



EXPLORE INNOVATE EXCEL

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



***PhD Rules and Guidelines***  
**Session 2022-23 Onwards**

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

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 Punjab Engineering College (PEC).

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 Chandigarh Administration.

In October 2003, 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 very near to Punjab and Haryana Civil Secretariat, Panjab University and 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. 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 Administrative block, Academic Block, hostels, 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 which include 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.

## FEE STRUCTURE FOR PhD STUDENTS

<b>One-time (at the time of Admission only)</b>	
Admission Fee	Rs. 5,000/-
One- time Student service fee	Rs. 6,000/-
Security deposit (Refundable)	Rs. 8,000/-
<b>Annual Fees</b>	
Academic (Full Time Regular students)	Rs. 23,000/-
Academic (Part Time Students)	Rs. 45,000/-
Other facilities and services	Rs. 6,000/-
<ul style="list-style-type: none"><li>• <b>Total Payable at the time of admission (for full time regular students) is Rs. 48,000/-</b></li><li>• <b>Total payable at the time of admission (for part time students) Rs. 70,000/-</b></li></ul>	

*Every component of fees is subject to revision by Punjab Engineering College (Deemed to be University), Chandigarh from time to time without any prior notice. Tuition fees will be raised by at most 10% every year.*

### **Hostel/Faculty House/Other Residential Place**

- 1) Hostel accommodation shall be allotted only to the full time research scholars subject to availability of the rooms in the hostels.
- 2) Faculty House/Other Residential Place shall be provided to the married full time research scholars, subject to availability, on the prescribed room rent and other charges as decided by the Institute authority.
- 3) Hostel accommodation facility may be extended for maximum 3 months beyond the date of submission of PhD thesis.

## **PhD Programme**

The Doctor of Philosophy (PhD) Programme is offered by the following Departments/ Centres in the related areas of specializations.

- Aerospace Engineering
- Chemistry
- Civil Engineering
- Computer Science & Engineering
- Electrical Engineering
- Electronics and Communication Engineering
- Mathematics
- Mechanical Engineering
- Metallurgical & Materials Engineering
- Physics
- Production and Industrial Engineering
- Centre of Excellence in Industrial & Product Design
- Centre of Management and Humanities
- Cyber Security Research Centre

The provisions contained in these Regulations shall also be applicable to any new Doctoral Research Programme, either by any of the departments, or even possibly as inter (multi) disciplinary Programme, that may be introduced from time to time.

## Admissions to PhD Programme

The admissions to PhD Programme (Full Time/Part Time) in the Departments/ Centres of Engineering, Sciences and Humanities and Social Sciences are conducted twice in an academic year (odd and even semesters). The Institute reserves the right to suspend the admission process in PhD Programme if warrants so due to certain force majeure.

### Contacts & Email IDs

The contact details of the officials/offices are given as under: -

<b>Designation</b>	<b>Office (0172)</b>	<b>Email ID</b>
Dean Academic Affairs	2753053	deanaa*[at]pec.edu.in
Associate Dean Academic Affairs (PhD)	2753060	
Head, Aerospace Engineering	2753880	headaer*[at]pec.edu.in
Head, Chemistry		
Head, Civil Engineering	2753351	headcivil*[at]pec.edu.in
Head, Computer Science & Engineering	2753851	headcse*[at]pec.edu.in
Head, Electrical Engineering	2753451	headelec*[at]pec.edu.in
Head, Electronics Communication Engineering	2753761	headec*[at]pec.edu.in
Head, Mathematics		
Head, Mechanical Engineering	2753551	headmech*[at]pec.edu.in
Head, Metallurgical & Materials Engineering	2753951	headmett*[at]pec.edu.in
Head, Physics		
Head, Production & Industrial Engineering	2753281	headprod*[at]pec.edu.in
Head, Centre of Excellence in Industrial & Product Design		
Head, Centre of Management and Humanities		headcmh*[at]pec.edu.in
Head, Cyber Security Research Centre	2753853	divya*[at]pec.edu.in

# PUNJAB ENGINEERING COLLEGE, CHANDIGARH

## ORDINANCES

for the

### DEGREE OF THE DOCTOR OF PHILOSOPHY

#### PREAMBLE

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

The PhD programme is designed to impart knowledge, consolidate concepts and intellectual skills through courses, seminars, projects, research ethics, 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 an enabling research experience during their presence in the institute thus helping them to enter their professional life with right perspective and knowledge related to their respective fields of specialization.

#### ORDINANCE

##### Q-01 DEFINITIONS

- (i) **“PEC”** shall mean the Punjab Engineering College, Chandigarh.
- (ii) **“Research Scholar”** shall mean a person who is registered in the PhD programme in any Department/Centre of PEC.
- (iii) **“Part-time Research Scholar”** shall mean a research scholar who in addition to devoting time towards discharging the employment responsibilities also devotes time towards the pursuit of PhD research programme.
- (iv) **“Full-time Research Scholar”** shall mean a research scholar devoting full time in Department / Centre at PEC towards the pursuit of PhD research programme.
- (v) **“Supervisor”** shall mean a member of the regular faculty/ regular academic staff of PEC, appointed by the concerned **DRC** to supervise the PhD work of the research scholar.
- (vi) **“Co-Supervisor”** shall mean additional supervisor as appointed by the DRC. The Co-supervisor(s) may be from either of the following:
  - (a) Punjab Engineering College, Chandigarh.
  - (b) Faculty from Institute/University having top 100 NIRF ranking in any of the categories.

(c) CFTIs/Universities fully funded by central Government/PSUs/ R&D organization/Industry duly incorporated in India or abroad.

(d) Faculty from the Universities/Institutions in the top 500 QS/THE global ranking

Co-supervisor from outside the Institute must have the academic qualifications and research credentials as prescribed for a supervisor.

**“Caretaker Supervisor”** shall mean a supervisor appointed to look after the scholar’s research interests in the absence of the regular supervisor when the synopsis of the thesis has been submitted. The caretaker supervisor also must have the academic and research qualifications as prescribed for a supervisor.

(vii) **“Educational Institute”** shall mean those institutes which run full-time Bachelor’s or higher degree programmes.

(viii) **“ORG”** shall mean a PSU / Government Department / R&D Unit.

(ix) **“Registration Period”** shall mean the length of the time span for which a person remains a research scholar.

(x) **“Minimum Registration Period”** shall mean the minimum period for which a research scholar must remain registered to complete the requirements for degree of PhD

(xi) **“Degree”** shall mean the Degree of Doctor of Philosophy (PhD) of PEC.

(xii) **“HoD/HoC”** shall mean Head of Department/Head of Centre in which a Research Scholar is registered/proposes to register.

(xiii) **“DRC”** shall mean the Departmental/Centre Research Committee of a Department/Centre of PEC.

(xiv) **“SRC”** shall mean the Student Research Committee.

## **O-02 GENERAL**

1. These Ordinances / PhD regulations shall be applicable to those research scholars who are getting admission in PhD programme at PEC from academic session 2022-23 onward, unless there is some change incorporated in subsequent year. All eligibility criteria must be satisfied on the last date of receipt of application, failing which application will be rejected.

2. The qualifying degree as well as the University of qualifying degree must be recognized by AICTE, UGC or Ministry of Education (MoE) as the case may be. This will be verified by the Academic Section of PEC and its decision in this regard will be final.

3. The applicant, if employed, must send application through the competent authority/proper channel. The date of initial registration of the research scholar shall normally be the date on which the research scholar reports in the respective Department / Centre and submits the joining report. Research scholar are advised to visit institute website regularly for all updates.

