Regulations for

THE DOCTOR OF PHILOSOPHY (Ph.D.) PROGRAMME

2022

VIGNAN'S FOUNDATION FOR SCIENCE, TECHNOLOGY AND RESEARCH

(Deemed to be University)

Vadlamudi, Guntur Dist.
Andhra Pradesh   522 213

Website: www.vignan.ac.in

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1. PREAMBLE

A University becomes academically accomplished if it richly contributes to the corpus of knowledge through its academic practitioners who shall portray the amalgamation of critical and creative thinkers, potential innovators and skillful performers. The mentor academic practitioners, namely the faculty shall impart and implant the said characteristics deep in the upcoming future techno-scientific performers namely the present learners i.e students. A University could rise to this status, if and only if the researchers teach and guide the learners. Therefore, a research rich culture in the University ensures that the **learners learn to learn** all though their lives. Traversing towards the aforesaid target, the Vignans' Foundation for Science, Technology & Research (VFSTR) proposes to bring about a diverse research culture through the following academic programs.

- ✓ B.Tech with Research Honors
- ✓ Dual (B.Tech+ M.Tech./MBA) with Research orientation
- ✓ M.Tech by Research
- ✓ Exclusive research studies leading to the award of Ph.D. degree.
- ✓ Extramural Research leading to the award of Ph.D. degree.
- ✓ Post-Doctoral Research

The present document articulates a revision in regulations- "**Regulation 2022 for Ph.D. program**", aimed at providing a flexible and conducive passage for a scholar to carry out his/her research studies leading him/her to receive the award of Ph.D. degree.

2. EXECUTIVE ABSTRACT

The objective of the Regulation 2022 is to come out with regulatory mechanisms that ensure a flexible and conducive passage for the research scholars towards completing Ph.D. requirements and getting awarded with the degree. The attempt is synonymous to the phrase '**Light but tight**' as in the document NEP-2020. The academic objective is to create independently capable researchers who would be bestowed with deep knowledge in their fields of research and who would have assimilated research skills that promote practically viable and critically analytical mindset which would enable them to make significant, original and innovative contributions to their respective fields.

The document NEP-2020 is the source of inspiration for this revised Regulations-2022. It advocates for development of holistic and independent thinking capability and incorporation of technology blend for effective utilization of the expertise of good researchers as resource persons while judiciously managing time. It aims at creating opportunities for all deserving aspirants to enhance and acquire higher qualifications.

The widely visible agenda under NEP-2020 is to enhance the **Gross Qualification Index** (GQI) of the nation and develop the nation into a global knowledge super power.

The salient features of the regulation are listed below:

✓ Research field specific course work comprising of Research Methodology, Documentation, Breadth and Depth studies.

✓ Creation of policy making and monitoring bodies such as University Research Board (URB), School Research Board (SRB) and the Doctoral Committee (DC) to ensure progression in research study of the research scholar.

✓ Flexible admission opportunity to the serious aspirants of research, both candidates who are fresh graduates and post graduate scholars and in-service professionals.

✓ Adaptable scope to transform logically imaginative ideas of the novice and cogent ideas originating from the experience of serving professionals into a research frame work for Ph.D.

✓ Providing honorable exit option to alleviate possible disappointment arising out of inability to complete research work due to unforeseen exigencies.

✓ Opportunity to receive expert reviews and observations through submission of research work for publication.

3. SHORT TITLE AND COMMENCEMENT

i. The regulations shall be called "Regulations governing the Ph.D. program of VFSTR (Deemed to be University) - 2022".

ii. Provisions are made for candidates enrolled under previous/ earlier regulations to horizontally migrate into Regulation 2022.

iii. These regulations shall come into force from the date of approval by the competent authorities.

4. DEFINITIONS

✓ **"Research"** means a systematic study or investigation to discover new knowledge in the form of facts/patterns or new interpretation of ideas or inventions of new devices or exploration of a unified theory to explain diverse facts.

✓ **"Doctor of Philosophy (Ph.D.)"** signifies that the awardee of the degree has undertaken a substantial piece of **original research**, which has been conducted and reported by the holder under proper academic supervision, and in a constructive research environment for a prescribed period.

