transfer of credits shall be:-
  - a. Entertained only if received from such candidates who have been duly selected for admission in a UG/PG programme as per the rule governing admission in PEC.
  - b. Supported by any other documents as may be prescribed by the Senate.
3. When a student (UG or PG) registers at another academic institution abroad with the expectation of credit transfer or research work through a pre-approved arrangement including MoU, the student should be considered as being on a Semester Exchange (SE). The SE period will be counted towards the total period permitted for the degree.
4. All grade-cards/transcripts and course syllabi of the foreign University, where the students are going for Semester Exchange, must be in English or translated from the original language into English and certified by a professional translator
5. Institute fee for the semester for which student is on Semester Exchange will be exempted.

**Procedure:-**

The credit equivalence for accepting credit transfer shall be determined as under:-

- a. Request for credit transfer will be made to respective department. Equivalent courses & credits will be decided by the DAPC of the concerned department.
- b. The recommendation of DAPC would be placed before the IAPC. Final approval in this regard will be given by Chairman Senate.

**Rules and Procedures *for* Ph.D. Programmes**  
***(Applicable from academic session 2019-20 onwards)***

**Punjab Engineering College  
(Deemed to be University)  
Chandigarh**

## **Ph.D. RULES**

### **I. OBJECTIVE OF THE Ph.D. PROGRAMME**

The Punjab Engineering College, (Deemed to be University), Chandigarh has a mission to develop high quality science and engineering specialists having strong base of principles of science and the scientific methods, deep understanding of their chosen areas of specialization, the motivation to learn continually, interact with multi-disciplinary groups and to handle new challenges offered by the front-end technologies.

The Ph.D. Programme is designed to impart knowledge, and to consolidate concepts and intellectual skills through courses, seminars, projects, and thesis work. Above all, it helps the scholars to develop the capacity for free and objective enquiry, courage and integrity, awareness and sensitivity to the needs and aspirations of the society.

The Programme provides the candidates with an enabling research experience during their stay in the Institute, thus helping them to enter their professional life with right perspective and knowledge related to their respective fields of specialization.

### **II. ADMISSION TO Ph.D. PROGRAMME**

Admission to the Ph.D. programme is made on the basis of interview or written test (GATE/ NET syllabus) or both as determined by Ph.D. Admission Committee of the concerned Department provided the candidate fulfils all the requirements at the Institute level and the selected candidate deposits the requisite fees for the Ph.D. Programme. Admission through online registration will be done once a year in June/July. The applications received will be processed in the various departments for written test/interview.

Internal faculty/ staff members, who are GATE/ NET qualified, will be eligible for admission through interview only, while Non-GATE/ Non-NET candidates will be admitted through interview and written test.

The admission to Ph.D. programme will take place once a year. However, students having National/ State/ Industry/ R&D sponsored scholarship such as UGC NET/ CSIR NET/ DSP inspire/ Vishvesveraya etc. & related scholarships or are sponsored foreign nationals can be given admission throughout the year. The admission to Ph.D. programme at any time during the session is allowed to give opportunity to candidates with high accomplishments who have been awarded government recognized scholarships in Sciences, Engineering, Social Sciences and Management and have the requirement of joining within a stipulated time frame. Such admissions shall be approved by the Chairman Senate on the recommendations of DRC/CRC and Dean Academic Affairs.

The Ph.D. admission committee of the department will consist of Head of the department, members of DRC/CRC and potential supervisors in various areas.

### **III. ADMISSION CATEGORIES**

The applicant for admission to the Ph.D programme shall be classified under any one of the following categories which will be decided and recommended by the Ph.D admission committee of the department.

#### **(a) Full-time Research Student/ Candidate (with/ without scholarship and sponsored)**

- i) Research student with valid GATE/ NET score or admitted to M.E./M.Tech. with GATE and getting assistantship.
- ii) Research student including a foreign nationals getting financial support from Govt. / Semi Govt. agencies (QIP, CSIR, UGC, DAE, DST, DBT, NBHM, JEST, ICCR, NDF, DRDO, etc.)
- iii) Research student on study leave: This category refers to persons who are released from governmental or educational institutions on study leave for a period of not less than three years for pursuing Ph.D programme. They will be admitted along with the regular research students through the usual admission procedure.

iv) Self-Financed Research student/ Candidate

—**Indian:** This category refers to persons with experience and with good track record to join the doctoral programme. They will be admitted along with the regular research students through the usual admission procedure.

—**Foreign:** Admission of Foreign nationals to Ph.D programme will be made as per policy and direction of the Govt. of India from time to time;

v) Research student working full time (JRF/ SRF/ RA) in a Sponsored R&D project at PEC provided his Ph.D. topic is related to the project as certified by the SRC six months after joining the project. To be accepted as a Ph.D. student, a research student working in a project will have to undergo the same admission procedure as applicable in general. These students would also be eligible for institute assistantship on lines of students admitted under (a) above.

vi) Research fellows from reputed and established laboratories of Govt. of India/ State Govt./ accredited labs of QCI, academic and research institutions with which Punjab Engineering College, Deemed to be University has entered into MoU with focus on collaboration in academic and research and CRIKC institutions may be considered for registration in full time Ph.D programme of PEC as is allowed for research students working full time at PEC.

**(b) Part-time Research Student/ Candidate (sponsored)**

- i) Research student/ Candidate working as a regular employee in the Institute
- ii) Research student/Candidate working as a regular employee in research organization like DRDO/ CSIR etc and scientist/faculty working in the CRIKC institutes will be eligible for admission to Ph.D Programme as a Part-Time Scholar provided he/she is in continuous service for the last 2 years in the same organization and can provide a No objection certificate from the employer. The DRC/CRC has to ensure the fulfillment of these conditions at the time of interview.
- iii) Research student / candidate working regularly full-time in an R&D project in the institute can join as a part time student if his Ph.D. topic is related to the project as certified by the SRC six months after joining the project However, part time research student/candidate may be given full time status when the project tenure is completed. To be accepted as a Ph.D. student, a research student working in a project will have to undergo the same admission procedure as applicable in general.

**IV. ADMISSION ELIGIBILITY**

**Eligibility for Full-time Research Student/Candidate**

An applicant belonging to the above admission categories should possess the following qualifications in appropriate areas to be eligible to apply for admission for the Ph.D. programme of the Institute.

**a) Engineering Technology streams:**

Master's degree in Engineering/ Technology of 2 years duration after graduation in respective discipline or equivalent with a minimum Cumulative Grade Point Average (CGPA) of 6.00 on a 10 point scale or equivalent as determined by the Institute wherever letter grades are awarded; or 60% marks in aggregate (of all the years/semesters) where marks are awarded.

**b) Science Streams:**

Master's degree in Sciences in respective discipline or equivalent and minimum Cumulative Grade Point Average (CGPA) of 6.00 on a 10 point scale or equivalent as determined by the institute where letter grades are awarded; or 60% marks where marks are awarded.

Candidates with valid GATE/NET score shall be given preference.

The admission eligibility requirements may be relaxed to 5.5 on a 10 point scale or equivalent, or to 55% marks for admission in all categories of scholars for the following categories:

- i) SC/ST candidates
- ii) PwD (Persons with disability)

**c) Management, Humanities & Social Sciences Streams**

**Ph.D. in Management/ Commerce:** The candidate applying must possess an M.Com/ MBA or equivalent and should have obtained minimum Cumulative Grade Point Average (CGPA) of 5.5 on a 10 scale or equivalent as determined by the institute where letter grades are awarded; or 55% marks where marks are awarded.

**Ph.D. in English/ Linguistics:** The candidate applying must possess an M.A. or an equivalent qualification in English and should have obtained 55% or above in M.A. English / Linguistics from a reputed institute.

Candidates with valid NET score shall be given preference. The admission eligibility may be relaxed to 5.0 on a 10 scale or equivalent, or to 50% marks for admission for SC/ST/PwD candidates.

**2. Direct Admission of B.E./B.Tech. candidates to Ph.D programme**

- a) To be eligible for the admission under this category, a candidate is required to have minimum CGPA of at least:
  - i. 8.0 or above with GATE or 8.5 or above at the end of the seventh semester (if applying during final year) under General category without GATE for students graduated from PEC and CFT institutions
  - ii. 8.0 or above with GATE or 8.5 or above at the end of the eighth semester (if applying after the completion of B.E./ B.Tech) under General category without GATE for students graduated from PEC and CFT institutions
  - iii. For SC/ST category students, the minimum CGPA requirement will be reduced by 0.5.
- b) Successful candidates in final year of undergraduate programme may be given provisional admission to the Ph.D programme. This admission shall be confirmed provided the student completes his/her undergraduate programme with required graduation CGPA.
- c) Candidates getting direct entry to Ph.D programme after BE/ B.Tech will need to fulfill credit requirements through course work on pattern of courses offered to PG students and additional course requirements as per UGC

**3. Eligibility for Part-time Ph.D**

The eligibility criteria shall be the same as that for full time students. Additionally, the part time candidates need to fulfill the following conditions and provide the information along with the application:

- a) The applicants must have been in continuous service with the sponsoring organization for at least two years at the time of submitting the application form for admission and submit 'No Objection Certificate' from the employer stating that
  - (i) He/she is on the regular payroll of the organization,
  - (ii) He/she is permitted to pursue studies on a part-time basis, and
  - (iii) His/her official duties will permit sufficient time for research. Sponsorship letter (on letterhead of the sponsoring organization) should include an undertaking stating that the period of study of the candidates will be treated as 'on duty' with usual salary/allowances, and he/she will be relieved for the period of studies.
- b) He/ She will be required to reside at the Institute for a period of not less than one semester i.e. six months duration which is mandatory in the first year of Ph.D Programme. (This condition of minimum residence period will be automatically waived for candidates who are working in PEC or in Organizations/ institutions located within a distance of 50 km from the Institute).

**Note:** 1. *Guidelines on course work for Senior Executives working at the level of CEOs and Directors in industries, Government and research organizations who want to register as Part Time Ph.D. candidates are given in Clause VIII.*

**Note:** 2. *Ph.D. degrees which are pursued either full time or part time will be treated as degrees awarded through Regular Mode provided these are in conformity with the existing Statutes/Byelaws/Ordinances etc. of the degree awarding University. However, the Ph.D. acquired under distance mode is not permitted.*

#### **GENERAL NOTES:**

1. Reservation of seats for SC/ ST/ PwD candidates shall be provided as per Govt. norms applicable from time to time.
2. Full-time candidates with scholarship coming on study leave must show proof of at least 3 years study leave before being allowed to register after the selection.
3. In case an eligible degree does not bear the awards in percentage, the following Conversion Formula will be used to convert CGPA into percentage of marks for the purpose of admission at the institute  $\text{Percentage of Marks} = \text{CGPA} \times 10$ , on 10-Point Scale.
4. The minimum prescribed percentage will be based on the marks obtained in aggregate of all the years/ semesters of the qualifying examination as per the weightage followed by the concerned University.
5. The relevance/ equivalence of Master's degree for admission to a given discipline will be defined/ determined by the DRC/CRC of the concerned department and approved by standing committee of Senate.
6. The attendance of full-time Ph.D candidates will be governed by the attendance requirements of the Institute.
7. Part-time Ph.D candidates will be required to meet the supervisor at least once every fortnight throughout the semester. Attendance record should be maintained with the supervisor and office of the Department.
8. All Non-GATE/Non-NET qualified candidates have to qualify a Ph.D entrance exam of the Institute. However, M.E./M.Tech students who were admitted to M.E./M.Tech on basis of GATE score are exempt from the Ph.D entrance exam of the Institute.
9. For admission to Ph.D Programmes in Science/ Humanities/ Management, if the candidate does not have a NET Fellowship (UGC/ CSIR) valid for the current year in relevant area, the candidates has to qualify the Ph.D Entrance Test of the institute.
10. Only the predetermined number of students may be admitted to a Ph.D programme.
11. As per the provisions 1(5) of the UGC Regulations 2009 amended from time to time, Ph.D program will not be conducted through distance education mode.