4. In case of change of status from full-time to part-time, the time spent as a full-time research scholar will be taken into account for the purpose of minimum registration period requirement. The research scholar must have completed a minimum of two years as full-time research scholar at the institute for change of status from full time to part time. However, the maximum period of registration shall remain same as that of regular research scholar. The recommendations of the SRC are mandatory in such cases.
5. If the research scholar withdraws from PhD programme or the research scholar's admission is terminated due to any reason (other than completing maximum period of registration), the research scholar status ceases w.e.f. the date of such an act. Such research scholar cannot apply again for registration before the lapse of one year from the date of de-registration.
6. At the close of every semester, the research scholar is required to submit the semester progress report as per the academic calendar to the Chairperson of the DRC. Semester progress report is to be submitted through research supervisor(s) with remarks of all the supervisor(s) duly recorded as satisfactory/unsatisfactory.
7. The progress report presentations will be held in the department as per the academic calendar. All registered PhD research scholars will present their progress before SRC.
8. The semester progress report presentation shall be evaluated by the SRC and the result of evaluation recorded as satisfactory/unsatisfactory. Date of presentation shall be announced by Chairperson, DRC and circulated among candidate, members and a copy to Dean Academic Affairs well in time. The progress report format shall be signed/recommended by SRC for each research scholar for the subsequent semester. The semester progress report shall be forwarded by the Chairperson, DRC to the Dean Academic Affairs.
9. If due to compelling adverse circumstances (as considered so by the SRC), a research scholar is not able to submit the progress report by the stipulated date, or the progress of the research scholar is adjudged by the SRC as unsatisfactory, the Research Scholar, on request, can be allowed an additional chance for the same. The research scholar is expected to improve the research work and submit the progress report again at the close of the following semester (after six months). During this semester, the research scholar can be registered provisionally only (the normal semester fees, however, will have to be paid), and the minimum registration period requirement will automatically get extended by six months. Further, if the research scholar receives scholarship, the scholarship for these six months will be stopped.  
If, even on having been granted extension, the research scholar does not submit the progress report within the stipulated time or on resubmission also, the progress is adjudged as unsatisfactory; the registration shall be recommended for cancellation by the respective SRC.



Only one such chance can be granted to the research scholar during the entire PhD programme.

10. The research scholar must complete course work within two initial semesters from the date of registration.
11. The research scholar should submit the research plan proposal and pass the State-of-the-Art Seminar within 24 months of the initial registration. If due to compelling adverse circumstances (as considered so by the SRC), the research scholar is not able to submit the research plan proposal and could not appear in the State-of-the-Art Seminar as stipulated above, or the research scholar is not able to pass the State-of-the-Art Seminar within 24 months' period, the research scholar, on request, can be granted an extension of six months on the recommendation of the SRC. During this extension period, the research scholar can be registered provisionally only (the normal semester fees, however, will have to be paid), and minimum registration period requirement will automatically get extended by six months. Further, if the research scholar receives scholarship, the scholarship for these six months will be stopped. Only one such chance can be allowed to the research scholar. If the research scholar fails to qualify the State-of-the-Art Seminar even after getting extension of six months, the research scholar's registration will be recommended for cancellation by the concerned SRC.
12. The research scholar must request and submit the research plan proposal to the HoD/HoC well in time (at least fifteen days in advance), through respective supervisor(s), for appearing in the State-of-the-Art Seminar.
13. The research scholar shall be allowed to deliver pre-submission seminar only after completing the course requirements and publication requirement as below:  
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**Table 1**  
**Publication requirements**

2 publications in SCI/SCIE/SSCI (non-paid peer reviewed)
OR
1 publication in SCI/SCIE/SSCI AND 2 in WoS/ Scopus/AHCI/ABDC (non-paid peer reviewed)

The research scholar must request and submit the pre-submission proposal to the HoD/HoC well in time (at least fifteen days in advance), through respective supervisor(s), for delivering the pre-submission seminar. The request of the research scholar shall be processed by the concerned SRC within three weeks of the request received.

14. The research scholar is required to complete all the requirements for the award of the PhD Degree within the specified period as per the regulations (i.e. 6 year) failing which the SRC will recommend the case for de-registration.
15. Every research scholar is to abide by all the regulations and the amendments made in regulations from time to time. However, the eligibility conditions for submission of thesis shall remain same as existing at the time of admission.

16. It is the responsibility of the research scholar to be in the knowledge of the amendments, if any, in the ordinance and the regulations. No research scholar will be informed individually. The related circulars/amendments would be available in the office of the HoD/HoC/Dean Academic Affairs. The amendments are incorporated in the prospectus and the amended version is put on the Institute website also. The research scholar is required to visit the Institute website regularly to remain updated about amendments, if any. The scholar should maintain regular contact with the supervisor(s) for the purpose.
17. No TA/DA etc. is admissible to any research scholar whenever the research scholar is to visit PEC, or any other place in connection with the scholar's PhD research work.
18. In case of a change in the contact details, the research scholar must immediately inform the supervisor, the HoD/HoC concerned and the Dean Academic Affairs for updation of records.
19. If, at any time after admission, it is found that the research scholar had not in fact fulfilled all the requirements stipulated in the offer of admission, in any form whatsoever, including possible misinformation etc., the matter shall be reported to the Senate, recommending revoking the admission of the research scholar.
20. The Institute reserves the right to cancel the admission/registration of any research scholar and ask the research scholar to discontinue studies at any stage of the research scholar career on the grounds of unsatisfactory academic performance or indiscipline or any misconduct.
21. Any student joins in the running semester have to take course work in the upcoming semester.

### **O-03 REGULATIONS**

The admission in PhD programme will be regulated by the regulations made and approved by the Senate from time to time. The following regulations shall apply to all categories of research scholars pursuing PhD programme of the Institute.

### **R-1 CLASSIFICATIONS**

The research scholars shall be classified in the following manner

#### **(A) *On the basis of the time devoted to the PhD programme***

- i) **Full-time**
- (ii) **Part-time**

#### **(B) *On the basis of the occupation***

- i) **Teacher**, a person serving as the faculty of a department of a teaching institute.
- ii) **Non-Teacher**, a person serving as non-teaching employee including officer cadre of any Institute/Department, Organization.
- iii) **Project staff**, a person working on a project undertaken by the Institute

(PEC). The PhD programme of such a person should be related to the project work.

**(C) On the basis of the country**

- i) **Indian**, a person holding valid Indian citizenship
- ii) **Foreigner**, foreign nationals admitted through the Embassy of the respective Governments, after getting approval from the Ministry of External Affairs and 'No Objection Certificate' from the Ministry of Education, Government of India or admitted under an MoU. A foreign national can be admitted by the Institute directly, if eligible, following the admission process as specified under R-5.

**(D) On the basis of the financial assistance**

**i) Sponsored**

- a. Research student/ Candidate working as a regular employee in the Institute
- b. 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 PhD 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 has to ensure the fulfillment of these conditions at the time of interview.
- c. Research student / candidate working regularly full-time in an R&D project in the institute can join as a part time student if his PhD topic is related to the project as certified by the SRC immediately 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 PhD student, a research student working in a project will have to undergo the same admission procedure as applicable in general.

**ii) Fellowship / Scholarship Awardees**

- a. A research scholar getting Institute fellowship / scholarship.
- b. A research scholar receiving fellowship / scholarship from Government/Semi-Government such as CSIR / UGC / DOE / DST / DBT / NBHM/ INSPIRE/ ICCR, Govt. of India or any institution of the Govt. of India etc.
- c. A research scholar receiving scholarship from any private entity including foreign University, Trust or sponsoring agency.

There is a provision in the Institute for conducting research work abroad while pursuing PhD Programme at the Institute under different schemes including SERB / USIEF / Fulbright / SERB- Purdue OVDE / Commonwealth Split-Scholarship scheme, and the research scholar may be permitted to carry out research in foreign University/ organization with the following guidelines: -

1. The research scholar should be registered for a full time PhD programme at PEC.

2. Only one visit of maximum one-year duration by a research scholar will be allowed during the entire PhD research work duration.
3. The research scholar may apply for such a programme. The research scholar shall be allowed to proceed having cleared the State of the art seminar and the research plan approved by the respective SRC.
4. The research scholar for such visit must fulfil the following requirements:
  - i) All previous progress reports of the PhD research scholar should be satisfactory.
  - ii) The research scholars who have already submitted PhD Synopsis/ Pre submission are not eligible to apply.
5. SRC should be satisfied with the research proposal submitted for carrying out such research and the research proposal should be part of the ongoing PhD work.
6. The time period of such work will be considered as a part of PhD programme duration. The total period of PhD duration will be as per the Institute rules.
7. The research scholar will continue to register at PEC for the semesters during such visit by completing registration formalities and fee submission.
8. During the stay in the university abroad the progress report of the research scholar should remain satisfactory. Semester progress report presentation can be held online for such candidates.
9. If the research scholar is getting an Institute or any other government scholarship, the Institute will stop payment of such scholarship and any other contingent expenses to the research scholar for the duration of such research activity abroad.
10. The foreign supervisor may be invited to be the part of the SRC meetings for the respective PhD research scholar for work evaluation / pre-submission / viva-voce etc. No TA/DA and honorarium will be paid by the Institute for attending such meetings. The foreign supervisor may join the proceedings through online mode.
11. Joint publications / patents made by the research scholar along with the foreign supervisor will be accepted by SRC and the Institute.
12. The application under the proposal will be recommended by the SRC and forwarded by Chairperson, DRC to the Dean Academic Affairs for verification and necessary approvals if so required.
13. There will be no financial liability on PEC for undertaking such visits.