✓ **"Research Scholar"** means a candidate who is admitted to the Ph.D. Program of

VFSTR through procedures adopted by the University.

✓ **"Research Supervisor"** means a member of the faculty of VFSTR or a person recognized by VFSTR and authorized to be a guide who supervises the research work carried out by the research candidate for award of Ph.D. degree.

✓ **"Co-Supervisor"** means a person who may or may not be a member of the faculty of VFSTR, who is recognized and approved by VFSTR to supervise the research work of a candidate jointly with a Research Supervisor.

✓ **"Care taker Supervisor"** means a member of the faculty of VFSTR, who temporarily holds the role of Research Supervisor for administrative purpose.

✓ **"University Research Board (URB)"** is the apex body to set standards and directions for Research, Development and Consultancy activities of the University.

✓ **"School Research Board (SRB)"** is the research monitoring body for respective schools that ensures standards and quality sustenance.

✓ **"Doctoral Committee (DC)"** is the body that monitors and steers the progress of the research candidate.

✓ **"Board of Research (BoR)"** is the body that coordinates various research activities at the department level.

✓ **"Research Points"** is the points awarded for publication of research work in Journals /conferences/patents.

5. RESEARCH BODIES

The Research activities in the University are administered by

  i. University Research Board (URB)
 ii. School Research Board (SRB)
iii. Doctoral Committee (DC)
 iv. Office of the Dean Research for Research Facilitation
  v. Board of Research (BoR) at Department level (Chaired by HoD)
 vi. Research supervisor, Co-supervisor

The composition of each committee is given below.

5.1. University Research Board (URB)

Vice Chancellor	- Chairman
Dean AAA	- Ex-officio member
Dean R&D	- Member Secretary

Experts (National/International) from Academic Institutions / R&D organizations / Industries (a min. of 5 in number) - Members

The period of membership shall be for three years. The URB shall meet at least once in a year.

5.1.1 Functions of the University Research Board

- ✓ To identify activities that strengthen, promote, and support research within the University.

- ✓ To consider and make recommendations on matters of policy related to research including matters referred to it by competent authorities.

- ✓ To set targets in relation to key elements of the Research Strategy.

- ✓ To monitor internal and external developments and trends, by taking them into consideration in the development of strategy and policies.

5.2. School Research Board (SRB):

Dean AAA	- Chairman
Dean R&D	- Co-chairman
School Dean	- Member Secretary
International Expert	- Member
External experts from Academic Institutions/ Industry at least one to represent the research theme of every department	- Members
Heads of the Departments	- Members
Senior Professors, one representing each department	- Members

The period of membership for external members shall be three years. The SRB meets preferably once in a semester.

5.2.1 Functions of the School Research Board

- ✓ To create a conducive environment for promotion of Research & Innovation activities.

- ✓ To help in setting the Department wise research priorities in line with the thrust areas at national and international level.

- ✓ To monitor policies on all research activities concerned with the promotion of advanced Research.

- ✓ To provide suitable directions regarding matters referred by Doctoral Committee pertaining to research scholars.

- ✓ To promote collaborative research.

- ✓ To encourage faculty members and research scholars to explore and apply prospective funding of Major, Minor Research Projects from external funding agencies.

- ✓ To strengthen industry institute interaction by promoting consultancy, testing and need based research & innovation activities.

- ✓ To support and steer the faculty members to identify the requirements and gaps in the Industry practices and transform them into Industry Sponsored Research activities.

- ✓ To identify and approve the list of top-notch conferences at two levels to encourage the faculty and scholars to publish research in quality conferences.

5.3 Doctoral Committee (DC):

A Senior Professor* of the Department (An expert member related to the proposed area of research within the discipline) - Chairman
(to be nominated by School Dean)

HoD	- Ex-officio member
Research Supervisor	- Member secretary & Convener
Research Co-Supervisor (In case, any)	- Member
School Dean nominee/one inter School expert	- Member
An Expert from outside the University	- Member

* If Senior Professor in the proposed area of research is not available even in the concerned School/ University, an Expert from outside the University may be nominated as the Chairman of the DC.

5.3.1 Functions of the Doctoral Committee

- ✓ Prescribe coursework for the Breadth and Depth courses for the candidate.