**V. CONSTITUTION OF DEPARTMENTAL RESEARCH COMMITTEE/ CENTRE RESEARCH COMMITTEE (DRC/ CRC) AND STUDENT RESEARCH COMMITTEE (SRC)**

1. The Departmental Research Committee/ Centre Research Committee (DRC/ CRC) will be constituted with the following members:
  - i) Head of the Department, Chairman
  - ii) One member each from various specializations in the department (maximum 4-6 members) on rotation basis for two years
2. The Student Research Committee (SRC) will be constituted with the following members as proposed by the supervisor(s) and approved by the Head of the Department:
  - i) One member from DRC/CRC, as Chairman
  - ii) One internal expert in the field from within the department
  - iii) One external expert, preferably in the synergy area, who may be a faculty member from outside the department to which the student belongs or may be from any educational institute/research laboratory within the tricity
  - iv) Supervisor(s), Convener

**Note:** 1. All recommendations of SRC are to be counter-signed by Chairman DRC/CRC before further processing.

2. The Chairman of SRC would continue in this position even if he/ she ceases to be a member of DRC/CRC on expiry of term of DRC/CRC.

**VI. REGISTRATION, APPOINTMENT OF SUPERVISOR AND SRC**

1. The final list of selected students along with probable supervisors based on the number of students per faculty member, the available specialization among the faculty supervisors and the research interests of the student as indicated during interview by the student will be decided by the Ph.D admission committee and displayed on the website.
2. Research students admitted to the Ph.D programme are required to join the Institute and report to the Head of the Department on the stipulated date as indicated in the academic calendar. The research students will meet the faculty members of an identified specialization in the department and start the process of selection of supervisor(s).
3. The final research supervisor(s) of a student admitted to a department will be recommended by the DRC/CRC as per preference given in writing by the student within one week of admission for approval of the Dean Academic Affairs.
4. The Student Research Committee (SRC) for a research student shall be appointed by HoD, based on the recommendation of the supervisor(s), within a week from the date of initial registration.
5. Every research student/ candidate will be required to carry out subject registration prior to candidacy during stipulated dates and register for the Ph.D degree programme every semester till the submission of the thesis, irrespective of his/ her category and status.

**VII. SUPERVISOR(S)**

1. Supervisor(s) can be any full-time faculty member(s) of the Institute with a Ph.D degree. In case of joint supervision, one supervisor will be from the parent department where the admission is taken whereas the other supervisor(s) may be taken from within/ outside the Institute, as identified by the supervisor of the parent department in which the candidate has taken admission. Faculty on contract is not allowed to supervise a research student/ candidate. A Faculty member can be allowed to singly guide Ph.D students after two years of completion of his/ her Ph.D degree; however joint supervision is permissible in the initial two years after completion of Ph.D degree.  
A Professor can be assigned maximum of 08 Ph.D. students, an Associate Professor can be assigned maximum of 06 Ph.D. students and an Assistant Professor can be assigned maximum of 04 Ph.D. students.



In case there are more than one supervisors of a candidate from inside/ outside the institute, the seat will be equally shared among the faculty members.

2. The Dean Academic Affairs, on the recommendations of the SRC, may appoint one or more Supervisor(s), not exceeding a total of three, to supervise a research student/ candidate. These may be from inside or outside the Institute and there should not be more than two supervisors from within the Institute and not more than one supervisor from outside the Institute. Addition/ deletion of Supervisor(s) would be made as per the recommendations of the SRC. In such cases, the minimum association period of new supervisor shall not be less than one year. All such recommendations of SRC will be sent to DAA through Chairman, DRC/CRC.
3. Change of Supervisor(s) and Appointment of Caretaker Supervisor for Ph.D students:

**A. In case of long leave of less than 12 months**

A faculty member appointed as a Ph.D Supervisor(s) is expected to be available to a research student/ candidate in the Institute till the thesis is submitted. However, under unavoidable circumstances, in case the supervisor is not available for a period upto six months due to any reason (extendable upto one year in special circumstances based on recommendation of SRC) then a caretaker supervisor will be assigned by the supervisor who will take care of all administrative work of the student, while the student will continue to take academic inputs from the supervisor through email etc. The supervisor can ask the HoD to act as the caretaker supervisor, if he/ she so desires. On return of the supervisor, the caretaker will cease to be part of the SRC of the Ph.D candidate (if he/ she was not a member initially).

**B. In case of long leave of more than 12 months**

- a) Where there are more than one Supervisors of a research student/ candidate, if one of the supervisors proceeds on long leave for more than 12 months, the other(s) may continue to be the Supervisor(s).
- b) Where only one Supervisor exists for a research student/ candidate, another supervisor may be appointed by the SRC in consultation with the student in cases where SRC has not yet found his/ her research work fit for submission of thesis in the chosen area of research work.
- c) If SRC has recommended the research work for submission of thesis before the supervisor proceeds on leave, only a caretaker supervisor will be appointed.
- d) If the thesis has been submitted before the supervisor proceeds on leave, only a caretaker supervisor will be appointed.
- e) Further, if a major revision of the thesis becomes necessary, and the supervisor is on leave, he/ she should be asked to specifically state whether he/ she would effectively help the Research Scholar in carrying out the major revision within a reasonable period. In case the supervisor expresses his/ her inability due to one reason or the other, the caretaker supervisor, if he/she provides the required help in carrying out the major revision, will automatically be treated as a supervisor of that candidate.
- f) If a supervisor proceeds on leave for a period of less than 12 months initially, but later extends his leave beyond 12 months, the above procedure as applicable for leave beyond 12 months, will be followed. The extension granting authority will inform the Dean, Academic Affairs accordingly.
- g) If the supervisor proceeds on leave for more than 24 months during the Ph.D registration of a research student/ candidate, and in the opinion of SRC, he/ she has not contributed significantly to the thesis before proceeding on leave, he/ she will cease to be the supervisor(s).

**C. A Supervisor retiring**

A faculty member who is due to retire within the next two years may be appointed as an additional supervisor and may continue to be the supervisor even after his retirement provided the SRC is convinced of his availability/ continued guidance to the student. In

other cases, a faculty member on retirement may continue as a supervisor, if reemployed or appointed Emeritus Fellow; or, If SRC has recommended the research work for submission. Appointment of another supervisor/ caretaker supervisor may be done in such circumstances as in 'A' above.

#### **D. A Supervisor resigning**

A new supervisor will be appointed, if necessary, in such circumstances as in 'A' above.

#### **E. Death of Supervisor**

A new supervisor will be appointed, if necessary, on the recommendation of SRC.

#### **F. Supervisor declining to supervise**

In case a Supervisor declines to supervise a research student, another faculty member, qualified to be Supervisor and actively engaged in the same area of research, who consents to supervise the research student, may be appointed as the new Supervisor (as per the choice of the student) on the recommendation of the remaining members of SRC. After that, SRC may be reconstituted by replacing the earlier Supervisor with the new Supervisor and retaining the other internal and external experts.

#### **G. Change/ drop of Supervisor(s) by the research candidate**

If a research student before admission to candidacy wants to drop one of the supervisors, or wants to change the Supervisor(s), a new Supervisor(s) will be appointed by Dean, Academic Affairs, on the recommendation of DRC/CRC. In case the research student wishes to change the area of research with new supervisor(s), the entire SRC shall be constituted afresh.

### **VIII. Ph.D. COURSE WORK**

After having been admitted, a Ph.D. candidate shall be required to undertake course work for a minimum period of one semester and maximum of two semesters. For this purpose, **a Ph.D. scholar with M.Tech/M.Sc./M.Com./MBA/M.A. English/ Linguistic degree has to take at least three/ four courses respectively subject to minimum of 8 credits and maximum of 16 total credits.** Further based on the recommendations of SRC, one or more of the courses undertaken during the course work will be a course on research methodology, which may include quantitative methods and computer applications. It may also involve research ethics and reviewing of published research in the relevant field. The other courses will be based on advanced level courses on the recommendations of the SRC. In case, the research student had done research methodology during his/ her Master's degree, he/she has to complete other courses as recommended by the SRC. Moreover, **one of the course, may be taken in MOOCs mode.** The minimum grade requirement to pass in a Ph.D. Course will be 'B' with an overall minimum CGPA of 7.0 on a 10 point scale.

SRC of the Ph.D. (Part time) candidates who are working as Senior Executives at the level of CEOs and Directors in Industries, Government and Research Organizations, may also allow them to complete their course work through MOOCs, which are run for one full semester with complete assessment (either online or proctored) and assigned a grading or certificate. The grading/certification have to be appropriately adopted. SRC of such candidates may also offer courses through weekend/Module based contract programme to such Ph.D. part time candidates.

B.E./B.Tech students taking direct admission to Ph.D. programme will be required to complete mandatory course work in the first two semesters (similar to that of M.Tech. programme). Successful completion of State-of-Art proposal after additional one year may entitle the student to assistantship as admissible for Ph.D. students with Master's qualification.

Under exceptional circumstances, when a student is unable to complete the requirement of the Ph.D. programme, a exit option with the M.Tech. degree will be available at any time after the end of two years, subject completion of required course work and M.Tech. dissertation.

The exit policy would be available to B.Tech. students admitted directly to Ph.D. programme.

#### **IX. ELIGIBILITY FOR THE CANDIDACY**

1. The Dean Academic Affairs will approve admission of a research student to candidacy on the recommendation of SRC, which will certify that a research student has fulfilled the following:
  - a) completed the required course work;
  - b) Submitted a research proposal and defended it in the form of presentation of state-of-the-art seminar before the SRC.

Thereafter, the research student will be admitted to candidacy from the date on which SRC recommends the same.

2. If a research student (whether Full Time or Part Time) fails to get admission to candidacy within 24 months of his admission to Ph.D. programme, his/ her registration i.e. admission to the Ph.D. Programme will automatically be cancelled.