## **R-2 CONSTITUTION OF DRC/SRC**

- (A)** The DRC shall consist of the following, provided each member qualifies to be a PhD Supervisor:
- i. HoD/HoC\*.
  - ii. All Professors of the Department/Centre.
  - iii. Three Associate Professors of the Department/Centre by rotation. The

term of an Associate Professor will be two years. The changeover will be effective on 1<sup>st</sup> July of the year. In Departments/Centres where three Associate Professor are not available in total, then available number of Associate Professor will be member of DRC.

- iv. Two Assistant Professors of the Department/Centre by rotation. The term of an Assistant Professor will be two years. The changeover will be effective on 1<sup>st</sup> July of the year.
- v. Supervisors of the scholars, though they may not constitute regular members (unless covered under (i) or (ii) or (iii) or (iv)), but they will participate in DRC meetings when the cases of their respective scholars are taken up.

For the Departments/ Centres, if the number of total members including Chairperson is less than seven, then additional member(s) may be opted from other Departments/Centers, having requisite eligibility qualifications for PhD Supervision, for two years. They will be nominated by the Director.

\* The HoD/HoC shall be the Chairperson of the DRC. If the HoD/HoC does not qualify to be a PhD supervisor, the senior most qualifying faculty member of the Department/Centre will act as the Chairperson of the DRC. Faculty members, qualified to be the supervisors, can only be members of DRC. If the Chairperson of the DRC is not able to attend a DRC meeting due to compelling reasons, the senior most DRC member will work as Chairperson, DRC.

If the Co-supervisor of the research scholar is from outside PEC but from within the country, Co-supervisor will be invited for the DRC meetings whenever respective scholar's State-of-Art Seminar, pre-submission/submission seminar and final examination are conducted. In all such cases, no TA/DA /honorarium will be paid for this purpose. The Co-supervisor may join through online mode.

DRC requires the approval of the Director as and when constituted. At least 50% of the total members should be present during the proceedings of DRC.

Minutes of all DRC meetings will be sent to the Dean Academic Affairs.

**(B)** The SRC shall consist of the following, provided each member qualifies to be a PhD Supervisor:

- i. Chairperson SRC (from DRC)
- ii. Internal Expert in the field from the Department
- iii. Institute External Faculty, in the synergy area, from outside the department and not below the rank of Associate Professor
- iv. Supervisor(s)/ Co-Supervisor
- v. Director's nominee (within the institute)
- vi. Additional member from outside the institute (to be nominated by Director) (for State-of-Art and Pre-submission seminars only)

## **R-3 ELIGIBILITY**

### **R-3.1 Educational Qualifications:**

- (a) The candidate possessing the prescribed qualifications shall be eligible for admission to the PhD programme of the Institute. The Degrees obtained through distance education programmes shall not be considered.

The academic programme as well as the University of qualifying degree must be recognized by AICTE /UGC. The academic programme of the autonomous Institutes established by the Parliament will not be required to have recognition of the UGC/AICTE. The degrees and academic programme of the Institute/University will be verified by the Departmental Admission Committee before registration of the candidate in PhD Programme.

(b) ***Minimum Qualification for Eligibility:***

A Master's Degree in Engineering/Technology/Sciences/Humanities and Social Sciences/ Management or equivalent recognized by the Institute with a minimum Cumulative Grade Point Average (CGPA) of 6.5 on a 10-point scale or equivalent as determined by the Institute wherever letter grades are awarded in the qualifying degree, or 60% marks in aggregate where marks are awarded.

The candidate having Master's Degree must possess full time Bachelor's Degree or equivalent in accordance with R-3.1(a) also with a minimum CGPA of 6.5 on a 10-point scale or equivalent as determined by the Institute wherever letter grades are awarded in the qualifying degree, or 60% marks in aggregate where marks are awarded.

**OR**

### **Direct Admission of B.E./B.Tech. candidates to PhD programme**

- a) To be eligible for the admission under this category, a candidate is required to have minimum CGPA of:
- i. 8.0 or above with GATE or 8.5 or above without GATE for students graduated from PEC, CFTIs and other premium institutions at the end of the seventh semester (if applying during final year) under General category.
  - ii. 8.0 or above with GATE or 8.5 or above without GATE for students graduated from PEC, CFTIs and other premium institutions at the end of the eighth semester (if applying after the completion of B.E./ B.Tech) under General category.
  - iii. For SC/ST/PwD 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 PhD programme. This admission shall be confirmed provided the student completes his/her undergraduate programme with required CGPA.
- c) Candidates from industry/research organisations are eligible for direct entry to PhD programme after BE/ B.Tech. with minimum CGPA 8.0 or

above and with 5 years relevant experience. Candidates applying under this category is required to submit a “**No Objection Certificate**” (**Annexure-I**) on a proper letterhead from the appropriate authority of the organization.

- d) Candidates getting direct entry to PhD 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.

### **R-3.2 Additional Eligibility Conditions for Part-Time PhD Programme**

- (i) **Permanent/Regular Employees** working in R&D Organisations, National Laboratories, Government Organizations, Industries, PSUs, State Undertakings having sufficient facilities to carry out research at their Organisation.
- (ii) **Regular faculty** of reputed Institute/University having sufficient facilities to carry out research at their place in the related research area.
- (iii) **Regular Employees** of PEC working in any Department/Centre, Centre and Section of the Institute.

All such candidates should have a minimum experience of two years which will be counted from the date of joining in the sponsoring organizations to the last date of application in the PhD programme. The candidate is required to produce the experience certificate at the time of interview before Departmental Admission Committee. Minimum qualification for these candidates is the same as for full- time candidates.

**Part-time** candidates are required to submit a “**No Objection Certificate**” (**Annexure-I**) on a proper letterhead from the appropriate authority of the organization clearly stating the following:

- That the candidate is permitted to pursue the PhD research work on a part-time basis.
- That the candidate’s official duties permit the candidate to devote sufficient time for research work.
- That the facilities for the research work in the candidate’s field of research work are available at the candidate’s place of work.
- That the candidate will be sanctioned leave for sufficient duration for conduct of research work in case the research facilities are not available in the Institute/ Industry/Organization.

### **R-3.3 Eligibility for Institute Scholarship#**

- (i) Only **valid GATE/UGC-NET-JRF** qualified research scholars shall be considered for the award of the Institute scholarship.
- (ii) A Full-time research scholar may receive Institute scholarship for a maximum duration of FOUR years of the PhD programme, subject to fulfilling the requirements of eligibility for the scholarship over the successive semesters of PhD registration period.

- (iii) Initial award of the scholarship at the time of Provisional admission to PhD programme will continue for two years from the date of the issue of the scholarship subject to satisfactory performance in every semester. In addition to above, there shall be annual assessment of the performance of the PhD research scholar for continuation of the scholarship on the basis of achievement of milestones in the scholar's PhD research work as per table given below:

<b>Period of Registration (Years Completed)</b>	<b>Period of Scholarship /Fellowship</b>	<b>Minimum Requirement</b>
02	3 <sup>rd</sup> year	(i) Successful completion of PhD Course work with min. 7.0/10.0 CGPA (ii) Successful completion of the <b>State-of-the-Art Seminar</b> and approval of the research plan (iii) 01 research paper out of the PhD research work accepted/published as per publication requirements (Table 1).
03	4 <sup>th</sup> year	02 research paper out of the PhD research work accepted/ published as per publication requirements (Table 1).

Scholarships once discontinued will be restored as and when eligibility conditions (as above) are acquired. However, this will be effective from the 1<sup>st</sup> day of the next month. The scholarship for discontinued period will not be released. Scholarship will be given maximum for 48 months from the time of admission. If a student X had 3 months of period for which publication requirements/satisfactory progress etc. are not met, student X will get scholarship only for 48 months minus 3 months i.e. 45 months in total.