- ✓ Considers appeal for credit equivalence by the candidate, and grant the credit equivalence after duly examining and assessing the candidate through interaction with him/her.

- ✓ Shall formally accept the research proposal, after successful defense of the topic of research by the research candidate.

- ✓ Shall periodically review the progress of research candidate, certify the research progress and provide the corrective, constructive and suggestive feedback.

✓ Shall formally permit the candidate to attend the Pre-Thesis Colloquium, subject to satisfactory completion of all the requirements including publications.

✓ Shall meticulously go through the adjudication reports provided by the thesis examiners and advise the candidate accordingly.

✓ Shall convene the final thesis open defense.

5.4 Office of the Dean Research for Research Facilitation

The office of the Dean, Research and Development is an exclusive offshoot of the office of Dean AAA to explicitly promote research and development activities in the university. The Office of the Dean R&D drives strategic planning and provides guidance across academic and research programs, fostering new and interdisciplinary research initiatives and collaborations. The R&D office is headed by the Dean – R&D and composed of Joint Deans, Associate Deans and Assistant Deans and support staff for facilitating various research activities of the University. The roles and responsibilities of the office bearers are captured in Annexure I.

5.4.1 Functions of Office of Dean Research for Research Facilitation

✓ Shall work to facilitate and promote quality research in the University and recognized research centers / laboratories.

✓ Shall coordinate, supervise and recommend to the Vice Chancellor for approval of the admission of students into Ph.D. programs.

✓ Allocate facilities, space, equipment and other resources to research personnel /projects.

✓ Oversee research scholars funding, in particular Research Assistantships and Fellowships

✓ Promote the School areas of priority for research funding with internal and external funding agencies

✓ Interact with the Industries to establish advanced research labs in the thrust areas of research

✓ Enable research Entrepreneurship by encouraging incubation of startups.

5.5 Board of Research (BoR) at the Department level

Board of Research at department level is chaired by the HoD. It consists of a

coordinator and two or more members as per the requirement of the department. It acts as the primary administrative point of contact through its coordinator for internal research staff and as the principal operational liaison for other research organizations, funding agencies and regulating bodies.

5.5.1 Functions of Board of Research at Department level

- ✓ Channelize all the departmental research requirements to Dean R&D office.

- ✓ Promote research capacity building among faculty and student groups.

- ✓ Coordinate the day-to-day activities of faculty specifically engaged in carrying out research.

- ✓ Monitor the progress of research activities being carried by both faculty and research scholars.

- ✓ Develop and maintain records of research activities, and prepare periodical reports, as required by administrators, accreditation bodies like NAAC/NBA and regulatory bodies like UGC/AICTE.

5.6 Research supervisor/ Co-supervisor

Supervisor acts as Member Secretary of the Doctoral Committee. Supervisor provides specific technical support, broader intellectual support, administrative support, management, and personal support to the research scholar.

5.6.1. Duties of Research Supervisor

- ✓ A Research Supervisor shall be the single point of contact for all academic administration logistics of his/her candidate.

- ✓ Supervisor shall be responsible for providing help, support and mentoring in order to enable the candidate to complete his/her proposed research work and produce a thesis to the best of the his/her ability.

- ✓ The principal role of the Research Supervisor is to help and guide candidates achieve their scholastic potential and to conduct Research Progress Colloquium. The Research Supervisor shall interact with the candidate ensuring reasonable commitment, accessibility, professionalism, guidance and consistent encouragement.

- ✓ The Research Supervisor shall be available to help and guide candidates at every stage, from formulation of their research problems through establishing methodologies and discussing results, to submission of thesis that meets the standards of the University and academic discipline.

6. CATEGORIES, ELIGIBILITY CRITERIA FOR ADMISSION & SELECTION PROCESS

6.1 CATEGORIES OF Ph.D ADMISSION

- ✓ VFSTR shall admit students to the research program leading to Ph. D degree under three categories internal, external and extramural.

- ✓ NRI/PIO/Foreign nationals who hold valid passport/visa, clearance from agencies as mandated by GOI are also eligible to apply.

6.1.1 Internal

- ✓ Candidates under this category shall work full time dedicated to research in the University.