#### **X. RESEARCH PERFORMANCE MONITORING**

1. The research progress of each research candidate in a semester will be monitored by the SRC, which will assess the performance to be 'satisfactory' or 'unsatisfactory' at the end of each semester. For this purpose, each research candidate will be asked to submit a progress report to the SRC by the stipulated date and shall make a presentation for the same before the SRC at the end of the semester.
2. The supervisor(s) shall forward his/ her (their) recommendation regarding the performance of the research candidate after receiving the progress report and presentation by the student, to the Chairman, DRC/CRC in the Department before the beginning of the next semester and the record of the progress report shall be maintained in the department.
3. If the progress of a research candidate in a semester is evaluated as 'satisfactory' by the supervisor, 'S' grade will be awarded to the research candidate for that semester and need not be forwarded to Dean, Academic Affairs for continuation of his/ her academic registration in next semester.
4. If the progress is evaluated as 'unsatisfactory' by the SRC, the evaluation will then be submitted to DRC/CRC, with an award of 'X' grade and other appropriate actions for forwarding it to the Dean academic Affairs. For the first award of 'X' grade, a warning will be issued to the Research Candidate by the office of Dean Academic Affairs.
5. If there are 'X' grades awarded in two consecutive semesters to a research candidate, his/ her registration for Ph.D. programme will automatically stand terminated.
6. The academic calendar will include the dates for the submission of the progress reports by the research candidates, such as:

**Autumn Semester:** 13th December (submission of progress report by the research candidate to the supervisor)

**Spring Semester:** 10th June (submission of progress report by the research candidate to the supervisor).

#### **XI. OPEN STATE-OF-ART SEMINAR AND RESEARCH PROPOSAL**

As one of the essential requirements for the Candidacy in the Ph.D Programme, a candidate must present his research proposal in an open State-of-Art Seminar to the members of SRC. An external expert, from outside the University, as proposed by the SRC on the recommendation of the supervisor, must be invited. In the State-of-Art Seminar, the research student is to present the current state of knowledge through a suitable literature survey about the specific problem on which he/ she wants to pursue research work. The methodology that he/ she intends to use to conduct the research, and the goals he/ she intends to achieve on the completion

of the research work should form an integral part of the research proposal. A copy of the research proposal will be given to each member of the SRC and the outside expert one week before the presentation. The faculty and post graduate students of the all departments will invariably be invited to the State-of-Art seminar. The Viva Voce will form an essential component of the State-of-Art seminar.

This presentation can be scheduled after one semester i.e. six months after admission of candidate to Ph.D. Programme at the earliest, but no later than 2 years after his/ her initial registration. In case a candidate fails to complete this requirement within 2 years, his/ her admission to Ph.D. Programme will be cancelled. The supervisor will coordinate the State-of-Art Seminar.

On acceptance of the research proposal and presentation in an open State-of-Art Seminar, SRC will recommend and certify the fulfillment of the requirements for the candidacy of the candidate and send its recommendation through the Chairman, DRC/CRC along with copy of the approved proposal to DAA for issue of certificate of candidacy, provided the candidate meets all the other requirements of the institute.

## **XII. CANCELLATION OF REGISTRATION**

1. Registration of a Research student/candidate shall be cancelled in any one of the following eventualities, after due approval of Dean, Academic Affairs.
  - a. If he/ she abstains himself for a continuous period of four weeks without prior intimation/sanction of leave.
  - b. If he/ she resigns from the Ph.D. Programme and the resignation is duly recommended by the supervisor/ Chairman, DRC/CRC/HoD.
  - c. If he/ she fails to renew his/ her registration in any semester
  - d. If his/ her academic and research progress is not satisfactory for two consecutive semesters.
  - e. If all the prescribed courses are not successfully completed within the stipulated time frame of 12 months (for both full time and part time Research students) from initial registration. The minimum grade requirement to pass in a Ph.D. Course will be 'B' with an overall minimum CGPA of 7.0 on a 10 point scale.
  - f. Request of a candidate for conversion of his/ her Ph.D. programme from full time to part time will not be allowed before one year and without completion of state-of-the-art seminar and acceptance of research proposal i.e. award of candidacy, and in such a situation, admission of the candidate to Ph.D. programme may be cancelled.
  - g. If he/she is found involved in an act of misconduct and/ or indiscipline and termination has been recommended by a competent authority.

## **XIII. RESEARCH STUDENT TAKING UP A JOB/ ASSIGNMENT**

A Full time research student/ candidate cannot take up any job/ assignment during his/ her Ph.D. programme. If he/she takes up a job/ assignment, his/ her status may be converted from Full-time to Part- time student but this change is allowed only after a minimum period of one year and completion of state-of-art seminar and having been granted candidacy for the Ph.D. programme. However, in case of Ph.D. students getting institute scholarship, the conversion is not allowed before 3 years. In case the student does not fulfill the condition of completing 3 years, the entire amount of scholarship is to be refunded to the institute by the student. If the student does not fulfill these requirements and undertakes any job/assignment during Ph.D. programme, his/ her admission to Ph.D. programme will be cancelled.

## **XIV. OPEN PRE-SUBMISSION SEMINAR AND SYNOPSIS**

There will be an open presentation of the work done by the candidate before the thesis is bound and submitted for evaluation provided that the candidate has acceptance of/ published at least one research paper in a peer reviewed refereed journal having an SCI/SCI expanded, on the

basis of his/ her Ph.D. research work. The candidate shall produce evidence of the same in the form of acceptance letter/ copy of the research paper. The members of the SRC may recommend modification or extension of the work required before the thesis is completed. The research candidate will deliver a seminar on his research work and the seminar shall be adequately notified by the Chairman, SRC, so as to enable interested faculty members and students of the institute to attend it. If the SRC is satisfied about the quality of the work and considers it fit for submission as a Ph.D thesis, it will send its recommendation to Dean, Academic Affairs through the HoD along with five hard copies and one soft copy of the synopsis, proposed panel of examiners and the bibliography. Minor changes in title and objectives within the framework of the research proposal may be made as approved by the SRC.

A certificate from the supervisor(s) stating that all modifications, if any, recommended by SRC have been incorporated, the research work being reported is the original contribution of the candidate and the work has not been presented anywhere else for the award of any other degree, will be appended to the synopsis. The thesis will be checked for plagiarism using the software available in the library and a certificate attached for the same.

## **XV. MINIMUM AND MAXIMUM TIME FOR THESIS SUBMISSION**

**Ph.D. programme shall be for a minimum duration of three years, including course work and a maximum of six years.**

The candidates of all categories shall submit their thesis within a period of six years from the date of their initial registration for the Ph.D Programme. However, as a special case, this limit may be extended on the recommendation of SRC to a maximum of seven years for Full time research candidate and eight years for Part time research candidate by the Dean, Academic Affairs after which the registration shall stand cancelled automatically.

The women candidates and Persons with Disability (more than 40% disability) may be given relaxation of two years in the maximum duration of Ph.D. programme. In addition, the women candidates may be provided Maternity Leave/Child Care Leave once in the entire duration of Ph.D. for up to 240 days.

## **XVI. SUBMISSION OF THESIS**

- a) The thesis must strictly adhere to the format prescribed by Senate. The candidate should submit four hardbound copies of the thesis for evaluation by the Thesis Evaluation Board. Soft copy of thesis must accompany the hard copies at the time of submission of thesis. The thesis will be checked for plagiarism using the software available in the library and a certificate attached for the same.
- b) The research candidate shall be required to submit fresh synopsis if he/she fails to submit his/her thesis within 4 months of SRC recommendation for submission of thesis. However, in case a candidate fails to submit his/her thesis within the stipulated time and has suitable justification for the same, the Dean academic Affairs may, on recommendations made by the SRC and on individual merits of each case, grant extension in time beyond that for four more months, i.e. the candidate may be allowed to submit his/her thesis within a period not exceeding 8 months from the date of SRC meeting recommending submission.
- c) The candidate has to submit a 'No dues Certificate' in the prescribed form.

### **d) THE SPECIFICATIONS FOR THESIS**

- i) The thesis shall be typed or printed on A4 size paper. No hand written thesis will be accepted. The thesis shall be bound in card sheet paper in black colour. The name of the candidate, the degree and the year shall be printed in gold on the cover and the bound edge. The thesis shall be typed on both sides of the paper with 1½ line spacing; a margin of 3.5 cms on the left and 2.5 cms on all other sides. The font size shall be 12 in Times New Roman. The thesis must contain the following copyright certificate in the beginning of the thesis, on a separate page on the left side:

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20\_\_\_\_. ALL RIGHTS RESERVED

- ii) In a thesis, the title page should be given first, then the certificate by the candidate and the supervisor(s) followed by an acknowledgement, abstract of the thesis not exceeding 1500 words and a table of contents. The chapters will include Introduction, Literature review, Materials and Methods, Experimental Details, and Results & Discussions etc.
- iii) The references should be given at the end of the thesis preferably in alphabetic order of the authors' surnames **or** as they appear in the text of the thesis **or** as per standard method adopted in reputed journals in the related area.
- iv) The Tables and Figures should be all in ink or should be printed on a light background. Tabular matter should be clearly arranged.

**NOTE: Soft copy of the thesis in pdf should also be submitted on a CD after final viva-voce examination.**

## **XVII. THESIS READING BOARD AND EVALUATION**

To evaluate the Ph.D. thesis submitted by a Ph.D. candidate, a panel of 8 readers as far as possible from the authors/experts who have been cited in the thesis of the candidate, will be proposed by the supervisor(s) of the candidate out of which at least 5 will be from IITs/ IISc/ IISERs.

1. The panel should be duly recommended by the SRC and sent to Dean Academic Affairs through Chairman, DRC/CRC for approval/ addition/ deletion and listing in a preferential order by Chairman Senate. This panel is to be kept confidential. Synopsis of the thesis prepared by the candidate will be sent by the DAA to the top 3 examiners from the approved list for obtaining their willingness to evaluate the thesis. On receiving the acceptance from all the top 3 examiners, the copies of the thesis will be sent to the top 2 examiners from the list for evaluation. In case the acceptance is received from only 2 examiners the thesis will be sent to these examiners. In case of a refusal of two or more than 2 examiners from this list, the next examiners in the approved list mentioned above will be approached for the willingness to evaluate the thesis. Further, in case the list of approved examiners is exhausted, more names could be invited for the purpose by DAA from the supervisor(s) through SRC.
2. The thesis will be sent to the examiners by the office of the Dean Academic Affairs with the request for a detailed assessment report and their recommendations on the prescribed proforma within four weeks of the date of receiving the thesis.
3. The evaluators of the thesis will be required to submit detailed reports and make summary recommendations as to whether the:

(a) Thesis is acceptable as it is

(b) Thesis is acceptable with minor modifications

In case any examiner gives comments to be incorporated in the thesis and also states that the revised thesis need not be sent again to him / her, the revised thesis will not be sent to the examiner. The supervisor(s) shall certify that the comments have been incorporated, before the viva-voce examination.

(c) Thesis is acceptable with major modifications (which must be carried out by the candidate and approved by the same examiner who has sent these recommendations). This may be done within a period of maximum one year of receiving the reports. Only the theses that are rated acceptable by both the examiners (after incorporation of modifications, when required) will be processed further.

- i) In case the report from one of the examiners is rated not acceptable even after the modifications are incorporated, the reports of both the examiners will be sent to an independent examiner to be appointed by the Chairman Senate from the list of 6 examiners for final verdict about the acceptability of the thesis.