**# The scholars receiving Scholarship/ Fellowship from external Govt./Autonomous organizations shall be governed by the rule and regulations issued and amended by the respective Govt./Autonomous organizations.**

- (iv) No student can receive Scholarship/Fellowship from more than **one source**.

#### **R-4 RESERVATION/ RELAXATION**

##### **R-4.1 Reservation Norms**

Reservation in full time/regular PhD seats in various categories will be made as per the norms of the Government of India amended from time to time. Such reservations in various categories will be implemented in all Departments/Centers on a rotational basis.



#### **R-4.2 Relaxation of Eligibility for SC, ST, and PwD**

For the SC/ST/PwD candidates, the eligibility requirement of marks/CGPA will be relaxed by 5%, or by a CGPA of 0.5 (on a 10-point scale) at both the Bachelor's and Master's level under R-3.1.

#### **R-4.3 Exemption from written (entrance) Test**

##### **(a) Part-Time PhD programme:**

Regular employees PEC and other R&D Organization, National Laboratories, Public/Private Industry/ PSUs/ State Undertakings having an MoU with PEC and with adequate research facilities possessing First Division or 6.5 CGPA on 10-point scale or equivalent at M.Tech./PG level with minimum 2 years of relevant experience will be exempted from the written test.

##### **(b) Full-Time PhD Programme:**

Valid GATE or Valid NET-JRF from UGC, CSIR etc. qualified candidates

However, they shall be required to appear before the Departmental PhD Admission Committee of respective department for interview/interaction and qualify as per the prescribed norms in terms of the eligibility conditions.

#### **R-4.4: PhD Coursework**

The candidates admitted under R-4.3(a) may be allowed to undertake PhD course work through regular/blended/Online classes or MOOCs platforms. The detailed guidelines in this regard are as under:

1. Candidate can opt for MOOCs courses if that course(s) is not offered in regular mode.
2. A candidate can register for maximum credits through MOOCs courses as per regulatory guidelines recommended by SRC and forwarded by DRC to Dean Academic Affairs.
3. The MOOCs courses are available for UG, UG/PG, and PG. The PhD research scholars can opt MOOCs courses meant for PG only.
4. The registration fee for MOOCs courses will be borne by the research scholars themselves.
5. The research scholars can opt for MOOCs courses of minimum 12 weeks' duration which are equivalent to courses of 3 credits. The online course of duration less than 12 weeks will not be considered.
6. The course on 'Research Methodology' for PhD students is of 4 credits. The research scholars can opt for this course MOOCs only if the course is of 14 to 16 weeks' duration.
7. The Supervisor / SRC of the concerned student will verify that the MOOCs course broadly matches the course contents offered in PG curriculum of the Institute and will recommend the course to the concerned HoD/HoC on the request of the research scholars.

8. After permission of HoD/HoC, the research scholars will register for MOOCs courses and the Department/Centre will send the information to Academic Section regarding the courses registered on MOOCs in respective Department/Centre.
9. After successful completion of the course, the final result will be sent to Academic Section through concerned HoD/HoC and proportionate credits will be awarded if required. In case, the result of MOOCs course is in terms of percentage of marks, then it will be converted to equivalent grade as per Institute norms by SRC on the submission of marks sheet/certificate issued by agency (SWYAM/NPTEL etc.).
10. The MOOCs courses permitted by the concerned Department/Centre will be reflected on DMC of the concerned research scholar only on successful completion of the course.

#### **R-5 ADMISSION**

Applications for PhD Programme are to be invited from Indian and foreign nationals in the prescribed format. Applications as received will be scrutinized by the concerned Department/ Centre. After scrutiny, the list of all eligible candidates will be uploaded on the Institute website by the Admission Office.

(a) All eligible Non-GATE/ Non-NET-JRF candidates are required to appear in an objective type (MCQ) written test of PG level comprising two parts as mentioned below:

- Paper-I\*: Research Methodology: 30 marks; Duration: 30 minutes
  - Paper-II: Area of Research/ Specialization: 60 marks; Duration: 60 minutes
- Qualifying marks\*\*: 50 % of total marks.

The written test is only for Non-GATE/ Non-NET-JRF candidates. The written test will be conducted by the Admission Office. Detailed guidelines for conducting the entrance test along with timeline will be provided by Dean Academic Affairs.

\*Common to all Depts./Centres

\*\* Relaxation as per the Govt. of India norms

- (b) List of the qualified candidates will be uploaded on the Institute website by the Admission Office.
- (c) All qualified candidates will be required to appear before the respective DRC for an interview/interaction comprising a brief presentation on the related research area. Qualified candidates may contact prospective supervisors in the Department/Centre.
- (d) DRC will evaluate the candidates and award the marks out of 30 (10 marks each for presentation, interview, and academic achievements).  
Qualifying marks: 50% (15 out of 30 marks) \*\*  
\*\* Relaxation as per the Govt. of India norms
- (e) Based upon their performance in both written test and interaction/interview with DRC, Admission Committee of respective Department/ Centre will

recommend the merit list of candidates prepared on the basis of total score out of 100 for Non-GATE/ Non-NET-JRF and 30 for GATE/NET-JRF verified candidates.

The merit list will be prepared as per the preference below: -

- a. Candidates with GATE/UGC NET-JRF
- b. Candidates appeared for written test

Qualified scholars working in Govt./R&D Org./Industry sponsored project/fellowship are to be supervised by the coordinating faculty/ Principal Investigator (PI), provided the faculty/PI is eligible to become supervisor.

**In case of tie, merit list will be prepared on the basis of following criteria in order of preference:**

- a. Performance of the candidate in written test
- b. Percentage of marks in qualifying degree
- c. Percentage of marks in 10+2
- d. Percentage of marks in 10th

Admission Committee of respective Department/ Centre will also allocate the seat in accordance with the advertisement. Selected candidates will visit the department/centre to meet all perspective supervisors to give the preference for research supervisors. The proforma for the same is attached as Annexure-II.

Such allotment should take care of uniform distribution of full-time research scholars (including candidates from other Departments/Centers) among all eligible supervisors.

- (v) After receiving the Annexure-II as mentioned above, Admissions Office will prepare a list of recommended candidates along with the preferred supervisor and that list will be sent to Chairman Senate for scholarship/ supervisor allocation and approval.
- (vi) The admission letters will be issued to recommended candidates for joining the PhD programme.
- (vii) The respective HoD/HoC will send joining reports of the respective research scholars to the office of the Dean Academic Affairs in time.

## **R-6 REGISTRATION**

### **R-6.1 Registration Process**

A candidate is deemed to have been registered on completion of the admission process for the 1<sup>st</sup> semester of the programme. Every research scholar is required to deposit the fees and renew the semester registration till the submission of the thesis. The renewal of registration every semester shall be subject to the satisfactory progress of the research work made by the research scholar in the preceding semester as recommended by the SRC. If the progress report of the research scholar is adjudged as unsatisfactory, the SRC may recommend provisional registration; however, such a chance can be allowed only once during the entire PhD programme.

### **R-6.2 Time Period Requirement for Thesis Submission**

- (a) The minimum period of registration for thesis submission shall be three years and four years for the full-time and the part-time research scholars, respectively.
- (b) Registration of a candidate for the PhD degree shall be effective, normally, from the date of joining unless on account of unsatisfactory progress in work deferred for a later date and shall remain valid for a period of 5 years for full-time and 6 years for part-time before the expiry of which the research scholar will be required to submit the thesis. However, the research scholar may be considered for extension beyond this period for one year only if the research scholar has published/ got accepted at least one research paper out of the PhD research work in non-paid peer reviewed as per publication requirements (Table 1).

Registration may be extended up to a maximum period of one year by the Dean Academic Affairs on the recommendation of SRC. After the expiry of the registration period (with/without extension), the registration shall stand cancelled automatically and the research scholar may go for re-registration as per clause 6.3. In case the research scholar does not opt for re-registration, the concerned Department/Centre must recommend the cancellation of the registration to the Dean Academic Affairs for approval of the Competent Authority.