- ✓ All those candidates who are placed within the VFSTR campus as research scholars/ faculty members to carryout both teaching assignment and research studies/ teaching cum research assistants with suitable financial support as offered by the VFSTR/ research scholars who receive research fellowships or research grants from Government/Industry/Professional bodies/as research scholars permitted to continue to be in the Institution/ organization where he has been serving in case such an Institution/ organization that has an MoU with VFSTR to this effect, will be identified as internal candidates.

- ✓ Candidates pursuing PG in Engineering/Technology at VFSTR or other reputed[*] institutes, who have completed all the courses prescribed for the first 2 semesters with a minimum of 60% or equivalent CGPA. For such candidates, a faculty mentor is allocated after the provisional admission. Mentor could become a Research Supervisor for the Ph.D program after confirmation of Ph.D admission at VFSTR. The Master's Project of the candidate must be in line with the proposed research topic for Ph.D and he/she needs to present a detailed, comprehensive Literature Review to the Doctoral Committee within one year of provisional admission, however candidate is required to hold a Master's degree in Engineering / Technology with a minimum of 60% or equivalent CGPA before being formally admitted into the program.

6.1.2 External

- ✓ Candidates under this category will normally carry out part or all of his/her research work in the parent Industry / R&D Organization / Academic Institutions / Universities / Organizations employing the candidate.

- ✓ Candidates from Industry / R&D organizations are encouraged to take up the problems faced by Industry as their research problem for pursuing the Ph.D.

- ✓ Candidates need to interact frequently with their Research Supervisors through a suitable blended mode   .

6.1.3 Extramural

✓ Candidates with PG qualification in respective disciplines of Engineering/Technology/Sciences/Humanities/Management with more than a decade of relevant experience are eligible for admission into research program leading to a Ph.D degree. Details are provided in Annexure-II.

6.2 Eligibility criteria for Ph.D admissions

✓ Candidates with PG qualification in respective disciplines of Engineering/Technology/Sciences/Humanities/Management.

✓ Candidates with UG qualification in Engineering/Technology in respective discipline with a minimum of 60% or equivalent CGPA.

✓ Candidates pursuing PG in Engineering/Technology at VFSTR or other reputed institutes, who have completed all the courses prescribed for the first 2 semesters with a minimum of 60% or equivalent CGPA. For such candidates, a faculty mentor is allocated to the candidate after he/she is given a provisional admission. Mentor could become a Research Supervisor for the Ph.D program after confirmation of Ph.D admission at VFSTR. The Master's Project of the candidate must be in line with the proposed research topic for Ph.D and he/she needs to present a detailed comprehensive literature review to the Doctoral Committee within one year of provisional admission, however candidate is required to hold a Master's degree in Engineering / Technology with a minimum of 60% or equivalent CGPA before being formally admitted into Ph.D program.

6.3. Admission Process

✓ Applications for the Ph.D. program shall be open and shall be considered round the year and admissions being made are aligned with the commencement of odd or even semester.

✓ Any eligible candidate who desired to seek admission to Ph.D. program may apply offline/ online through University website round the year.

✓ All eligible candidates have to appear for an Analytical Ability and Research Aptitude Test (AARAT), the prescribed syllabus is provided on the University website.

✓ The candidates will be called for interview based on AARAT.

✓ Candidates who are qualified in the GATE/CSIR-UGCNET/SLET/CAT/ GMAT/GPAT/GRE/JEST/NBHM/JGEEBILS etc. may be exempted from appearing in the AARAT. However, they should appear for the Ph.D interview.

✓ Candidates from Industry/ R&D Organizations/ Academic Institutions with a minimum of five years of relevant experience related to the proposed area of

research will be exempted from appearing in the AARAT. However, they should appear for the Ph.D interview.

✓ The list of shortlisted and recommended candidates under respective categories will be published on the University website.

✓ The prospective candidates shall be called for one-to-one interaction with the research supervisor(s) in a combined meeting or individually as convened by the Dean-R&D.

✓ Subsequent to the interview with the research supervisors and based on the recommendations made by the research supervisors, the school Dean and Head of the Department, provisional selections will be notified with the name of the Research Supervisor assigned to the candidate.

✓ The selected candidates complete the admission process through the office of Dean R&D.

✓ The candidate reports to the assigned Research Supervisor and finalize the area of research.