- ii) If the candidate does not agree for revision, he may ask for appointment of the fourth examiner. A new examiner, if appointed, shall be Indian or Foreign depending on whether the thesis was rejected/asked to be revised on the recommendation of an Indian or a Foreign examiner in the first instance. The reports of all the examiners will be sent to the new examiner without revealing the identity of the previous examiners, along with the response of the candidate, if any, to the grounds for such recommendation as given in the detailed comments. The thesis shall be deemed to be acceptable if majority of the examiners including the new examiner recommend acceptance. If the newly appointed examiner recommends revision, the thesis would be suitably revised and resubmitted at least after 3 months and sent for examination to all the examiners except the one in whose place the new examiner was appointed. In case the newly appointed examiner recommends rejection or his/ her recommendation for revision is not accepted by the candidate, the thesis would be rejected. The candidate may then avail the benefit of sub-clause 3b(ii) above.
  - iii) If the majority of examiners recommend revision of the thesis, the candidate may revise the thesis accordingly and resubmit it within a period of one year for the evaluation by the same set of examiners.
  - iv) If there is no clear majority opinion and there are recommendations for rejection by some and also, revision of the thesis by some others, the candidate may revise the thesis and resubmit it within a period of one year, for evaluation by the same set of examiners.
- d) Thesis is rejected outright

Any doubt arising out of following the procedure laid down in these rules and regulations shall be referred to the Chairman Senate for a decision.

In case of ambiguous recommendations by an examiner, Dean academic Affairs will approach the examiner for a clear recommendation. In case clear recommendation is not forthcoming, the matter may be referred to the Chairman Senate for a decision.

## **XVIII. ORAL DEFENCE BOARD**

On getting acceptance reports from the Thesis Reading Board, candidate shall be asked to defend his thesis, for the award of the Ph.D. degree, before the Oral Defence Board in an open Seminar/Viva Voce. Dean Academic Affairs shall request the Chairman, DRC/CRC to arrange for the conduct of this oral thesis defence.

Oral Defence Board will consist of

- (a) Chairman DRC/ CRC, Chairman of the Board
- (b) One of the examiners of the thesis, Member
- (c) All members of the SRC of the candidate, Members

Chairman Senate may preside over the viva-voce examination.

In case the Chairman, DRC/CRC is also the supervisor, the DAA will nominate an additional member to the Board. The Chairman will coordinate the conduct of the Oral Defence on a suitable date decided in consultation with examiner of the Thesis, Supervisor(s) and the candidate. Based on satisfactory performance of the candidate in the Oral Defence, the Oral Defence Board will send its recommendation to Chairman Senate for the approval by the Senate, Punjab Engineering College, Deemed to be University for the award of Ph.D. degree.

### Guidelines for conduct of oral defence:

1. (i) The copies of the reports of the thesis examiners shall be sent to the supervisor by DAA with the request to provide these to the candidate so that he/ she may prepare to answer the queries raised in the reports during oral defence. The oral thesis defence shall be adequately notified so as to enable interested faculty members and students to attend it. The oral defence of the thesis of the candidate shall be arranged as early as possible and normally within two months from the date of receipt of communication from the Dean academic Affairs for holding the viva-voce examination.

- (ii) In case of the inability of the supervisor in the capacity of internal examiner to attend the conduct of the oral defence of the thesis due to any reason whatsoever, the Chairman Senate may appoint another Internal Examiner for oral defence from amongst the faculty of the concerned department belonging to the particular field of the thesis, in consultation with Dean, Academic Affairs, and the Head of the Department concerned and he may assist the Chairman, SRC to conduct the oral defence of the thesis. However, in such cases also, the Ph.D. work will be deemed to have been carried out under the guidance of the supervisor only.
2. a) In case of non-availability of the Indian External Examiner in conducting the viva-voce examination, the DAA may appoint another examiner to conduct the oral defence of the thesis from the panel of examiners recommended by SRC. If need be, the SRC may suggest a fresh panel of examiners.
  - b) The members of the Oral Defence Board (ODB) shall be provided with the reports of the thesis examiners before the viva-voce examination.
  - c) If there is a difference of opinion among the viva-voce examiners in Oral Defence Board (ODB), the recommendations of the ODB will be put up for decision to the Chairman Senate, who may either direct that a fresh viva be held with a new ODB or recommend acceptance or otherwise to the Senate.
  - d) On the completion of the oral defence, the Oral Defence Board shall recommend to the Dean, Academic Affairs, one of the following courses of action:
    - (i) That the degree be awarded;
    - (ii) That the research candidate be re-examined at a later specified time in a specified manner;
    - (iii) That the degree shall not be awarded. The thesis will be rejected on the conclusion that the thesis is not genuinely the work of the research candidate.

In case of (ii) above, the second viva-voce examination may be held normally after a period of 3 months. Any other matter not explicitly provided herein or of an exceptional nature, may be referred to the Chairman Senate for decision.

#### **XIX. AWARD OF Ph.D. DEGREE**

1. The degree of Ph.D. shall be awarded to a candidate by the Senate, provided that:
  - a. The Oral Defence Board so recommends.
  - b. The candidate has submitted one soft and two hard bound copies of the thesis; one for the Library of the Department and the other for the Central Library. These copies of the thesis should incorporate all necessary corrections/ modifications listed by the Thesis examiners/ Oral Defence Board (ODB). This information has to be sent to office of DAA by the HoD and Librarian in-charge.

#### **XX. REPOSITORY WITH UGC**

Following the successful completion of the evaluation process and announcement of the award of Ph.D., the institute shall submit a soft copy of the Ph.D. thesis to the UGC within a period of thirty days for posting the same in INFLIBNET, accessible to all institutions/universities. Along with the degree, the University/Institution, shall issue a provisional certificate certifying the fact that the degree has been awarded in accordance with the provisions of the UGC Regulations 2009 amended from time to time.



## **XXI. SUPERVISION OF Ph.D. STUDENTS OF OTHER INSTITUTES/ UNIVERSITIES BY PEC FACULTY**

A faculty member of Punjab Engineering College, Deemed to be University may supervise and guide Ph.D. student(s) of other institutes/ universities subject to following conditions:

- a. The host Institution/ University is recognized by MHRD and UGC/ AICTE.
- b. The request must be forwarded by the competent authority of the host institution.
- c. The concerned faculty should have guided/should be guiding at least one Ph.D. student registered at Punjab Engineering College, Deemed to be University.
- d. The total number of such externally enrolled Ph.D. students under any faculty of Punjab Engineering College, Deemed to be University, should not be more than 2 (two) at any point of time.
- e. Due to extension of this facility to the host institution, the work of the Punjab Engineering College, Deemed to be University should not suffer.
- f. If the concerned faculty of Punjab Engineering College, Deemed to be University, as supervisor of thesis of students of another institute/university is required to visit an organization outside PEC, he/she shall seek prior approval for the specific visit from competent authority, on leave as due (special casual leave). Further, the expenses/ facilities etc. in this regard shall not be borne/ provided by the Punjab Engineering College, Deemed to be University.
- g. If the external candidate wishes to avail the facilities at Punjab Engineering College, Deemed to be University, he/she shall register as casual student for a period not exceeding six months by paying tuition fee being charged from the research students/candidates of Punjab Engineering College, Deemed to be University as per rules and regulations.
- h. The permission has to be taken in the prescribed proforma available at Punjab Engineering College, Deemed to be University and it must be ensured that the information is reported and recorded in the office of Dean Academic Affairs.

## **XXII. FINANCIAL ASSISTANCE (Institutional Assistantship)**

1. a) Those students who are admitted on full-time basis and have GATE/NET score or had been admitted to M.E./M.Tech on the basis of GATE score shall be considered for the award of Institutional Assistantship of the amount as decided by the Government of India from time to time, under specified terms and conditions.  
b) The students getting Institute Assistantship will provide 8-10 hours of assistance per week in teaching, laboratory development, research etc.  
c) The total number of assistantships in a department will be as decided by the institute from time to time.
2. The maximum duration for which assistantship can be awarded to any Ph.D. research student/ candidate is 4 years or till the thesis is submitted, whichever is earlier. Continuation of the fellowship is contingent on satisfactory academic and research performance and satisfactory performance in the discharge of responsibilities for assistance assigned under the scheme.

It is to be noted that admission to the Ph.D. Programme and award of assistantship are not linked. Admission to any Ph.D. programme does not guarantee the award of fellowship/ assistantship. Those who are not awarded assistantship can continue with the Ph.D. programme as self-financing students.

However, based on their performance as evaluated and recommended by SRC, eligible students may be awarded assistantship at a later date, if available, for the remaining part of their four year registration period. Such performance shall be evaluated after first year of admission.

3. In case a supervisor has an institute scholarship vacant slot with his/her at that time, the same can be offered to a Ph.D scholar who has no other means of assistantship subject to the condition that he/she fulfils all other institute conditions including that the total duration of scholarship given to the Ph.D Scholar should not exceed 04 years including the assistantship given under Sponsored Research Project or institute scholarship.

### **XXIII. OTHER RULES**

A research student/candidate will be entitled to avail leave as approved by the Head of the Department following Leave Rules/Attendance Rules formulated and amended from time to time by the Senate. Presently these are as under:

#### **1. Leave Rules**

A full-time research student/candidate, during his/her stay at the Institute will be entitled to leave for 30 days per academic year including leave on medical grounds, in addition to Public Holidays. He/she will not be entitled to mid-semester breaks, summer and winter vacation. The leave due can be carried over to the next year and accumulated up to 90 days.

Leave beyond 30 days in an academic year may be granted to a Research student/ candidate in exceptional circumstances, on the recommendation of the supervisor, by the Head of the Department concerned, subject to the following conditions:

- a) The leave beyond 30 days will be without Assistantship/Scholarship/ Fellowship.
- b) An extension of leave up to additional 30 days will be granted only once during the programme of the scholar.
- c) A proper leave account of each research student/ candidate shall be maintained by the Department/ Centre concerned.
- d) Women scholars are entitled for maternity leave/child care leave with full fellowship/assistantship as applicable, for a period not exceeding 240 days, once during the tenure of their award. The application for maternity leave should be supported by medical certificate.
- e) Male Scholars are entitled for 15 days paternity leave once during the tenure of their award. The application for paternity leave should be supported by medical certificate.
- f) Special leave may be granted with the permission of Head of the Department to attend Seminars/ Conferences in India/ abroad for presenting a paper and for carrying out research work in other institutes/ laboratories as approved by the supervisor.
- g) Research students/candidates supported by Govt./ Semi-Govt. agencies may be governed by their own rules, as applicable.

#### **2. Attendance**

A full-time research student/ candidate, irrespective of the source of support including self-financing, while pursuing course work, must fulfill the attendance requirement as per institute rules. A research student/candidate after having completed the course work must attend to his/her research work on all the working days and mark attendance except when he/she is away from the campus on duty/sanctioned leave.

In case the attendance of a research student/candidate falls below 75% during a month, he/she will not be paid his assistantship, for that month. Further, if his/her attendance again falls short of 75% in any subsequent months in the same semester his/her studentship/candidacy and support will be terminated.

For the above purpose, if 75% works out to be a number which is not a whole number, the immediate lower whole number will be treated as the required 75% attendance.

### **XXIV. INTERPRETATION OF RULES**

For any interpretation of these rules, the matter shall be referred to Chairman, Senate.