### **R-6.3 Re-Registration**

- (a) The research scholar will request the Chairperson SRC with the recommendations of respective supervisor(s) for re-registration within a period of 3 months of cancellation of registration as per R-6.2. Supervisor(s) will recommend re-registration only if the quantum of required work and publication requirements for submission of PhD thesis can be completed within the next two years.
- (b) The application of the research scholar will be forwarded/recommended through SRC and Dean Academic Affairs to the Director who may allow for re-registration. If allowed, the research scholar will deposit a re-registration fee of Rs. 20,000/- (Rupees Twenty Thousand only) and the date of submission of re-registration fee will be considered as date of re-registration. In addition to the re-registration fee, the normal semester registration fee of current semester will be payable, if not already paid. The semester registration fee for upcoming semesters will be payable as per rules.
- (c) The previous results of the research scholar's course work and State-of-the-Art Seminars, if any, will be valid and the research scholar need not repeat these steps again.
- (d) The re-registered research scholar will not be permitted to submit thesis before

one year of re- registration. The maximum period for the re-registered research scholar to submit thesis will be two years, beyond which the re-registration will stand cancelled automatically and no further re- registration will be possible under any regulation/ordinance of the PhD programme.

- (e) The eligibility conditions (regarding publication requirements etc.) for submission of thesis shall remain same as applicable on the research scholar before the cancellation of registration. For all other rules, the research scholar is to abide by regulations and amendments made in regulations from time to time.

#### **R 6.4 TEMPORARY WITHDRAWAL**

The research scholar who has been admitted to PhD programme may be permitted to withdraw temporarily for a period of one semester from the Institute on account of prolonged illness/acute problem in the family, provided that

- (a) The research scholar has applied to SRC for consideration and should be recommended and forwarded by Chairperson, DRC to the Dean Academic Affairs.
- (b) The Institute has to satisfy that, inclusive of the period of withdrawal, the research scholar is likely to complete all the requirements for the degree within 5 years (full time) or 6 years (part time) of admission to the Programme.
- (c) There are no outstanding dues on behalf of the Institute/ Department/ Centre/ Hostel / Library etc.

The research scholar who has been granted temporary withdrawal for a complete semester need not to pay tuition fee for the leave period. The research scholar shall be granted only one such temporary withdrawal during the PhD programme.

#### **R-7 THESIS SUPERVISOR(s)**

##### **R-7.1 Allotment of Supervisor**

Every registered research scholar shall be assigned a PhD thesis supervisor/co-supervisor as recommended by the Admission Committee of respective Department/Centre.

##### **R-7.2 Eligibility for Supervisor and Co-supervisor**

- (a) Any regular faculty of the Institute with at least two research publications in refereed non-paid journals (SCI/SCIE/WoS/SSCI) can be appointed as Supervisor and any regular faculty with PhD degree can be appointed as Co-supervisor, only on recommendations of respective Admission Committee of concerned Department/Centre.

##### **R-7.3 Maximum number of Co-supervisors**

Depending on the problem statement of research work to be conducted, a research scholar may be assigned upto THREE supervisors, designated as supervisor and co-

supervisor(s).

- (a) If there is request from the research scholar for allocation of co-supervisor(s), the justifications/ reasons must be recorded for the necessity of the same by the DRC / SRC. Co-supervisor(s) can be appointed only in prior to passing the State-of-the-Art Seminar and approval of the research plan of the respective research scholar.
- (b) Eligible faculty members, who are to retire within 3 years, can be appointed only as co-supervisors. However, they can be members of the DRC/SRC, if otherwise eligible, as per rules.

#### **R-7.4 Appointment of Alternate Supervisor**

Internal faculty member appointed as PhD supervisor is normally expected to be available to the research scholar in the Institute till the thesis is submitted.

In case, the supervisor proceeds on leave for a period of up to 12 months, he/she will continue to act as supervisor (main or co-supervisor). Otherwise, if not interested, he/she will inform in writing. Co- supervisor to be appointed in case he/she is sole supervisor.

In case sole supervisor moves on long leave (more than 12 months) to serve at a reputed Government laboratory / reputed research organization / reputed Institutes or Universities or industries in India, DRC will appoint Supervisor/co-supervisor with the consent of the research scholar and the main supervisor. However, the status of main supervisor/co-supervisor will interchange, in case the main supervisor does not join the Institute within 12 months.

In case of two internal supervisors, if one supervisor moves on long leave (more than 12 months) to serve at a reputed Government laboratory / reputed research organization / reputed Institutes or Universities or industries in India, he / she may be allowed to act as supervisor/co-supervisor. However, the status of main supervisor/co-supervisor will interchange, in case the main supervisor does not join the Institute within 12 months.

In case the research scholar has not submitted the thesis and sole supervisor resigns, retires or expires, an alternate supervisor may be appointed by the DRC after discussion with the research scholar. In case the research scholar has submitted the thesis and sole supervisor resigns, retires, or expires, an alternate supervisor may be appointed by the DRC as caretaker supervisor after discussion with the research scholar. In case of major revision, the caretaker supervisor will provide the required help during that period and he/she will be automatically treated as main supervisor.

If there are two internal supervisors and one of them resigns, retires or expires, then automatically the other will be the main supervisor.

#### **R-7.5 Maximum Number of Research Scholars for Faculty**

At no point of time, there shall be more than eight research scholars, including scholars from outside PEC, being supervised by any faculty member. This number excludes PhD research scholars who have submitted PhD thesis. Faculty members are required to seek

permission of the Dean Academic Affairs for supervising the scholars registered outside the Institute before giving their consent to the outside Institute/University for Supervision of PhD research scholars.

## **R-8 COURSES AND CREDITS**

### **R 8.1 Coursework Credits and Performance**

The minimum course credit requirement is 12. A research scholar will be required to complete the course work with a minimum CGPA of 7.0 out of maximum 10.0. The research scholar can register for these courses with due approval of the respective research supervisor(s) only.

### **R 8.2 Mandatory Courses**

The courses on (i) **Research Methodology** (4 credits) and (ii) **Research & Publication Ethics** (2 credits) will be compulsory for all research scholars.

### **R 8.3 Calculation of the CGPA in Coursework**

The CGPA shall be computed on the basis of letter grades obtained in all courses including MOOCs courses, if any.

### **R 8.4 Relaxation in PhD Course Work**

In case of part-time external candidates with at least 2 years of research experience in R&D Organisations/National Laboratories/Government Organization, residential requirements may be waived off with the approval of the Chairman Senate. But it will be mandatory for such research scholars to complete the course work for the prescribed number of credits in MOOCs mode, exercising all pedagogy components including assignments, examinations as prescribed for regular course at PEC. However, at least one presentation per semester before SRC is mandatory to review the progress of such research scholar.

These research scholars will be allowed to do pre-approved certified MOOCs towards 12 credits with the approval of Chairman Senate. Examination will be conducted for such certified courses to award grades, by the Department/Centre. They also need to pass the certified courses of (i) Research Methodology and (ii) Research & Publication Ethics.

### **R 8.5 Maximum Duration for Coursework**

The coursework is required to be completed within 12 months of initial registration or start of the classes in the ensuing semester whichever is later. Maximum 6-months extension will be provided by the office of the Dean Academic Affairs on recommendation of the respective SRC. The course work must be completed before the State-of-the-Art Seminar.

### **R 8.6 Punitive Action on not passing Coursework in maximum time period**

The research scholar is required to pass coursework within a maximum period of 18 months of the initial registration or start of the 1<sup>st</sup> semester whichever is later, failing which research scholar's registration in PhD programme will get cancelled automatically. The Academic section will issue office order in this regard.

## **R-9 EVALUATION OF STATE-OF-THE-ART SEMINAR**

### **R-9.1 Research Plan and State-of-the-Art Seminar**

Every research scholar is required to submit the research plan proposal which should include a brief account of the related work already reported in the literature, clearly spelt out investigation/work which the research scholar intends to carry out establishing the need of the same. Subsequently, the research work should be carried out in accordance with the approved research plan. Any change in research plan can be indicated by a research scholar in semester progress reports.

The following procedure is followed for conducting the comprehensive evaluation of the PhD research scholars.

