



Handbook for AcSIR Students

Academic Requirements for Ph.D and Integrated M.Tech-Ph.D

In the following, course of one credit is equivalent either 1 lecture hour per week (minimum 14 contact hours) or 2 laboratory hours per week (minimum 28 contact hours) or combination thereof for the duration of the semester.

Minimum Residence, Maximum Duration and Academic Requirements

The following table lists the minimum residence, maximum duration allowed in the program, and credit requirements for graduation in the various programs:

To satisfy the "Minimum Residence" requirements, registration must be over consecutive semesters; exception will be made only if the student is on authorized leave. "Maximum Duration" is counted from the student's first enrollment date. CGPA will be calculated on the basis of all courses taken by the student as the case may be. For any alteration in the maximum/minimum duration for completion of course work of any student, the thesis supervisor should send a specific request to the Dean of the respective faculty through the AcSIR Coordinator of the laboratory with proper justification. After evaluating the justification provided, the Dean may or may not accept the request. The decision of the Dean will be communicated to the thesis supervisor through the Coordinator.

Program	Min. Total Credits for courses	Credits thro' Course Work (Min)	Credits thro' Project/Research	Min. Residence for course work completion (Semesters)	Normal Period of completion (Semesters)	Max. duration for submission of thesis/ project (Semesters)
M. Tech	64	32	32	4	4	6
Integrated Ph.D (Engg)**	12*	4	Completion of thesis	3	6	8
Ph.D. (Sciences)	20*	12	Completion of thesis	4	8	10
Ph.D (Engg)	20*	12	Completion of thesis	4	8	10

* Two 4 credit courses are mandatory (see below).

- i) One subject proposal to be prepared before comprehensive by selecting topics of high relevance and novelty and will have state-of-the art review, methodologies, recommendations etc. (2 credits)
- ii) One Review Article on specific research area of the student. (2 credits)
- iii) Six –Eight weeks have to be dedicated on a project concerned with societal/rural issues under the CSIR-800 Programs (4 credits).

** Over and above the credits and other requirements of the Masters (M. Tech) Program

Details of Course Work to be taken by students

- For Ph.D program, 4 levels of course (i.e. 100, 200, 300 and 400 levels) will be offered by each lab under different faculties of study.

Any laboratory may feel free to impart additional credits at any level to better suite their purpose.

- Two 4 credit courses (400 level) are mandatory for the Ph.D program (in Science or Engineering) and for Integrated Ph. D (after completion of the M.Tech credit requirements):
 - a) One Project Proposal to be prepared before comprehensive by selecting topics of high relevance and novelty, and will have state-of-the art review, methodologies, recommendations etc. (2 credits). The suggested format of the proposal is similar to the format of the projects funded under CSIR- Extra Mural Research scheme.
 - b) One Review Article on their research area. (2 credits)
 - c) Six–Eight weeks have to be dedicated on a project concerned with societal/rural issues under the CSIR-800 Programs (4 credits). This needs to be completed before submission of thesis. Guidelines for conducting the CSIR 800 programme is enclosed as **Annexure I**.

In general the students will be enrolled twice a year, in August and January. Once the students are enrolled they are generally expected to complete the 16 credits within the 3rd semester. Only after completion of 16 credits the student will be allowed to undertake the comprehensive viva examination and on successful completion of this exam they will be registered for Ph.D in AcSIR.

Courses on offer at any AcSIR/CSIR institute can be availed by the Ph.D candidate to fulfill the academic courses requirement. For a student to take one or more courses on offer at other institutes, the thesis supervisor of the student shall send a request through the Coordinator of his/her institute to the Coordinator of the Institute offering the course. In such cases the credits completed by the student will be communicated by the Coordinator of the institute where the course was undertaken to the Coordinator of the parent institute.

Examination & Evaluation procedures for M.Tech and Ph.D course work

- Continuous evaluation procedure will be followed through-out the semester through class test, quiz, assignment, seminar/presentation on special topic, midterm and end term examinations etc.
- End semester examination shall have maximum weightage of 40%.
- Depending on the nature of the subject, faculties may opt for open or close book examination.
- For laboratory courses, the candidates shall have to submit laboratory reports to the course coordinator. Depending on nature of the laboratory work, the coordinator can opt for a viva-voce at the end.
- The grading system to be followed for course work is illustrated below:

Letter Grade	Performance	Numerical Value
A+	Outstanding	10
A	Excellent	9
B+	Very Good	8
B	Good	7
C+	Average	6
C	Not Qualified	5
S	Satisfactory (for audit course)	
X	Unsatisfactory (for audit course)	

SGPA (Semester Grade Point Average) = {Sum of (Course credit × Numerical value of course grade)} / Total course credits earned in the semester

CGPA (Cumulative Grade Point Average) = Cumulative points scored in all passed courses / Cumulative credits earned

- A student needs to have a SGPA of over 6.0 in each semester and a CGPA of over 6.5 from second semester onward for continuation. Minimum grade point to be earned to pass any subject is 6.0.
- The course coordinator shall submit the grades of the students as per the academic calendar.