**XXV. AMENDMENT OF RULES**

These rules can be amended by the Senate depending upon the academic requirements of the Institute from time to time.

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**Use of Unfair Means during 1<sup>st</sup> Mid term / 2<sup>nd</sup> Mid term / End-semester Exams**

**Unfair Means during an examination encompass the following:**

- (i) A student caught in possession of paper, books or notes relevant to the subject of examination.
- (ii) A student caught with written notes on any part of the clothes worn by the student or on any part of his body /on table /on desk /on chair /on calculator/ on foot-rule/on code book etc.
- (iii) A student caught in possession of any electronic gadgets except for a non-programmable calculator.
- (iv) A student caught talking to another student or any other person inside or outside the examination hall without permission of the invigilator.
- (v) A student caught having copied or indulging in copying from any paper, book or notes.
- (vi) A student who has allowed or is found allowing any other student to copy any matter from his answer book or has in any manner rendered any assistance to another student in solving a question set in the question paper.
- (vii) If a candidate is found swallowing or attempting to swallow a note of paper or is guilty of causing disappearance of or destroying any such material.
- (viii) If during the examination a student is found consulting books, notes or papers or any other matter while outside the examination hall on the pretext of drinking water/using washroom before he/she has handed over the answer book to the invigilator.
- (ix) Writing anything on question paper except student ID.
- (x) If a student leaves the examination hall without delivering the answer book to the invigilator and takes away the same with him or intentionally tears off or otherwise disposes of his/her answer book or any part thereof.
- (xi) If a student changes his/her seat with another candidate or deliberately writes another student's ID on his/her answer book.
- (xii) A candidate found guilty of misconduct/misbehavior with the invigilator inside/outside the examination hall.
- (xiii) Any other person impersonates an eligible student and appears/tries to appear in the examination on behalf of the student.
- (xiv) If a student uses abusive or obscene language in the answer book.

**Procedure to be followed for reporting Unfair Means Cases**

Once a student is caught by an invigilator adopting unfair means during an examination:

- (i) The invigilator will collect the Answer Book and incriminating material (if any) from the student.
- (ii) If any incriminating material is caught, the invigilator will ask the student to sign the same and would put his/her own signature and all other Invigilators in the hall will also put their signatures along with date.

- (iii) If the student destroys the evidence by any means or refuses to sign, the invigilator would record the same in his/her report.
- (iv) The invigilator will write UMC on the Answer Book of the student alongwith his/her signature.
- (v) The invigilator will fill up the Unfair Means Case Report and it will be signed by all the Invigilators present in the examination hall (proforma of the UMC report to be provided to each invigilator by the respective deptt.).
- (vi) No second answer book will be given to the student and the student will be turned out of the examination hall by the Invigilators.
- (vii) The complete report along with incriminating material (if any) and answer book will be forwarded to the office of DAA through Head of Concerned Department.
- (viii) Standing Committee for UMC will invite the Invigilator who made the unfair means case and Course Coordinator in the meeting called for recommending the punishment to be awarded to the student.

### **Punishment for Unfair Means cases**

For offences at Sr. No. (xii), (xiii) & (xiv) the student will be suspended from the institute for one year. In case of (xiii), the person impersonating the student shall also be suspended from the institute for one year if that person is on rolls of the institute.

For other offences the punishments are as under:-

- (i) For the first offence by a student during his/her stay in PEC he/she will be awarded zero marks for the particular course, in that examination in which he/she is caught using unfair means.
- (ii) Second offence by the same student (in any exam/course) during his/her stay in PEC will be punished by awarding him/her 'F' grade in the particular course.
- (iii) For the third offence by the same student, he/she will be suspended from the Institute for one year.

***A student found guilty of approaching or influencing a member of the Standing Committee, directly or indirectly regarding his/her unfair means case, shall be suspended for one year in addition to the punishment awarded to him/her for his/her offence for using unfair means under these regulations.***

### **Punishing Authority**

Chairman Senate will be the punishing authority for all unfair means cases and the Dean Academic Affairs will issue the punishment letter to the student.

### **General Instructions**

- (i) Complete record along with incriminating materials and answer books of all Unfair Means Cases would be forwarded to the Standing Committee for Unfair Means Cases.
- (ii) This standing committee would recommend punishment to be awarded to students. Concerned invigilators who made the Unfair Means Case and the Course Coordinators would be invited to the meeting of this committee.
- (iii) Office of Dean Academic Affairs will maintain record of all unfair means cases.
- (iv) A copy of the punishment letter will also be issued to the following:
  - (a) Concerned Course Instructors
  - (b) Parents of the Student
  - (c) Chairman DAPC of the concerned department

**UGC REGULATIONS  
(ON CURBING THE MENACE OF RAGGING)**

**UNIVERSITY GRANTS COMMISSION  
BAHADURSHAH ZAFAR MARG  
NEW DELHI – 110 002**

**UGC REGULATIONS ON CURBING THE MENACE OF RAGGING IN  
HIGHER EDUCATIONAL INSTITUTIONS, 2009**

(under Section 26 (1)(g) of the University Grants Commission Act, 1956)

*(TO BE PUBLISHED IN THE GAZETTE OF INDIA PART III, SECTION-4)*

**F.1-16/2007(CPP-II)**

**Dated 17<sup>th</sup> June, 2009**

**PREAMBLE**

In view of the directions of the Hon'ble Supreme Court in the matter of "University of Kerala v/s. Council, Principals, Colleges and others" in SLP no. 24295 of 2006 dated 16.05.2007 and that dated 8.05.2009 in Civil Appeal number 887 of 2009, and in consideration of the determination of the Central Government and the University Grants Commission to prohibit, prevent and eliminate the scourge of ragging including any conduct by any student or students whether by words spoken or written or by an act which has the effect of teasing, treating or handling with rudeness a fresher or any other student, or indulging in rowdy or indisciplined activities by any student or students which causes or is likely to cause annoyance, hardship or psychological harm or to raise fear or apprehension thereof in any fresher or any other student or asking any student to do any act which such student will not in the ordinary course do and which has the effect of causing or generating a sense of shame, or torment or embarrassment so as to adversely affect the physique or psyche of such fresher or any other student, with or without an intent to derive a sadistic pleasure or showing off power, authority or superiority by a student over any fresher or any other student, in all higher education institutions in the country, and thereby, to provide for the healthy development, physically and psychologically, of all students, the University Grants Commission, in consultation with the Councils, brings forth this Regulation.

In exercise of the powers conferred by Clause (g) of sub-section (1) of Section 26 of the University Grants Commission Act, 1956, the University Grants Commission hereby makes the following Regulations, namely;

**1. Title, commencement and applicability**

- 1.1 These regulations shall be called the "UGC Regulations on Curbing the Menace of Ragging in Higher Educational Institutions, 2009".
- 1.2 They shall come into force from the date of their publication in the Official Gazette
- 1.3 They shall apply to all the institutions coming within the definition of an University under sub-section (f) of section (2) of the University Grants Commission Act, 1956, and to all institutions deemed to be a university under Section 3 of the University Grants Commission Act, 1956, to all other higher educational institutions, or elements of such universities or institutions, including its departments, constituent units and all the premises, whether being academic, residential, playgrounds, canteen, or other such premises of such universities, deemed universities and higher educational institutions, whether located within the campus or outside, and to all means of transportation of students, whether public or private, accessed by students for the pursuit of studies in such universities, deemed universities and higher educational institutions

## 2. Objectives

To prohibit any conduct by any student or students whether by words spoken or written or by an act which has the effect of teasing, treating or handling with rudeness a fresher or any other student, or indulging in rowdy or indisciplined activities by any student or students which causes or is likely to cause annoyance, hardship or psychological harm or to raise fear or apprehension thereof in any fresher or any other student or asking any student to do any act which such student will not in the ordinary course do and which has the effect of causing or generating a sense of shame, or torment or embarrassment so as to adversely affect the physique or psyche of such fresher or any other student, with or without an intent to derive a sadistic pleasure or showing off power, authority or superiority by a student over any fresher or any other student; and thereby, to eliminate ragging in all its forms from universities, deemed universities and other higher educational institutions in the country by prohibiting it under these Regulations, preventing its occurrence and punishing those who indulge in ragging as provided for in these Regulations and the appropriate law in force

### 1. What constitutes Ragging:

Ragging constitutes one or more of any of the following acts

- a. any conduct by any student or students whether by words spoken or written or by an act which has the effect of teasing, treating or handling with rudeness a fresher or any other student;
- b. indulging in rowdy or indisciplined activities by any student or students which causes or is likely to cause annoyance, hardship, physical or psychological harm or to raise fear or apprehension thereof in any fresher or any other student;
- c. asking any student to do any act which such student will not in the ordinary course do and which has the effect of causing or generating a sense of shame, or torment or embarrassment so as to adversely affect the physique or psyche of such fresher or any other student;
- d. any act by a senior student that prevents, disrupts or disturbs the regular academic activity of any other student or a fresher;
- e. exploiting the services of a fresher or any other student for completing the academic tasks assigned to an individual or a group of students
- f. any act of financial extortion or forceful expenditure burden put on a fresher or any other student by students
- g. any act of physical abuse including all variants of it: sexual abuse, homosexual assaults, stripping, forcing obscene and lewd acts, gestures, causing bodily harm or any other danger to health or person;
- h. any act or abuse by spoken words, emails, post, public insults which would also include deriving perverted pleasure, vicarious or sadistic thrill from actively or passively participating in the discomfiture to fresher or any other student
- i. any act that affects the mental health and self-confidence of a fresher or any other student

with or without an intent to derive a sadistic pleasure or showing off power, authority or superiority by a student over any fresher or any other student

## 4. Definitions.-

1. In these regulations unless the context otherwise requires,-
  - a) “Act” means, the University Grants Commission Act, 1956 (3 of 1956);
  - b) “Academic year” means the period from the commencement of admission of students in any course of study in the institution up to the completion of academic requirements for that particular year
  - c) “Anti-Ragging Helpline” means the Helpline established under clause (a) of Regulation 8.1 of these Regulations
  - d) “Commission” means the University Grants Commission