✓ In case of inter-disciplinary research, the Supervisor may suggest a suitable co-supervisor from within or outside the University.

6.3.1 Eligibility, Recognition of Research Supervisors

✓ The Professors from other institutions of importance and excellence, who show keen interest in the research activities in the University may be Co-opted as distinguished visiting professors of the university and will be treated as Research Supervisors.

✓ Any Adjunct Professor / Visiting Professor of the VFSTR.

✓ Any Professor /Associate Professor of the VFSTR.

✓ Any expert identified by VFSTR.

✓ Only internal/regular faculty and additionally those who are identified by the University shall act as Research supervisors.

✓ Any Assistant Professor of the VFSTR, subsequently to his/her Ph.D. has at least two research publications in Refereed journals/Top notch conferences beyond the scope of his/her Ph.D. work may be recognized as s Research Supervisor.

✓ In case a Co-Supervisor is warranted, then a new Co-Supervisor may be allowed in inter-disciplinary areas from the University or from other institutions with the approval of the DC.

- ✓ An external expert suitably qualified /experienced may be considered as a Co-Supervisor from that Institute/Organization, where the external candidate is allowed to pursue his research.

- ✓ Administrative responsibilities of research scholar lies with the Internal Research Supervisor.

- ✓ A Research Supervisor/Co-supervisor who is a Professor, normally at any given point of time, can guide up to Eight (8) Ph.D. candidates. An Associate Professor can guide up to a maximum of six (6) Ph.D candidates and an Assistant Professor can guide up to a maximum of four (4) Ph.D. candidates as Research Supervisors. Under special circumstances, the research supervisor may be allowed to have additional Ph.D candidates.

- ✓ The Research Supervisor/Co-supervisor can take fresh candidates subsequent to the submission of the thesis by the existing Scholars.

7.   ACADEMIC PROCESS

A candidate provisionally admitted to the Ph.D. program of the University shall lead his/her research studies following stages as listed hereunder. The flow diagram indicating various stages towards award of Ph.D. degree is provided in Annexure-III.

   i. Formation of DC

   ii. Course work

   iii. Research Proposal

   iv. Research Progress

   v. Publication of research work

   vi. Finalization of the focused title for the research thesis

   vii. Synopsis submission

   viii. Pre-Thesis Colloquium

   ix. Thesis submission

7.1. Formation of DC

- ✓ For every scholar there shall be a doctoral committee to ensure the progress in research.

- ✓ Subsequent to the allocation of a candidate to a Research Supervisor which by itself is based on the interest expressed by the research candidate with regard to the area of research, the supervisor will initiate steps to get the DC formulated in consultation with the HoD and School Dean.

- ✓ The members of DC as described in section 5.3 shall be by name on the committee all through for a candidate except for the HoD.
- ✓ A Chairman can be nominated for about 8-10 scholars.
- ✓ In case the Chairman does not happen to be the external expert, at least one expert should be invited from outside the University relevant to the and/or across the disciplines.
- ✓ If the affiliation of any member changes, the remaining DC members can resolve the issue by bringing it to the notice of the Vice Chancellor.
- ✓ The DC interaction may optimally deploy the technology enabled blended mode for course work and interaction.
- ✓ All the members of the committee are expected to present in offline/Technology enabled mode
- ✓ The DC shall convene a formal meeting at least once in every six months to assess the progress of candidate.
- ✓ The duly approved proceedings of the committee (as per format in appendix) will be communicated to the School Dean and the Dean R&D by the research supervisor.
- ✓ The DC shall be responsible for reviewing and monitoring the research progress of the candidate from the date of its constitution till the completion of Open Defense.
- ✓ After successful registration to the PhD program, the Zeroth Research Progress Presentation for the candidate will be convened with the DC by the Research Supervisor within a month from the date of registration. During this meeting, the course work of the candidate will be finalized.

7.2. Coursework

- ✓ The coursework shall be treated as a mandatory stage towards the partial fulfillment of requirement for the Ph.D. studies.
- ✓ Course work will be prescribed to the candidate depending upon his/her qualifications and background by the DC.
- ✓ Suitable credit transfer in view of equivalent credit courses completed may also be given due consideration by the DC,
- ✓ The credit equivalence and credit transfer for M.Phil. or equivalent courses may be considered.
- ✓ Candidates from Industry can claim their experience and their role in technology in working on respective research problem for credit equivalence by furnishing proper documented evidence and justification.