Examination & Evaluation procedures for Thesis work

For M.Tech Thesis work:

- a) The thesis Oral Examination Board (OEB) shall be constituted by the Director of the laboratory on recommendation of Coordinator and thesis supervisor for each student. The OEB will have minimum three members – one examiner from same field of research, one examiner from areas other than the candidate's field of research and the thesis supervisor(s). The dean approves the committee recommended and senate chairman subsequently ratifies it. The communication in this regard would be done by the Lab Coordinator.
- b) The candidate, at the earliest, would be allowed to submit the thesis two weeks before the completion of the fourth semester with recommendation of the thesis supervisor(s).
- c) The last allowable date for submission of the M.Tech thesis should be fifteen days before the commencement of the fifth semester.
- d) The candidate shall present his thesis work physically in the colloquium (Open Seminar) in presence of the OEB members.
- e) The notification of the open seminar would be circulated by the thesis supervisor in consultation with members of the OEB.
- f) The candidate is considered to have passed the oral examination if all the OEB members consider that the performance of the candidate is satisfactory with award of grades C+ or above.
- g) Based on the presentation and responses to the questions raised during oral examinations, the committee may recommend re-submission of the thesis at most once after incorporating the suggestions made by the committee for evaluation.
- h) In the rescheduled oral examination, the OEB must declare the candidate either to have passed or failed with award of appropriate grades. There shall not be any recommendation for third oral examination.
- i) The grading system to be followed during evaluation of thesis work for M.Tech is illustrated below:

Letter Grade	Performance	Numerical Value
A+	Outstanding	10
A	Excellent	9
B+	Very Good	8
B	Good	7
C+	Average	6
X	Unsatisfactory	

For Ph.D Thesis work:

- **Doctoral Advisory Committee (DAC)**

Each student will have a Doctoral Advisory Committee (DAC).

- a) AcSIR Laboratory Coordinator in consultation with the Director of the laboratory will constitute the Doctoral Advisory Committee for each candidate as soon as the thesis supervisor(s) is assigned with the recommendation of the Dean & subsequent approval by the Senate Chairman.
- b) In addition to thesis supervisor(s), the committee will have three more members – two members from the same research area as recommended by the supervisor(s) and one member nominated by the Director of the Institute from a different field of research.
- c) The academic courses required to be completed by each Ph.D candidate will be recommended by the Doctoral Advisory Committee for the candidate keeping in view the minimum credits requirement as per AcSIR guidelines.
- d) The doctoral advisory committee will review the progress of the research work on continuous basis and meet at least once in each year. They shall advice on the next course of action. The committee also recommends when to submit of the thesis.

In general the functions of the DAC are outlined in the table below:

DAC No.	Objective of DAC	Time frame
I	Discussion on the topic of research to be pursued, questions to be addressed etc.	Any time before the end of the Third Semester
II	Finalization of Ph.D proposal	During or within 6 months of the comprehensive exam
III	Monitoring the progress of the student	Before the end of 6 th Semester
IV	Ph.D colloquium (open seminar)	Two weeks before submission of thesis

- **Comprehensive Examination**

- a) A student is eligible to appear at the Comprehensive Examination only after he/she has successfully completed the course requirements with more than the minimum CGPA.
 - a. The Comprehensive examination board shall include the Director/ *Director's nominee who has demonstrated ability in guiding students* and one external examiner besides the DAC members.
 - b) Based on the proposal of the supervisor(s), the Comprehensive examination board would be formed & recommended for each student by the corresponding cluster Dean with subsequent approval by the Senate chairman.
 - c) The candidate in consultation with the DAC shall appear for oral comprehensive examination in between 2nd and 4th semester. If the candidate fails to clear the comprehensive examination in two attempts, his/her enrollment for Ph.D would be cancelled. However, the candidate is eligible for MS (by Research) and will have to go through the prescribed process of MS.
 - d) The Comprehensive examination will consist of presentation by the candidate followed by rigorous oral examination. The recommendation of the board would be in the form of "Cleared" or "Not Cleared".