- e) “Council” means a body so constituted by an Act of Parliament or an Act of any State Legislature for setting, or co-ordinating or maintaining standards in the relevant areas of higher education, such as the All India Council for Technical Education (AICTE), the Bar Council of India (BCI), the Dental Council of India (DCI), the Distance Education Council (DEC), the Indian Council of Agricultural Research (ICAR), the Indian Nursing Council (INC), the Medical Council of India (MCI), the National Council for Teacher Education (NCTE), the Pharmacy Council of India (PCI), etc. and the State Higher Education Councils
  - f) “District Level Anti-Ragging Committee” means the Committee, headed by the District Magistrate, constituted by the State Government, for the control and elimination of ragging in institutions within the jurisdiction of the district
  - g) “Head of the institution” means the Vice-Chancellor in case of a university or a deemed to be university, the Principal or the Director or such other designation as the executive head of the institution or the college is referred
  - h) “Fresher” means a student who has been admitted to an institution and who is undergoing his/her first year of study in such institution.
  - i) “Institution” means a higher educational institution including, but not limited to an university, a deemed to be university, a college, an institute, an institution of national importance set up by an Act of Parliament or a constituent unit of such institution, imparting higher education beyond 12 years of schooling leading to, but not necessarily culminating in, a degree (graduate, postgraduate and/or higher level) and/or to a university diploma
  - j) “NAAC” means the National Academic and Accreditation Council established by the Commission under section 12(ccc) of the Act
  - k) “State Level Monitoring Cell” means the body constituted by the State Government for the control and elimination of ragging in institutions within the jurisdiction of the State, established under a State Law or on the advice of the Central Government, as the case may be
2. Words and expressions used and not defined herein but defined in the Act or in the General Clauses Act, 1897, shall have the meanings respectively assigned to them in the Act or in the General Clauses Act, 1897, as the case may be.
5. Measures for prohibition of ragging at the institution level:
- a) No institution or any part of it thereof, including its elements, including, but not limited to, the departments, constituent units, colleges, centres of studies and all its premises, whether academic, residential, playgrounds, or canteen, whether located within the campus or outside, and in all means of transportation of students, whether public or private, accessed by students for the pursuit of studies in such institutions, shall permit or condone any reported incident of ragging in any form; and all institutions shall take all necessary and required measures, including but not limited to the provisions of these Regulations, to achieve the objective of eliminating ragging, within the institution or outside
  - b) All institutions shall take action in accordance with these Regulations against those found guilty of ragging and/or abetting ragging, actively or passively, or being part of a conspiracy to promote ragging.
6. Measures for prevention of ragging at the institution level.-
- 6.1 An institution shall take the following steps in regard to admission or registration of students; namely
- a) Every public declaration of intent by any institution, in any electronic, audio- visual or print or any other media, for admission of students to any course of study shall expressly provide that ragging is totally prohibited in the institution and anyone found guilty of ragging and/or abetting ragging, whether actively or passively, or being a part of a conspiracy to promote ragging, is liable to be punished in accordance with these Regulations as well as under the provisions of any penal law for the time being in force.



- b) The brochure of admission/instruction booklet or the prospectus, whether in print or electronic format, shall prominently print these Regulations in full.  
 Provided that the institution shall also draw attention to any law concerning ragging and its consequences, as may be applicable to the institution publishing such brochure of admission/instruction booklet or the prospectus.  
 Provided further that the telephone numbers of the Anti-Ragging Helpline and all the important functionaries in the institution, including but not limited to the Head of the institution, faculty members, members of the Anti-Ragging Committees and Anti-Ragging Squads, District and Sub-Divisional authorities, Wardens of hostels, and other functionaries or authorities where relevant, shall be published in the brochure of admission/instruction booklet or the prospectus.
- c) Where an institution is affiliated to a University and publishes a brochure of admission/instruction booklet or a prospectus, the affiliating university shall ensure that the affiliated institution shall comply with the provisions of clause (a) and clause (b) of Regulation 6.1 of these Regulations
- d) The application form for admission, enrolment or registration shall contain an affidavit, mandatorily in English and in Hindi and/or in one of the regional languages known to the applicant, as provided in the English language in Annexure VI to these Regulations, to be filled up and signed by the applicant to the effect that he/she has read and understood the provisions of these Regulations as well as the provisions of any other law for the time being in force, and is aware of the prohibition of ragging and the punishments prescribed, both under penal laws as well as under these Regulations and also affirm to the effect that he/she has not been expelled and/or debarred by any institution and further aver that he/she would not indulge, actively or passively, in the act or abet the act of ragging and if found guilty of ragging and/or abetting ragging, is liable to be proceeded against under these Regulations or under any penal law or any other law for the time being in force and such action would include but is not limited to debarment or expulsion of such student.
- e) The application form for admission, enrolment or registration shall contain an affidavit, mandatorily in English and in Hindi and/or in one of the regional languages known to the parents/guardians of the applicant, as provided in the English language in Annexure VII to these Regulations, to be filled up and signed by the parents/guardians of the applicant to the effect that he/she has read and understood the provisions of these Regulations as well as the provisions of any other law for the time being in force, and is aware of the prohibition of ragging and the punishments prescribed, both under penal laws as well as under these Regulations and also affirm to the effect that his/her ward has not been expelled and/or debarred by any institution and further aver that his/her ward would not indulge, actively or passively, in the act or abet the act of ragging and if found guilty of ragging and/or abetting ragging, his/her ward is liable to be proceeded against under these Regulations or under any penal law or any other law for the time being in force and such action would include but is not limited to debarment or expulsion of his/her ward
- f) The application for admission shall be accompanied by a document in the form of, or annexed to, the School Leaving Certificate/Transfer Certificate/Migration Certificate/Character Certificate reporting on the inter-personal/social behavioural pattern of the applicant, to be issued by the school or institution last attended by the applicant, so that the institution can thereafter keep watch on the applicant, if admitted, whose behaviour has been commented in such document.
- g) A student seeking admission to a hostel forming part of the institution, or seeking to reside in any temporary premises not forming part of the institution, including a private commercially managed lodge or hostel, shall have to submit additional affidavits countersigned by his/her parents/guardians in the form prescribed in Annexure VI and Annexure VII to these Regulations respectively along with his/her application.
- h) Before the commencement of the academic session in any institution, the Head of the Institution shall convene and address a meeting of various functionaries/agencies, such as Hostel Wardens, representatives of students parents/ guardians, faculty, district administration including the police, to discuss the measures to be taken to prevent ragging in the institution and steps to be taken to identify those indulging in or abetting ragging and punish them.
- i) The institution shall, to make the community at large and the students in particular aware of the dehumanizing effect of ragging, and the approach of the institution towards those indulging in

ragging, prominently display posters depicting the provisions of penal law applicable to incidents of ragging, and the provisions of these Regulations and also any other law for the time being in force, and the punishments thereof, shall be prominently displayed on Notice Boards of all departments, hostels and other buildings as well as at places, where students normally gather and at places, known to be vulnerable to occurrences of ragging incidents

- j) The institution shall request the media to give adequate publicity to the law prohibiting ragging and the negative aspects of ragging and the institution's resolve to ban ragging and punish those found guilty without fear or favour
- k) The institution shall identify, properly illuminate and keep a close watch on all locations known to be vulnerable to occurrences of ragging incidents
- l) The institution shall tighten security in its premises, especially at vulnerable places and intense policing by Anti-Ragging Squad, referred to in these Regulations and volunteers, if any, shall be resorted to at such points at odd hours during the first few months of the academic session
- m) The institution shall utilize the vacation period before the start of the new academic year to launch a publicity campaign against ragging through posters, and such other means, as may be desirable or required, to promote the objectives of these Regulations
- n) The faculties/departments/units of the institution shall have induction arrangements, including those which anticipate, identify and plan to meet any special needs of any specific section of students, in place well in advance of the beginning of the academic year with an aim to promote the objectives of this Regulation
- o) Every institution shall engage or seek the assistance of professional counsellors before the commencement of the academic session, to be available when required by the institution, for the purposes of offering counselling to freshers and to other students after the commencement of the academic year.
- p) The head of the institution shall provide information to the local police and local authorities, the details of every privately commercially managed hostels or lodges used for residential purposes by students enrolled in the institution and the head of the institution shall also ensure that the Anti-Ragging Squad shall ensure vigil in such locations to prevent the occurrence of ragging therein

6.2 An institution shall, on admission or enrolment or registration of students, take the following steps, namely

- a) Every fresh student admitted to the institution shall be given a printed leaflet detailing to whom he/she has to turn to for help and guidance for various purposes including addresses and telephone numbers, so as to enable the student to contact the concerned person at any time, if and when required, of the Anti-Ragging Helpline referred to in these Regulations, Wardens, Head of the institution, all members of the anti-ragging squads and committees, relevant district and police authorities
- b) The institution, through the leaflet specified in clause (a) of Regulation 6.2 of these Regulations shall explain to the freshers, the arrangements made for their induction and orientation which promote efficient and effective means of integrating them fully as students with those already admitted to the institution in earlier years.
- c) The leaflet specified in clause (a) of Regulation 6.2 of these Regulations shall inform the freshers about their rights as bona fide students of the institution and clearly instructing them that they should desist from doing anything, with or against their will, even if ordered to by the seniors students, and that any attempt of ragging shall be promptly reported to the Anti-ragging Squad or to the Warden or to the Head of the institution, as the case may be
- d) The leaflet specified in clause (a) of Regulation 6.2 of these Regulations shall contain a calendar of events and activities laid down by the institution to facilitate and complement familiarization of freshers with the academic environment of the institution.
- e) The institution shall, on the arrival of senior students after the first week or after the second week, as the case may be, schedule orientation programmes as follows, namely; (i) joint sensitization programme and counselling of both freshers and senior students by a professional counsellor, referred to in clause (o) of Regulation 6.1 of these Regulations; (ii) joint orientation programme of freshers and seniors to be addressed by the Head of the institution and the anti -

ragging committee;(iii) organization on a large scale of cultural, sports and other activities to provide a platform for the freshers and seniors to interact in the presence of faculty members ; (iv) in the hostel, the warden should address all students; and may request two junior colleagues from the college faculty to assist the warden by becoming resident tutors for a temporary duration.(v) as far as possible faculty members should dine with the hostel residents in their respective hostels to instil a feeling of confidence among the freshers.

- f) The institution shall set up appropriate committees, including the course-in-charge, student advisor, Wardens and some senior students as its members, to actively monitor, promote and regulate healthy interaction between the freshers, junior students and senior students
- g) Freshers or any other student(s), whether being victims, or witnesses, in any incident of ragging, shall be encouraged to report such occurrence, and the identity of such informants shall be protected and shall not be subject to any adverse consequence only for the reason for having reported such incidents
- h) Each batch of freshers, on arrival at the institution, shall be divided into small groups and each such group shall be assigned to a member of the faculty, who shall interact individually with each member of the group every day for ascertaining the problems or difficulties, if any, faced by the fresher in the institution and shall extend necessary help to the fresher in overcoming the same.
- i) It shall be the responsibility of the member of the faculty assigned to the group of freshers, to coordinate with the Wardens of the hostels and to make surprise visits to the rooms in such hostels, where a member or members of the group are lodged; and such member of faculty shall maintain a diary of his/her interaction with the freshers under his/her charge.
- j) Freshers shall be lodged, as far as may be, in a separate hostel block, and where such facilities are not available, the institution shall ensure that access of seniors to accommodation allotted to freshers is strictly monitored by wardens, security guards and other staff of the institution.
- k) A round the clock vigil against ragging in the hostel premises, in order to prevent ragging in the hostels after the classes are over, shall be ensured by the institution.
- l) It shall be the responsibility of the parents/guardians of freshers to promptly bring any instance of ragging to the notice of the Head of the Institution.
- m) Every student studying in the institution and his/her parents/guardians shall provide the specific affidavits required under clauses (d), (e) and (g) of Regulation 6.1 of these Regulations at the time of admission or registration, as the case may be, during each academic year.
- n) Every institution shall obtain the affidavit from every student as referred to above in clause (m) of Regulation 6.2 and maintain a proper record of the same and to ensure its safe upkeep thereof, including maintaining the copies of the affidavit in an electronic form, to be accessed easily when required either by the Commission or any of the Councils or by the institution or by the affiliating University or by any other person or organisation authorised to do so.
- o) Every student at the time of his/her registration shall inform the institution about his/her place of residence while pursuing the course of study, and in case the student has not decided his/her place of residence or intends to change the same, the details of his place of residence shall be provided immediately on deciding the same; and specifically in regard to a private commercially managed lodge or hostel where he/she has taken up residence.
- p) The Head of the institution shall, on the basis of the information provided by the student under clause (o) of Regulation 6.2, apportion sectors to be assigned to members of the faculty, so that such member of faculty can maintain vigil and report any incident of ragging outside the campus or en route while commuting to the institution using any means of transportation of students, whether public or private.
- q) The Head of the institution shall, at the end of each academic year, send a letter to the parents/guardians of the students who are completing their first year in the institution, informing them about these Regulations and any law for the time being in force prohibiting ragging and the punishments thereof as well as punishments prescribed under the penal laws, and appealing to them to impress upon their wards to desist from indulging in ragging on their return to the institution at the beginning of the academic session next