- ✓ The DC shall identify and suggest suitable L-T-P structure for every course in line with R22 academic regulation of the university.

- ✓ The DC may suggest a candidate to take up online courses and advanced summer/winter schools and programs conducted by premier institutions as components of the course work.

- ✓ For every candidate/for a group of candidates suitable resource person may be identified by the HoD and the DC members for conducting the coursework. If required in consultation with the DC members, such resource persons could be even external.

- ✓ A candidate can register for a minimum of 12 credits and a maximum of 20 credits per semester for carrying out the coursework.

- ✓ Research candidates may attend classes along with PG candidates of the respective department or allied departments if the subjects prescribed to them are offered in the ongoing PG programs.

- ✓ Candidates are advised to complete the course work prescribed by the DC during the initial one or two semesters of their research program.

- ✓ Candidates, who have been provisionally considered for admission to Ph.D. program after the end of II semester M.Tech., may provisionally be permitted to pursue the Ph.D. coursework along with their M.Tech. project work. The evaluation parameters will be similar to that of R22 academic regulations of the University.

- ✓ The assessment consists of two components (as per R-22 Regulations):
  1. Formative Assessment (Continuous Assessment): 60 Marks
  2. Summative Assessment: 40 Marks
  (a) Term Paper/ Survey work / Capstone Project: 20 Marks
  (b) Written Examination/ Interaction: 20 Marks

- ✓ The resource person awards the marks out of 100 based on the assessment pattern said above, which will be placed before the DC.

- ✓ The DC may fix up the relative threshold value (as per R22 regulation) and may arrive at GPA.

- ✓ The minimum GPA required is 6.0 in all the individual courses.

- ✓ Dean R&D shall coordinate with the office of the Dean AAA in implementing the conduct of coursework and assessment activities in line with R22 academic regulations.

- ✓ On successful completion of the prescribed course work, a Ph.D. candidate shall become eligible to appear for Research Proposal Presentation upon expressed consent by the DC.

7.2.1. Coursework for Candidates with PG Qualification:

Candidates admitted with PG qualification must acquire at least 18 credits as described in the table below.

Type of Course	Credits
Foundation Course	4
Area Specific Breadth Course	4
Area Specific Depth Course	4
Research Methodology	3
Research Documentation	3
Total	**18**

Foundation Course: The relevant course shall be designed specific to the theme of research.

Area Specific Breadth Course: A course covering all essential and supporting academic studies which will enable the candidate to carry out advanced research, in the identified area of research.

Area Specific Depth Course: A high level focused course work appropriate to the chosen area of research.

Research Methodology: A course which contains research orientation aspects pertaining to the specific area of research.

Research Documentation: A course containing aspects pertaining to the documentation of research starting with proposal writing to the thesis writing and beyond.

7.2.2. Coursework for Candidates with UG Qualification:

Candidates admitted with UG qualification must acquire at least 40 credits, out of which 18 credits from the courses mentioned in section 7.2.1 are mandatory and the remaining course work as defined in the table below.

Type of Course	Credits
Area Specific Breadth Courses	14
Area Specific Depth Course	8
Total	**22**

7.3. Research Proposal

- ✓ A candidate is allowed to submit a research proposal only after the completion of his/her prescribed course work, however the candidate has to attend review process and periodic research meetings as and when the DC convenes the meetings.

- ✓ The candidate is expected to defend his/her research proposal after gaining the formal consent of the DC for finalizing the topic of research by generating a report covering the possible statement of the problem, related literature, relevance, importance, and a research plan in the open research proposal presentation.

- ✓ If the candidate feels that, he/she would like to change the topic of research, he/she may be allowed to do so. However, coursework specific to the topic of research and Research Proposal Presentation may have to be registered afresh. Only one restart option could be made available in the entire duration of program. The credit carryover benefit for certain courses/cases may be considered by the DC.

- ✓ **Special Provision:** If a candidate thinks that area of research itself should be changed, his/her case could be considered, under expressed request to the Dean R&D through Head of the concerned department for the approval of the Vice Chancellor to that effect. Only one such re-start may be provided. However, the candidate has to start afresh from the beginning of the first semester. The credit carry over may be considered by the DC.