- (a) Every research scholar is required to take a State-of-the-Art Seminar, which will test research scholar's readiness in the broad field of research, academic preparation, and potential to carry out the research. The State-of-the-Art Seminar shall be based on a power point presentation before SRC and external expert.
- (b) Every research scholar must submit the research plan proposal and pass the State-of-the-Art Seminar within 24 months of the initial registration.
- (c) The research scholar can apply for a State-of-the-Art Seminar only after passing coursework requirements.
- (d) The research scholar is required to apply at least two weeks in advance for a State-of-the-Art Seminar through respective supervisor(s) to SRC Chairman.

### **R-9.2 Improvement of Research Plan and Re-evaluation**

In case the research plan is not approved by the SRC, the research scholar will have to improve the research plan as per the suggestions of the SRC and get it re-evaluated.

### **R-9.3 Punitive Action for not passing State-of-the-Art Seminar in time**

If due to compelling adverse circumstances (as considered so by the SRC), the research scholar is not able to submit the research plan proposal and appear in the State-of-the-Art Seminar within 24 months of the initial registration, or the research scholar is not able to pass the State-of-the-Art Seminar within this period, the research scholar, on request, can be granted an extension of six months on the recommendation of the SRC. During this extension period, the research scholar can be registered provisionally only (the normal semester fees, however, will have to be paid), and minimum registration period requirement will automatically get extended by six months. Further, if the



research scholar receives scholarship, the scholarship for these six months will be stopped. Only one such chance can be allowed to the research scholar. If the research scholar fails to qualify the State-of-the-Art Seminar even after getting extension of six months, the research scholar's registration will be recommended for cancellation by the concerned SRC.

#### **R-9.4 Number of Attempts and Maximum Duration for State-of-the-Art Seminar**

A research scholar will be allowed a maximum of two attempts to pass the State-of-the-Art Seminar within maximum duration of 30 months of the initial registration, failing which the research scholar's registration will be recommended for cancellation by the concerned SRC through Chairperson, DRC.

### **R-10 PERFORMANCE MONITORING**

#### **R-10.1 Semester Progress Report**

The progress of the research work of the research scholar (full-time/ part-time) will be monitored by the respective supervisor(s). For this purpose, at the end of each semester, the research scholar is required to present the semester progress report to the department in presence of supervisor(s). The progress report presentations will be held in the department as per the academic calendar. All registered PhD research scholars will present their progress before DRC.

The progress report should cover: -

- (i) the summary of the work done in the previous semester before the start of the semester under consideration
- (ii) the goals set for the current semester,
- (iii) the methodology used in achieving the goals,
- (iv) the extent of the fulfilment of the goals, and
- (v) the research papers communicated/ published, if any.

The supervisor(s) shall record the comments and the result of progress report evaluation as satisfactory/unsatisfactory. After recording progress report evaluation result, the supervisor(s) shall forward the progress report to Chairperson, DRC after recommendation of SRC. The progress shall then be evaluated by the SRC and the result of evaluation recorded as satisfactory/unsatisfactory on the registration form of the research scholar for the subsequent semester. The registration form shall be forwarded by the Chairperson, DRC on the recommendation of SRC to the Dean Academic Affairs.

The research scholars must submit semester progress reports as per the academic calendar in the office of the respective Department/Centre with the comments and signatures of the Supervisor(s) thereon.

#### **R-10.2 Collection & Evaluation of Progress Report and Sending to Academic Section**

The Chairperson DRC will coordinate, every semester, the collection of progress reports written and signed by the research scholars and forwarded by the supervisor(s) with remarks of all the supervisor(s) duly recorded as satisfactory/unsatisfactory. The progress of all the research scholars shall then be evaluated by the SRC and the result of evaluation recorded as satisfactory/unsatisfactory. The Chairperson DRC will also ensure that the semester progress reports of all the research scholars of the Department/Centre reach the office of the Dean Academic Affairs as per the academic calendar. The Chairperson DRC shall also intimate the office of the Dean Academic Affairs about those research scholars who fail to submit their semester progress reports every semester.

### **R-10.3 Provisional Registration & Discontinuation of Scholarship**

If due to compelling adverse circumstances (as considered so by the SRC), a research scholar is not able to submit the progress report by the stipulated date, or the progress of the research scholar is adjudged by the SRC as unsatisfactory, the Research Scholar, on request, can be allowed an additional chance for the same. The research scholar is expected to improve the research work and submit the progress report again at the close of the following semester (after six months). During this semester, the research scholar can be registered provisionally only (the normal semester fees, however, will have to be paid), and the minimum registration period requirement will automatically get extended by six months. Further, if the research scholar receives scholarship, the scholarship for these six months will be stopped.

### **R 10.4 Unsatisfactory Progress of the PhD Programme**

If, even on having been granted extension for one semester, the research scholar does not submit the progress report within the stipulated time or on resubmission also, the progress is adjudged as unsatisfactory; the registration shall be recommended for cancellation by the respective SRC.

Only one such chance can be granted to the research scholar during the entire PhD programme.

### **R-10.5 Reporting of Punitive Action**

The cases where some punitive action is taken will be reported to the Director by the **Chairperson, DRC** through the office of the Dean Academic Affairs.

## **R-11 PRE-SUBMISSION SEMINAR / SYNOPSIS / PANEL OF EXAMINERS**

### **R-11.1 Pre-submission Seminar**

- (a) A research scholar will be allowed to deliver the pre-submission seminar only after getting at least a CGPA of 7.0/10.0 in coursework and after publishing /getting acceptance as per publication requirements (Table 1). On the research

scholar's request for pre-submission seminar, the SRC shall check the journal publications of the research scholar and if found satisfactory, the research scholar will be allowed to deliver the pre-submission seminar. The research scholar must request and submit the proposal to the HoD/HoC well in time, at least 15 days in advance, through respective supervisor(s), for pre-submission seminar.

- (b) The schedule of the pre-submission seminar shall be notified well in time, at least three days in advance, making it convenient for the interested to attend it.

### **R-11.2 Synopsis**

The research scholar will submit the synopsis only after incorporating the suggestions, if any, given by SRC during the pre-submission seminar. The synopsis should precisely reflect all aspects of the research work to be included in the thesis.

- (a) The research scholars shall submit two hard copies and a soft copy of the synopsis in the same format as specified for the thesis to the Chairperson, SRC. The SRC will examine the synopsis, and the Chairperson, DRC shall forward the synopsis with its recommendations to the Dean Academic Affairs along with all prescribed documents.
- (b) The synopsis should be submitted normally within 2 months after the presentation of the pre-submission seminar. In case the synopsis is not submitted in the specified period, the research scholar may be asked to present the pre-submission seminar afresh again.
- (c) The research scholar shall be required to submit the thesis within 4 months of the submission of synopsis. However, in case a research scholar fails to submit the thesis within the stipulated time of 6 months and has suitable justification for the same, the Director may, on recommendations of the SRC through Chairperson, DRC and on individual merits of each case, grant extension of maximum upto two months, i.e., the research scholar may be allowed to submit the thesis within a period not exceeding 6 months from the date of the submission of the synopsis. However, the thesis should be submitted within the prescribed maximum time limit as per clause R 6.2.

### **R-11.3 Panel of Examiners**

A panel of at least ten external examiners, including foreign examiners, and the authors of the recent papers in the references cited by the research scholar in the area of PhD research work would be suggested to the SRC by the Supervisor(s). The SRC will consider the suggested panel and finally recommend it to the office of Dean Academic Affairs through Chairperson, DRC. The panel of ten external examiners, should include five Professors/Associate Professors in Academic Institutes or equivalent from outside India and remaining five with same cadre from India, preferably from IISc/IITs/NITs/IIMs/IISERs. The recommended panel will be considered and

approved/modified by the Director.

## **R-12 BOARD OF EXAMINERS**

On receipt of the synopsis of the thesis, the Director will appoint a Board of Examiners for each research scholar from the list approved by the SRC. The Board of examiners will consist of two external examiners, one out of which would be from India, and the other from abroad. These external examiners shall be chosen normally from the panel of examiners recommended by the SRC as aforesaid. A person working in the same organization(s) / institute(s) where the research scholar is employed cannot, however, be appointed as External Examiner for that research scholar.