### 6.3 Every institution shall constitute the following bodies; namely

- a) Every institution shall constitute a Committee to be known as the Anti-Ragging Committee to be nominated and headed by the Head of the institution, and consisting of representatives of civil and police administration, local media, Non Government Organizations involved in youth activities, representatives of faculty members, representatives of parents, representatives of students belonging to the freshers' category as well as senior students, non-teaching staff; and shall have a diverse mix of membership in terms of levels as well as gender
- b) It shall be the duty of the Anti-Ragging Committee to ensure compliance with the provisions of these Regulations as well as the provisions of any law for the time being in force concerning ragging; and also to monitor and oversee the performance of the Anti-Ragging Squad in prevention of ragging in the institution.
- c) Every institution shall also constitute a smaller body to be known as the Anti- Ragging Squad to be nominated by the Head of the Institution with such representation as may be considered necessary for maintaining vigil, oversight and patrolling functions and shall remain mobile, alert and active at all times.  
Provided that the Anti-Ragging Squad shall have representation of various members of the campus community and shall have no outside representation
- d) It shall be the duty of the Anti-Ragging Squad to be called upon to make surprise raids on hostels, and other places vulnerable to incidents of, and having the potential of, ragging and shall be empowered to inspect such places.
- e) It shall also be the duty of the Anti-Ragging Squad to conduct an on-the-spot enquiry into any incident of ragging referred to it by the Head of the institution or any member of the faculty or any member of the staff or any student or any parent or guardian or any employee of a service provider or by any other person, as the case may be; and the enquiry report along with recommendations shall be submitted to the Anti-Ragging Committee for action under clause (a) of Regulation 9.1.  
Provided that the Anti-Ragging Squad shall conduct such enquiry observing a fair and transparent procedure and the principles of natural justice and after giving adequate opportunity to the student or students accused of ragging and other witnesses to place before it the facts, documents and views concerning the incident of ragging, and considering such other relevant information as may be required
- f) Every institution shall, at the end of each academic year, in order to promote the objectives of these Regulations, constitute a Mentoring Cell consisting of students volunteering to be Mentors for freshers, in the succeeding academic year; and there shall be as many levels or tiers of Mentors as the number of batches in the institution, at the rate of one Mentor for six freshers and one Mentor of a higher level for six Mentors of the lower level.
- g) Every University shall constitute a body to be known as Monitoring Cell on Ragging, which shall coordinate with the affiliated colleges and institutions under the domain of the University to achieve the objectives of these Regulations; and the Monitoring Cell shall call for reports from the Heads of institutions in regard to the activities of the Anti-Ragging Committees, Anti - Ragging Squads, and the Mentoring Cells at the institutions, and it shall also keep itself abreast of the decisions of the District level Anti-Ragging Committee headed by the District Magistrate.
- h) The Monitoring Cell shall also review the efforts made by institutions to publicize anti-ragging measures, soliciting of affidavits from parents/guardians and from students, each academic year, to abstain from ragging activities or willingness to be penalized for violations; and shall function as the prime mover for initiating action on the part of the appropriate authorities of the university for amending the Statutes or Ordinances or Bye-laws to facilitate the implementation of anti-ragging measures at the level of the institution.

#### 6.4 Every institution shall take the following other measures, namely

- a) Each hostel or a place where groups of students reside, forming part of the institution, shall have a full-time Warden, to be appointed by the institution as per the eligibility criteria laid down for the post reflecting both the command and control aspects of maintaining discipline and preventing incidents of ragging within the hostel, as well as the softer skills of counselling and communicating with the youth outside the class-room situation; and who shall reside within the hostel, or at the very least, in the close vicinity thereof.

- b) The Warden shall be accessible at all hours and be available on telephone and other modes of communication, and for the purpose the Warden shall be provided with a mobile phone by the institution, the number of which shall be publicised among all students residing in the hostel.
- c) The institution shall review and suitably enhance the power of Wardens; and the security personnel posted in hostels shall be under the direct control of the Warden and their performance shall be assessed by them.
- d) The professional counsellors referred to under clause (o) of Regulation 6.1 of these Regulations shall, at the time of admission, counsel freshers and/or any other student(s) desiring counselling, in order to prepare them for the life ahead, particularly in regard to the life in hostels and to the extent possible, also involve parents and teachers in the counselling sessions.
- e) The institution shall undertake measures for extensive publicity against ragging by means of audio-visual aids, counselling sessions, workshops, painting and design competitions among students and such other measures, as it may deem fit.
- f) In order to enable a student or any person to communicate with the Anti- Ragging Helpline, every institution shall permit unrestricted access to mobile phones and public phones in hostels and campuses, other than in class-rooms, seminar halls, library, and in such other places that the institution may deem it necessary to restrict the use of phones.
- g) The faculty of the institution and its non-teaching staff, which includes but is not limited to the administrative staff, contract employees, security guards and employees of service providers providing services within the institution, shall be sensitized towards the ills of ragging, its prevention and the consequences thereof.
- h) The institution shall obtain an undertaking from every employee of the institution including all teaching and non-teaching members of staff, contract labour employed in the premises either for running canteen or as watch and ward staff or for cleaning or maintenance of the buildings/lawns and employees of service providers providing services within the institution, that he/she would report promptly any case of ragging which comes to his/her notice.
- i) The institution shall make a provision in the service rules of its employees for issuing certificates of appreciation to such members of the staff who report incidents of ragging, which will form part of their service record.
- j) The institution shall give necessary instructions to the employees of the canteens and messing, whether that of the institution or that of a service provider providing this service, or their employers, as the case may be, to keep a strict vigil in the area of their work and to report the incidents of ragging to the Head of the institution or members of the Anti-Ragging Squad or members of the Anti-Ragging Committee or the Wardens, as may be required.
- k) All Universities awarding a degree in education at any level shall be required to ensure that institutions imparting instruction in such courses or conducting training programme for teachers include inputs relating to anti-ragging and the appreciation of the relevant human rights, as well as inputs on topics regarding sensitization against corporal punishments and checking of bullying amongst students, so that every teacher is equipped to handle at least the rudiments of the counselling approach.
- l) Discreet random surveys shall be conducted amongst the freshers every fortnight during the first three months of the academic year to verify and cross-check whether the institution is indeed free of ragging or not and for the purpose the institution may design its own methodology of conducting such surveys.
- m) The institution shall cause to have an entry, apart from those relating to general conduct and behaviour, made in the Migration/Transfer Certificate issued to the student while leaving the institution, as to whether the student has been punished for committing or abetting an act of ragging, as also whether the student has displayed persistent violent or aggressive behaviour or any inclination to harm others, during his course of study in the institution.
- n) Notwithstanding anything contained in these Regulations with regard to obligations and responsibilities pertaining to the authorities or members of bodies prescribed above, it shall be the general collective responsibility of all levels and sections of authorities or functionaries including members of the faculty and employees of the institution, whether regular or temporary, and employees of service providers providing service within the institution, to prevent or to act promptly against the occurrence of ragging or any incident of ragging which comes to their notice.

- o) The Heads of institutions affiliated to a University or a constituent of the University, as the case may be, shall, during the first three months of an academic year, submit a weekly report on the status of compliance with Anti-Ragging measures under these Regulations, and a monthly report on such status thereafter, to the Vice-Chancellor of the University to which the institution is affiliated to or recognized by.
  - p) The Vice Chancellor of each University, shall submit fortnightly reports of the University, including those of the Monitoring Cell on Ragging in case of an affiliating university, to the State Level Monitoring Cell.
- 7 Action to be taken by the Head of the institution.- On receipt of the recommendation of the Anti Ragging Squad or on receipt of any information concerning any reported incident of ragging, the Head of institution shall immediately determine if a case under the penal laws is made out and if so, either on his own or through a member of the Anti-Ragging Committee authorised by him in this behalf, proceed to file a First Information Report (FIR), within twenty four hours of receipt of such information or recommendation, with the police and local authorities, under the appropriate penal provisions relating to one or more of the following, namely;
- i. Abetment to ragging
  - ii. Criminal conspiracy to rag
  - iii. Unlawful assembly and rioting while ragging
  - iv. Public nuisance created during ragging
  - v. Violation of decency and morals through ragging
  - vi. Injury to body, causing hurt or grievous hurt
  - vii. Wrongful restraint
  - viii. Wrongful confinement
  - ix. Use of criminal force
  - x. Assault as well as sexual offences or unnatural offences
  - xi. Extortion
  - xii. Criminal trespass
  - xiii. Offences against property
  - xiv. Criminal intimidation
  - xv. Attempts to commit any or all of the above mentioned offences against the victim(s)
  - xvi. Threat to commit any or all of the above mentioned offences against the victim(s)
  - xvii. Physical or psychological humiliation
  - xviii. All other offences following from the definition of “Ragging”

Provided that the Head of the institution shall forthwith report the occurrence of the incident of ragging to the District Level Anti-Ragging Committee and the Nodal officer of the affiliating University, if the institution is an affiliated institution.

Provided further that the institution shall also continue with its own enquiry initiated under clause 9 of these Regulations and other measures without waiting for action on the part of the police/local authorities and such remedial action shall be initiated and completed immediately and in no case later than a period of seven days of the reported occurrence of the incident of ragging

## 8. Duties and Responsibilities of the Commission and the Councils

8.1 The Commission shall, with regard to providing facilitating communication of information regarding incidents of ragging in any institution, take the following steps, namely;

- a) The Commission shall establish, fund and operate, a toll-free Anti-Ragging Helpline, operational round the clock, which could be accessed by students in distress owing to ragging related incidents.
- b) Any distress message received at the Anti-Ragging Helpline shall be simultaneously relayed to the Head of the Institution, the Warden of the Hostels, the Nodal Officer of the affiliating University, if the incident reported has taken place in an institution affiliated to a University, the

concerned District authorities and if so required, the District Magistrate, and the Superintendent of Police, and shall also be web enabled so as to be in the public domain simultaneously for the media and citizens to access it.