- **Ph.D Thesis Submission & Evaluation**

- a) A Ph.D thesis shall be first evaluated by a **Thesis Board** and thereafter by an **Oral Board**.
- b) Ph.D synopsis (upper limit of 3 A-4 size pages) on a CD shall be submitted to the laboratory coordinator on recommendation of the DAC and after incorporation of suggestions, if any.
- c) The thesis advisor(s) will submit the panel of examiners, **normally eight experts** from the relevant field to the corresponding cluster Dean through the AcSIR Coordinator of the concerned Lab immediately after the Ph.D colloquium / Open seminar. **None of the examiners shall be from the same Institute**. The synopsis of the thesis has to be submitted to the Dean.
- d) The synopsis format free in general. However, the following sections are to included in Synopsis in appropriate manner:
 1. A very brief introduction with a succinct link to the available literature
 2. Statement of problem
 3. Methodology(s) used
 4. Sample results
- e) The concerned Dean will have to review the list of examiners and forward it to the Chairman, Senate for approval along with the synopsis of thesis. At this stage, the preference of the Chairman Senate is to be kept strictly confidential and for the reason, the information has to be restricted between the Coordinator, Dean and one of the Executive Consultants at HQs as designated by the Senate Chairman. The

names of the thesis examiner should be kept confidential till the entire process of thesis examination is over.

- f) The senate chairman shall constitute the Thesis Board by providing serial numbers to the list of examiners from the above list and communicate to the appropriate Dean. The first two examiners on the list provided by the Senate Chairman have to be approached first.
- g) Thesis should be submitted to the coordinator of the laboratory who in turn will send it to the members of the Thesis Board as approved by the Senate Chairman and communicated to the Coordinator by the Dean.
- h) The examiners will have to be requested to turn in the report within 8 weeks and AcSIR plans to complete the thesis examination within 12 weeks.
- i) 2 hard copies and a softcopy of the thesis on a CD will have to be submitted to the Coordinator.
- j) The members of the Thesis Board will send the reports to the Coordinator with a copy to the thesis supervisor.
- k) Based on the report of the thesis examiners, the DAC shall recommend the next course of action i.e. recommendation for holding oral examination or rework.
- l) The recommendation of DAC for holding the oral examination has to be forwarded to the Dean. The Dean will study the report and send his/ her approval to the thesis advisor (s) for holding the oral examination.
- m) The committee may recommend re-submission of the thesis at most once after incorporating the suggestions made by the committee for evaluation.
- n) Thesis oral examination board (OEB) shall be constituted by the Senate Chairman on recommendation of the thesis supervisor(s) and shall normally consist of four members in addition to the thesis supervisor with one external member (preferably one of the thesis examiners). The OEB will have minimum three members – minimum one external member (preferably one of the thesis examiners), one DAC member and thesis supervisor(s).
- o) The Ph.D candidate shall present his research work physically in presence of the above OEB members. Additional external members may be present in video conferencing mode or in person, if desired.
- p) The OEB will look after whether or not the essential modifications, suggested by the thesis examiners, if any, have been incorporated. The board shall authenticate the thesis work as the student's own work based on the presentation and responses to the questions raised during oral examinations.
- q) The candidate is considered to have passed the oral examination if all the members except at the most one member consider that the performance of the candidate is satisfactory.
- r) In case of a non-satisfactory oral examination, in the rescheduled oral examination, the OEB must declare the candidate either to have passed or failed. There shall not be any recommendation for third oral examination.
- s) It is expected that the entire process after thesis submission leading to completion of the oral examination shall be completed within 8-12 weeks.

- t) The complete report of the oral committee has to be communicated to the Dean. Dean's recommendation has to be submitted to the Chairman Senate for approval of the provisional degree.
- u) On ratification in the subsequent Senate Meeting, the successful candidate becomes eligible of receiving the PhD degree from AcSIR.

- **Format of the thesis**

- a) Two hard copies and a CD containing the entire thesis should be submitted to the coordinator of the laboratory, who in turn shall send it to the members of thesis board for evaluation.
- b) Based on the reports of the thesis board the candidate should incorporate all the suggestions and corrections as recommended by the thesis board and submit two bound copies of the thesis to the coordinator.
- c) One copy of the thesis will be archived at the library of the Institute, and the other will be with the thesis supervisor for records. An updated CD will be sent by the coordinator to AcSIR head office for records.
- d) It is recommended that the thesis should be paperback and printed on both sides of a page to minimize the utilization of paper.

The cover of the thesis shall contain the title of the thesis, name of the student, name of the supervisor(s) name of the degree for which the thesis is submitted, AcSIR logo and name of the institute(s) where the work was undertaken. The format of the thesis is given below as **Annexure II**.