## **R-13 THESIS SUBMISSION**

### **R-13.1 Thesis Preparation Guidelines**

The research scholar will submit a soft copy of the thesis in PDF format on CD, and two spiral bound copies, typed in English, one and a half spaced, printed in Times New Roman 12 pt. or Arial 11 pt. on both sides of A-4 size papers. The margins on the right page shall be 1.25" -left, 1" -right, 1" -top and 1" -bottom and the margins on the left page shall be 1.25" -right, 1" -left, 1" -top and 1" -bottom. The thesis shall be submitted along with the examination fee and all prescribed documents.

### **R-13.2 Paper Publication Requirement and Innovative Work in Thesis**

The thesis shall contain a critical account of the research carried out by the research scholar. It should be characterized by discovery of facts or fresh approach towards interpretation of facts and theories or significant contribution to knowledge or development or a combination of these. It should bear evidence of the research scholar's capacity for analysis and judgement as well as the ability to carry out independent investigation, design or development.

No part of the thesis or supplementary published work should have been submitted for the award of any other degree or diploma. The research scholar can submit thesis only on having published /acceptance of at least two research papers out of PhD research work in non-paid peer reviewed as per publication requirements (Table 1).

Thesis should be submitted along with plagiarism report as per the following guidelines:  
*Guidelines for checking Plagiarism through "Turnitin" Web Tool:*

1. The similarity Index (SI) < 10% with
  - (a) Source exclusion threshold set at 14 words
2. The following components will be excluded for generating the SI report:
  - i. References / Bibliographic Materials
  - ii. Quoted Materials
  - iii. The text/contents prior to the first chapter, that is, Title Page,

Acknowledgements, Declaration, Certificates, Table of Contents, List of Figures, List of Tables, List of Symbols & Abbreviations, and abstract.

3. Author's own published articles will be excluded from the SI report.
4. The Plagiarism/ SI report will be as per the requirement of Shodhganga.

### **R-13.3 Time Period Requirement for Submission of Thesis**

The research scholar can submit thesis within the time period as stipulated in regulations provided that the research scholar has completed the minimum period of registration as specified under clause R 6.2.

## **R-14 THESIS EVALUATION**

All correspondence/notifications in regard to thesis evaluation and viva-voce examination of the research scholar; except where stated otherwise, shall be done by the office of the Dean Academic Affairs. Except for the correspondence with the research scholar or general circulars/notifications, the correspondence shall be confidential.

### **R-14.1 Assessment Report and Recommendations**

Each external examiner will be requested to submit a detailed assessment report and recommendations within six weeks of the date of receiving the thesis.

- i) The examiners will examine the thesis individually with a view to judge whether the thesis is a piece of research work characterized by:
  - a) The discovery of facts, or
  - b) A fresh approach towards interpretation and application of facts or theories, or
  - c) A distinct advancement in technology.
- ii) The examiners will give opinion about the research scholar's capacity for critical examination and sound judgement. The examiners will submit the report on the prescribed form, sent along with the thesis, clearly recommending that:
  - a) The thesis is accepted as it is for the award of the PhD degree.
  - b) Thesis is accepted with minor revisions to be incorporated in the thesis and are to be verified at the time of Viva-Voce examination by the Examination Committee.
  - c) The research scholar be asked to resubmit the thesis in the revised form.
  - d) The thesis be rejected.

### **R-14.2 Appointment of Alternate Examiner**

In the event of the thesis report not being received from an examiner within a period of three months from the date of dispatch, the Director may approve an alternate examiner in his/her place for evaluating the thesis from the approved list of examiners. Before

corresponding with the alternate examiner, the original examiner must be informed of the cancellation of this appointment, stating the reason therein.

### **R-14.3 Examiners' Evaluation and Recommendations**

- (a) If both the examiners recommend acceptance/rejection; the thesis be accepted/rejected, respectively.
- (b) If one examiner recommends acceptance and other rejection, the thesis will be sent to the third examiner. If the third examiner recommends acceptance /rejection, the thesis will be accepted / rejected, respectively. If the third examiner recommends revision, the research scholar shall resubmit the revised thesis. The revised thesis will be sent to the same examiner who has recommended revision of the thesis. In case the same examiner refuses to evaluate the revised thesis, Director will send the revised thesis to next examiner from the panel of examiners. Only if at least two examiners recommend the acceptance, the thesis will be accepted, else rejected.
- (c) If one examiner recommends acceptance and other recommends major revision, the research scholar shall resubmit the revised thesis. The revised thesis will be sent to the same examiner who has recommended major revision of the thesis.
- (d) If both the examiners recommend major revision, then a third examiner will be appointed and the revised thesis will be sent to all three examiners. If at least two examiners recommend acceptance, the thesis will be accepted, else rejected.
- (e) In all other cases the thesis will be considered as rejected.

Any doubt arising out of the procedure laid down above shall be referred to the Director for consideration.

### **R-15 RESUBMISSION OF THESIS**

When a thesis is to be revised and resubmitted, the research scholar should be informed about the comments of the examiners. The revised thesis is to be submitted within one year through SRC of the respective Department/Centre.

The revised version of the thesis will be sent to the same examiner who has recommended revision of the thesis for his/her fresh recommendations. In case the same examiner refuses to evaluate the revised thesis, Director will send the revised thesis to next examiner from the panel of examiners.

### **R-16 VIVA-VOCE EXAMINATION**

#### **R-16.1 Permission for Viva-Voce Examination**

The thesis examination reports, once received from the examiners, are to be put up to the Director by the office of Dean Academic Affairs for decision. The Director, on the basis of the reports will decide whether the research scholar should be allowed to appear in the viva-voce examination or not. The Director's decision on the thesis reports

shall be communicated to the research scholar through Chairperson of the concerned DRC. The viva-voce examination shall be open to be attended by members of the SRC/ DRC, all faculty members of the Department/Centre, other research scholars and all interested researchers of the Institute.

The viva-voce examination can also be conducted on Skype or similar online tools after seeking prior approval of the Director.

### **R-16.2 Open Defence of Viva-Voce Examination**

On having been allowed to appear in the viva-voce examination, the research scholar is to defend the thesis orally before the Examination Committee comprising the Supervisor (s), Director nominee, Chairperson SRC, Chairperson DRC nominee and one Indian external examiner. The supervisor will coordinate with all the examiners and the research scholar and fix a date for holding the viva-voce examination. The questions/queries communicated by the thesis examiners in their reports shall be intimated to the candidate through respective supervisor at least one week before the date of conduct of the viva -voce examination. The schedule of the viva-voce examination shall be adequately notified so as to enable interested staff members and students to attend it.

A notice in respect of the viva-voce examination will be issued at least one week in advance and the same may be uploaded on the Institute website for wide publicity. The notice will also be circulated among all the Departments/Centers. The research scholar will publicly defend viva-voce examination.

### **R-16.3 Appointment of Alternate Examiner for Viva-Voce Examinations**

In case of non-availability of the Indian external examiner for conducting the viva-voce examination, the Director may appoint an alternate examiner to conduct the viva-voce examination from the existing panel. If the need be, the SRC may suggest a fresh panel of examiners through Chairperson DRC.

### **R-16.4 Viva-Voce Examination Process**

- (i) The viva-voce examiner shall be provided with the reports of the thesis examiners before the viva- voce examination.
- (ii) The PhD thesis Supervisor(s) shall assist the Chairperson, DRC in arranging the viva-voce examination of the research scholar as early as possible.
- (iii) In case of the inability of the research supervisor to have the viva-voce examination conducted due to any reason whatsoever, the Director may appoint another examiner, in place of research supervisor, to conduct the viva-voce examination, from amongst the faculty of the Department/Centre concerned who belongs to the particular field in consultation with Chairperson, SRC/ DRC. In such cases also, the PhD work will be deemed to have been carried out under the guidance of the supervisor (s) only.

- (iv) After the viva-voce examination, the examiners will prepare a detailed joint report giving one of the following three recommendations.
  - (a) recommended for the award of the degree
  - (b) the thesis be resubmitted after a minimum period of six months incorporating the suggestions of the examiners.
  - (c) not recommended for the award of the degree

The report shall be sent by the Chairperson DRC in a confidential cover to the Dean Academic Affairs.

- (v) Any other matter not explicitly provided herein or of an exceptional nature, may be referred to the Director for his/her decision.