- c) The Head of the institution shall be obliged to act immediately in response to the information received from the Anti-Ragging Helpline as at sub-clause (b) of this clause.
- d) The telephone numbers of the Anti-Ragging Helpline and all the important functionaries in every institution, Heads of institutions, faculty members, members of the anti-ragging committees and anti ragging squads, district and sub-divisional authorities and state authorities, Wardens of hostels, and other functionaries or authorities where relevant, shall be widely disseminated for access or to seek help in emergencies.
- e) The Commission shall maintain an appropriate data base to be created out of affidavits, affirmed by each student and his/her parents/guardians and stored electronically by the institution, either on its or through an agency to be designated by it; and such database shall also function as a record of ragging complaints received, and the status of the action taken thereon.
- f) The Commission shall make available the database to a non-governmental agency to be nominated by the Central Government, to build confidence in the public and also to provide information of non compliance with these Regulations to the Councils and to such bodies as may be authorised by the Commission or by the Central Government.

8.2 The Commission shall take the following regulatory steps, namely;

- a) The Commission shall make it mandatory for the institutions to incorporate in their prospectus, the directions of the Central Government or the State Level Monitoring Committee with regard to prohibition and consequences of ragging, and that non-compliance with these Regulations and directions so provided, shall be considered as lowering of academic standards by the institution, therefore making it liable for appropriate action.
- b) The Commission shall verify that the institutions strictly comply with the requirement of getting the affidavits from the students and their parents/guardians as envisaged under these Regulations.
- c) The Commission shall include a specific condition in the Utilization Certificate, in respect of any financial assistance or grants-in-aid to any institution under any of the general or special schemes of the Commission, that the institution has complied with the anti-ragging measures.
- d) Any incident of ragging in an institution shall adversely affect its accreditation, ranking or grading by NAAC or by any other authorised accreditation agencies while assessing the institution for accreditation, ranking or grading purposes..
- e) The Commission may accord priority in financial grants-in-aid to those institutions, otherwise eligible to receive grants under section 12B of the Act, which report a blemishless record in terms of there being no reported incident of ragging.
- f) The Commission shall constitute an Inter-Council Committee, consisting of representatives of the various Councils, the Non-Governmental agency responsible for monitoring the database maintained by the Commission under clause (g) of Regulation 8.1 and such other bodies in higher education, to coordinate and monitor the anti-ragging measures in institutions across the country and to make recommendations from time to time; and shall meet at least once in six months each year.
- g) The Commission shall institute an Anti-Ragging Cell within the Commission as an institutional mechanism to provide secretarial support for collection of information and monitoring, and to coordinate with the State Level Monitoring Cell and University level Committees for effective implementation of anti-ragging measures, and the Cell shall also coordinate with the Non-Governmental agency responsible for monitoring the database maintained by the Commission appointed under clause (g) of Regulation 8.1.

## 9. Administrative action in the event of ragging

- 9.1 The institution shall punish a student found guilty of ragging after following the procedure and in the manner prescribed herein under:

- a) The Anti-Ragging Committee of the institution shall take an appropriate decision, in regard to punishment or otherwise, depending on the facts of each incident of ragging and nature and gravity of the incident of ragging established in the recommendations of the Anti-Ragging Squad.
- b) The Anti-Ragging Committee may, depending on the nature and gravity of the guilt established by the Anti-Ragging Squad, award, to those found guilty, one or more of the following punishments, namely;
  - i. Suspension from attending classes and academic privileges.
  - ii. Withholding/ withdrawing scholarship/ fellowship and other benefits.
  - iii. Debarring from appearing in any test/ examination or other evaluation process.
  - iv. Withholding results.
  - v. Debarring from representing the institution in any regional, national or international meet, tournament, youth festival, etc.
  - vi. Suspension/ expulsion from the hostel.
  - vii. Cancellation of admission.
  - viii. Rustication from the institution for period ranging from one to four semesters.
  - ix. Expulsion from the institution and consequent debarring from admission to any other institution for a specified period. Provided that where the persons committing or abetting the act of ragging are not identified, the institution shall resort to collective punishment.
- c) An appeal against the order of punishment by the Anti-Ragging Committee shall lie,
  - i. in case of an order of an institution, affiliated to or constituent part, of a University, to the Vice-Chancellor of the University;
  - ii. in case of an order of a University, to its Chancellor
  - iii. in case of an institution of national importance created by an Act of Parliament, to the Chairman or Chancellor of the institution, as the case may be.

9.2 Where an institution, being constituent of, affiliated to or recognized by a University, fails to comply with any of the provisions of these Regulations or fails to curb ragging effectively, such University may take any one or more of the following actions, namely;

- i. Withdrawal of affiliation/recognition or other privileges conferred.
- ii. Prohibiting such institution from presenting any student or students then undergoing any programme of study therein for the award of any degree/diploma of the University.  
Provided that where an institution is prohibited from presenting its student or students, the Commission shall make suitable arrangements for the other students so as to ensure that such students are able to pursue their academic studies.
- iii. Withholding grants allocated to it by the university, if any
- iv. Withholding any grants channelized through the university to the institution.
- v. Any other appropriate penalty within the powers of the university.

9.3 Where in the opinion of the appointing authority, a lapse is attributable to any member of the faulty or staff of the institution, in the matter of reporting or taking prompt action to prevent an incident of ragging or who display an apathetic or insensitive attitude towards complaints of ragging, or who fail to take timely steps, whether required under these Regulations or otherwise, to prevent an incident or incidents of ragging, then such authority shall initiate departmental disciplinary action, in accordance with the prescribed procedure of the institution, against such member of the faulty or staff.  
Provided that where such lapse is attributable to the Head of the institution, the authority designated to appoint such Head shall take such departmental disciplinary action; and such action shall be without prejudice to any action that may be taken under the penal laws for abetment of ragging for failure to take timely steps in the prevention of ragging or punishing any student found guilty of ragging.



- 9.4 The Commission shall, in respect of any institution that fails to take adequate steps to prevent ragging or fails to act in accordance with these Regulations or fails to punish perpetrators or incidents of ragging suitably, take one or more of the following measures, namely;
- i. Withdrawal of declaration of fitness to receive grants under section 12B of the Act.
  - ii. Withholding any grant allocated.
  - iii. Declaring the institution ineligible for consideration for any assistance under any of the general or special assistance programmes of the Commission.
  - iv. Informing the general public, including potential candidates for admission, through a notice displayed prominently in the newspapers or other suitable media and posted on the website of the Commission, declaring that the institution does not possess the minimum academic standards.
  - v. Taking such other action within its powers as it may deem fit and impose such other penalties as may be provided in the Act for such duration of time as the institution complies with the provisions of these Regulations.

Provided that the action taken under this clause by the Commission against any institution shall be shared with all Councils.

**(Dr. R.K. Chauhan)**  
**Secretary**

**To,**  
**The Assistant Controller,**  
**Publication Division, Govt. of India,**  
**Ministry of Urban Development and Poverty Alleviation,**  
**Civil Lines Delhi -110 054**

**AFFIDAVIT BY THE STUDENT**

I, \_\_\_\_\_ (*full name of student with admission / registration / enrolment number*) s/o d/o Mr./Mrs./Ms. \_\_\_\_\_, having been admitted to \_\_\_\_\_ (*name of the institution*) have received a copy of the UGC Regulations on Curbing the Menace of Ragging in Higher Educational Institutions, 2009, (hereinafter called the “Regulations”) carefully read and fully understood the provisions contained in the said Regulations.

- 2) I have, in particular, perused clause 3 of the Regulations and am aware as to what constitutes ragging.
- 3) I have also, in particular, perused clause 7 and clause 9.1 of the Regulations and am fully aware of the penal and administrative action that is liable to be taken against me in case I am found guilty of or abetting ragging, actively or passively, or being part of a conspiracy to promote ragging.
- 4) I hereby solemnly aver and undertake that
  - a) I will not indulge in any behaviour or act that may be constituted as ragging under clause 3 of the Regulations.
  - b) I will not participate in or abet or propagate through any act of commission or omission that may be constituted as ragging under clause 3 of the Regulations.
- 5) I hereby affirm that, if found guilty of ragging, I am liable for punishment according to clause 9.1 of the Regulations, without prejudice to any other criminal action that may be taken against me under any penal law or any law for the time being in force.
- 6) I hereby declare that I have not been expelled or debarred from admission in any institution in the country on account of being found guilty of, abetting or being part of a conspiracy to promote, ragging; and further affirm that, in case the declaration is found to be untrue, I am aware that my admission is liable to be cancelled.

Declared this \_\_\_\_ day of \_\_\_\_\_ month of \_\_\_\_ year.

\_\_\_\_\_  
Signature of deponent

Name:

**VERIFICATION**

Verified that the contents of this affidavit are true to the best of my knowledge and no part of the affidavit is false and nothing has been concealed or misstated therein.

Verified at     (place)     on this the     (day)     of     (month)     ,     (year)    .

\_\_\_\_\_  
Signature of deponent

Solemnly affirmed and signed in my presence on this the     (day)     of     (month)     ,     (year)     after reading the contents of this affidavit.

OATH COMMISSIONER

**AFFIDAVIT BY THE PARENT / GUARDIAN**

I, Mr./Mrs./Ms. \_\_\_\_\_ (full name of parent/guardian) father/mother/guardian of \_\_\_\_\_ (*full name of student with admission / registration / enrolment number*) s/o d/o, having been admitted to \_\_\_\_\_ (*name of the institution*) have received a copy of the UGC Regulations on Curbing the Menace of Ragging in Higher Educational Institutions, 2009, (hereinafter called the “Regulations”), carefully read and fully understood the provisions contained in the said Regulations.

- 2) I have, in particular, perused clause 3 of the Regulations and am aware as to what constitutes ragging.
- 3) I have also, in particular, perused clause 7 and clause 9.1 of the Regulations and am fully aware of the penal and administrative action that is liable to be taken against my ward in case he/she is found guilty of or abetting ragging, actively or passively, or being part of a conspiracy to promote ragging.
- 4) I hereby solemnly aver and undertake that
  - a) My ward will not indulge in any behaviour or act that may be constituted as ragging under clause 3 of the Regulations.
  - b) My ward will not participate in or abet or propagate through any act of commission or omission that may be constituted as ragging under clause 3 of the Regulations.
- 5) I hereby affirm that, if found guilty of ragging, my ward is liable for punishment according to clause 9.1 of the Regulations, without prejudice to any other criminal action that may be taken against my ward under any penal law or any law for the time being in force.
- 6) I hereby declare that my ward has not been expelled or debarred from admission in any institution in the country on account of being found guilty of, abetting or being part of a conspiracy to promote, ragging; and further affirm that, in case the declaration is found to be untrue, the admission of my ward is liable to be cancelled.

Declared this \_\_\_\_ day of \_\_\_\_\_ month of \_\_\_\_ year.

\_\_\_\_\_  
Signature of deponent

Name:

Address:

Telephone/Mobile No.:

**VERIFICATION**

Verified that the contents of this affidavit are true to the best of my knowledge and no part of the affidavit is false and nothing has been concealed or misstated therein.

Verified at     (place)     on this the     (day)     of     (month)     ,     (year)    .

\_\_\_\_\_  
Signature of deponent

Solemnly affirmed and signed in my presence on this the     (day)     of     (month)     ,     (year)     after reading the contents of this affidavit.

OATH COMMISSIONER

# PEC University of Technology, Chandigarh

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