Provisional Certificate

The provisional certificate shall be awarded by the respective Dean after successful completion of the M.Tech/Ph.D oral examination. The final degree shall be awarded at the time of convocation of the Academy as per the relevant Ordinance.

Fees and Deposits

The student will have to pay necessary fees as fixed for the concerned programme from time to time by AcSIR as per the terms and conditions notified.

Tuition Fee for the Ph.D in Science and Engineering is Rs. 1000/- per month.

The fees for M.Tech is Rs. 24,000/- for one semester. The first payment of semester fees and all dues at the time of admission will have to be paid by crossed Demand Draft or through electronic transfer. Details for such transfers will be intimated on the admission site from time.

Subsequent to the confirmed admission, all the dues/fees will be collected/ adjusted out of the fellowship/ scholarship/ assistantship/ internship due to the student.

Guidelines for CSIR-800 Project for AcSIR Ph.D. students

The major objective of the CSIR-800 project is to create and nurture a sense of social consciousness and responsibility by participation in Science & Technology activities relevant to the nation.

Background:

The objective of the Academy of Scientific and Innovative Research (AcSIR) is to disseminate advanced knowledge in science and technology, particularly in emerging inter-disciplinary and multi-disciplinary areas to create socially conscious, highest quality personnel. The ultimate aim is to create human resources who will promote research in science and technology having a bearing on social economic, cultural, intellectual and academic welfare of the people of our nation. Keeping this in view AcSIR has mandated that students aspiring to obtain a Ph.D. degree from the academy undertake a 6-8 weeks project concerned with societal/ rural issues under the CSIR-800 Programs (4 credits). CSIR-800 has been launched by CSIR with the aspiration of inclusive growth and improved quality of lives of 800 million fellow Indians through S&T interventions that are socially and economically relevant.

CSIR 800 focus areas:

The two major focus areas of CSIR-800 are to enhance income and to improve the quality of life of the 800 million people of India. Some typical examples are as the following:

Enhancing Income of the downtrodden

- Value added Agriculture
- Waste to Wealth
- Energy efficiency

To Improve Quality of Life

- Low cost housing
- Affordable health care
- Potable Water supply
- Sustainable energy
- Means of protecting environment

Guidelines for CSIR-800 linked AcSIR projects:

- Students shall select a scientific topic of social relevance and aligned with the focus areas of CSIR-800 and studying the problem in detail.
- Students shall try to find out solutions which are techno-commercially viable and have the potential to be scaled up to reach out to uplift the life of millions.

- It shall not be a mandatory requirement to live and work in the targeted areas, however, the ultimate objective of addressing societal problems shall not be compromised.
- The students shall select the project and the target area in consultation with his/ her DAC members.
- Students can participate in a CSIR-800 project either in his/ her Institute or any other CSIR Institute.
- In case the student wants to do the project in any other CSIR Institute, he/she should send a request to the coordinator of his/ her laboratory forwarded through the thesis supervisor well in advance. The coordinator in turn shall forward the request after taking the approval of the Director to the coordinator of the laboratory where the project is intended to be undertaken.
- The coordinator of the laboratory where the project will be undertaken shall obtain an approval from the Director of the laboratory which shall then be communicated to the student through the coordinator of the students parent Institute.
- The Institute where the project is to be undertaken shall provide all necessary infrastructural facilities and extend all possible help and cooperation to facilitate the student to complete the project.
- After carrying out the project, the student should submit a report and give a presentation highlighting the observations/results of the project and provide recommendations (if any). This will be reviewed by the Doctoral Advisory Committee (DAC) and the thesis supervisor (who is a member of DAC).
- In case the project was undertaken in other Institutes, the supervisor with whom the project was undertaken shall also be a member of the committee reviewing the project.
- The DAC can approve or ask for modification, if they are not satisfied with the report or Presentation. The committee may recommend re-submission of the project at most once after incorporating the suggestions made by the committee for evaluation.
- It is encouraged that the student prepares a shorter version of the report for societal usage highlighting the objectives of the project, observations and recommendations (if any). Such reports may be sent to the relevant officers (District magistrate/ BDO's etc) of the target area for information if felt necessary only after the approval of the Director(s) of the student's host Institute and where the student has undertaken the project work. Host Institute is expected to translate the short report into different **regional languages** that are spoken locally.

Thesis

Thesis Submitted to AcSIR For the Award of
the Degree of
DOCTOR OF PHILOSOPHY
In Biology

AcSIR Logo

By
Name of the Candidate
Registration Number

Under the guidance of
Name of the Supervisor(s)

Name of the Institute(s) where the work was
done