### **R-17 AWARD OF THE PhD DEGREE**

After successfully defending the PhD research work, candidate will prepare final copy of his/her PhD thesis by inserting signed copy of declaration and certificate by candidate and supervisor(s). The plagiarism/ SI report duly signed will also be inserted as Appendix. The soft copy of the final thesis will be submitted to Library as per the requirement of Shodhganga. The process of award of provisional degree/ final degree will only be processed after the submission of Final Thesis Submission Form to the office of Dean Academic Affairs. The form should contain Shodhganga Handle Number and be duly signed and stamped by In-charge Library.

### **R-18 INSTITUTE SCHOLARSHIP/FELLOWSHIP**

#### **R-18.1 Award of Scholarship/Fellowship & Contingency Grant**

Those research scholars who are admitted on full-time basis are considered, on the recommendation of the respective DRC/SRC, for the award of Institute scholarship of the amount as decided by the Board of Governors and directed by the Government of India from time to time. For the award of Institute scholarship, the research scholar must not be in receipt of any financial aid from any other source for pursuing the PhD research work and a certificate to the effect is to be submitted by the research scholar. The research scholars receiving fellowship amount will be designated as Junior Research Fellow (JRF) as per the directions of the MoE which is subject to change on directions of the competent authority from time to time.

In addition, the research scholars will be provided a contingency grant in accordance with the rules of the Institute. It is to be noted that admission to the programmes and award of scholarship are not linked. Admission to a programme does not guarantee the award of scholarship.



## **R-18.2 Tenure of Scholarship/Fellowship & Award of Senior Research Fellow (SRF)**

The scholarship/fellowship for the tenure of initial two years, from the date of joining the respective Department/Centre or start of the classes of 1<sup>st</sup> semester, is equivalent to JRF. The elevation to SRF after two years will be assessed through a progress presentation conducted by following committee:

- i. Chairperson SRC (from DRC)
- ii. Internal Expert in the field from the Department
- iii. Institute External Faculty, in the synergy area, from outside the department and not below the rank of Associate Professor
- iv. Supervisor(s)/ Co-Supervisor
- v. Director's nominee (within the institute)
- vi. Additional member from outside the institute (to be nominated by Director) (for State-of-Art and Pre-submission seminars only)

An honorarium of Rs. 4000/- will be paid to the external subject expert along with TA/DA. However, the external subject expert may join the meeting through online mode.

The committee will judge research work of the research scholar and submit a report. If the research work is found satisfactory, the research scholar will be designated as SRF and the research scholar will be entitled for enhanced scholarship/fellowship for the remaining period of 2 years under SRF scheme subject to satisfactory performance in the progress reports and fulfilment of any other condition of the Institute/fellowship awarding agency as per the requirements given in R.3.3.

## **R 18.3 Duties of Research Scholar Receiving Scholarship/Fellowship**

The research scholar receiving the scholarship/fellowship, with the consent of the HoD/HoC, will assist in the academic work including conduct of tutorial classes and lab work for 8- hours/week.

## **R-19 LEAVE AND ATTENDANCE**

All full-time research scholars (with or without scholarship) are required to mark daily attendance in the attendance register maintained by the Department/Centre. The HoD/HoC shall also maintain a proper leave account of each such research scholar. The leave of the research scholar should be recommended by respective Supervisor(s) and sanctioned by the HoD/HoC.

The full-time research scholar is entitled to avail leave as per Leave and Attendance Rules formulated and amended from time to time by the regulatory body. Presently these are as under:

Research Fellows are entitled for a maximum period of 30 days leave in a year in addition to public holidays. They are not entitled to any other leave, for example,

summer, winter, pooja vacations, etc. Women candidates are eligible for maternity leave of 240 days at full rates of fellowship once during the tenure of their award.

The Research Fellow, in special cases, may be allowed by the Commission, leave without fellowship up to one academic year during the entire tenure of the award for accepting teaching assignments on a temporary basis, provided the assignment is in the same city/town. In other cases, leave without fellowship will be restricted to a period not exceeding three months during the tenure of the award on the recommendations of the supervisor and the head of institution. The period of leave without fellowship will be counted towards the total tenure of the fellowship. Fellows are advised to apply for leave through their university/institution/college well in advance for the approval of the Commission.

## **R-20 CANCELLATION OF REGISTRATION**

Registration of a research scholar can be cancelled in any one of the following eventualities, with due approval of the Director.

- (i) If a full-time research scholar absents for a continuous period of four weeks without prior intimation/ sanction of leave.
- (ii) If a research scholar resigns from the PhD programme.
- (iii) If a research scholar fails to renew his/her registration every semester within the registration period as notified.
- (iv) If a research scholar does not submit semester progress report by the stipulated date or the progress of his/her research work is found unsatisfactory.
- (v) If a research scholar does not clear the State-of-the-Art Seminar and research plan within the stipulated period.
- (vi) If a research scholar is found involved in an act of misconduct and/or indiscipline and the competent authority has recommended termination. For all purposes, the conduct/ discipline rules applicable to B.Tech./M.Tech. Students of the Institute shall apply to PhD research scholars also.
- (vii) If at any stage, information furnished by the research scholar in his/her application is found false or incorrect.

## **R-21 GENERAL**

### **R-21.1 Authority of Senate and Recommendation to the Senate**

Notwithstanding anything contained in these Ordinances & Regulations, all categories shall be governed by the rules and procedures framed by the Senate, and in force from time to time.

### **R-21.2 Doubt and Disputes of Regulations**

Any doubt or dispute about the interpretation of these Ordinances and Regulations shall be referred to the Director whose decision shall be final.

### **R-21.3 Amendments in the Regulations by Senate**

Eligibility for admission to PhD programmes in different disciplines may, from time to time, be reviewed, approved by the Senate, and implemented.

### **R-21.4 Resolution of the Difficulties by Director binding on all the stakeholders**

The Director as the Chairperson, Senate may refer the issue to the Senate for interpretation of the Regulations, if deems it necessary.

### **Q-04 EXCEPTIONS AND ISSUES**

(i) All issues which need further interpretation or not covered under regulations defined will be considered by the Director on the recommendations of the following committee.

(1) Dean Academic Affairs	Chairperson
(2) Associate Dean (PhD)	Member
(3) Head/Coordinator of the concerned Department/Centre	Member
(4) PhD supervisor concerned	Member

(ii) Recommendations of the committee will be placed before the Director for consideration and approval.

(iii) All such approvals will be reported to the Senate for ratification and inclusion of the same in the PhD regulations.

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**FORMAT FOR CERTIFICATE OF SPONSORSHIP FOR NOMINEES**

Certified that \_\_\_\_\_ son/daughter of Shri \_\_\_\_\_ has been working as \_\_\_\_\_ (e.g. Engineer/ Teacher) on regular full time basis in \_\_\_\_\_ (Department/Organization) since \_\_\_\_\_ (date). His/ Her provident fund account no. is \_\_\_\_\_.

The officer/ official is permitted to pursue higher studies on full-time/ part-time basis. The officer/ official will be granted leave as per requirement for the period of study.

He/She is hereby sponsored for admission to Ph.D. Programme in\* \_\_\_\_\_ at Punjab Engineering College (Deemed to be University), Chandigarh for the session \_\_\_\_\_. In case he/she is selected for admission, he/she will be relieved from his/her duty and allowed to join the classes for full duration of the said programme.

If he/she leaves this Department/Organization during his/her period of study, Punjab Engineering College (Deemed to be University) will be informed accordingly to cancel his/her admission.

Further certified that he/she shall continue to be an employee of this Department/Organization and shall join back his/her duties after completing the programme. Certified that this institute is approved by AICTE (*only for an educational Institute*).

Date: \_\_\_\_\_

(Signature & Seal of the employer)

\* Both the branch and the department should be mentioned.



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

1. Name of the Research Scholar: .....
2. Date of admission (registration)..... 3. Status: Full-Time/Part-Time .....
4. Scholarship/ Assistantship: .....
5. Proposed area of research : .....
6. Proposed Supervisor(s)

Name of Faculty	Area of Expertise	Topic Discussed	Consent/ Signature of Faculty	Preference for supervisor

Dated:

Signature of Research Scholar

Mb. No. \_\_\_\_\_

**Recommendation of DRC Members**

The following faculty is recommended as Supervisor (s) of the above Ph.D. Scholar

Name ..... Designation .....

Name ..... Designation .....

Signature of DRC Members

Note: Filled Proforma duly signed by DRC members may be sent to the Dean Academic Affairs for approval