7.4. Research Progress Reviews

- ✓ The topic of the research work shall be decided and presented in the Research Proposal Presentation (RPP).

- ✓ A research candidate shall submit and present a progress report of research work done by him/her in the prescribed format (Annexure-IV) through the supervisor to the DC every semester. The DC will review the progress of the research candidate and give its feedback.

- ✓ The status of the research progress of a Research Scholar is then forwarded to Dean R&D for necessary action. The progress status may be informed to SRB from time to time. If the research progress is found unsatisfactory for two consecutive DC meetings, the matter shall be reported to SRB which in turn will assess the case individually to decide the continuity of the candidate.

7.5 Duration of the Program

✓ Candidates admitted with PG qualification may submit the thesis only after completing a minimum of two and half years (five semesters) from the date of registration (That is the candidate may submit the thesis in his/her VI semester).

✓ Candidates admitted with UG qualification may submit the thesis only after completing a minimum of three and half years (seven semesters) from the date of registration (That is the candidate may submit the thesis in his/her VIII semester).

7.5.1 Calendar for Submission

The earliest completion of submission	After 2 ½ Years/ 5 semesters
The recommended optimal period of submission	By 4 Years/ 8 semesters
Conventional spillover of one year after 4th year (to be recommended by DC and approved by SRB)	On or before 5 Years/ 10 semesters
Special spillover of one year after 5th year (to be recommended by DC, endorsed by SRB and approved by Vice Chancellor)	On or before 6 Years / 12 semesters

Extraordinary spillover of two years beyond 6 years may be considered for deserving cases in case of unforeseen disabilities (including maternal complications). However, such cases shall be referred to the Academic Council.

7.5.2 Re-registration:

Instead of considering the grant of special extension beyond 6 years, Re-registration may be considered with the same title, however with revised research work plan. In such a case benefit of transfer of completed course work credits will be allowed. In such cases, he/she may be allowed to submit the thesis after some minimum duration as decided by the DC, provided he/she satisfies all the requirements of the thesis submission.

7.6 Publication of research work

✓ The final synopsis shall be accepted only when the candidate acquires at least **12 cumulative research points**. The suggested distribution of research points is given below.

Sl.	Publication	Research points
1	SCI / SCI-E Indexed / ABDC Journals	5
2	Top-Notch Conferences (First Level) (To be approved by SRB)	4.5
3	Top-Notch Conferences (Second Level) (To be approved by SRB)	4
4	SCOPUS / E-SCI Indexed Journal	4
5	Patents Published Patents Granted (To be decided by the DC)	2 3 or 3.5
6	Refereed International Conferences with proceedings containing full version of the paper published by high-class publishers. (To be decided by the DC)	3
7	Other refereed Journals of Repute (To be decided by the DC)	2.0 or 2.5
8	Refereed International Conferences (To be decided by the DC)	1.5 or 2.0
9	Refereed National Conferences(To be decided by the DC)	1 or 1.5

The research scholar should at least have one minimum research point of 4.5 (most preferred is 5).

7.7. Finalization of the Specific Research Title

✓ On Successful completion of the research work, the research scholar in consultation with supervisor and DC shall finalize the Research Title.

✓ The Research Title summarizes the main idea or ideas of the research work.

7.8. Synopsis Submission

The synopsis report may be submitted after fulfilling the following conditions:

✓ Acquired at least 12 Cumulative Research points, as per the requirement, certified by the DC, Supervisor, along with the Co-Supervisor, (if applicable).

✓ Draft thesis should be ready at the time of synopsis submission.

✓ Holistic completion of research work as evidenced by the draft report.

- ✓ If any Research Paper resulting out of the research work contains those names which are other than the names of the Candidate/ Supervisor / Co-Supervisor, then it is obligatory for the candidate to produce a No Objection Certificate from the concerned persons for inclusion of the paper for 12point count.

- ✓ Joint Certificate from the Candidate and the Supervisor, stating that the work being submitted is original and has NOT been submitted elsewhere by them (or any other co-authors involved) for the award of Ph.D. Degree or any other Degree / Diploma.

- ✓ The synopsis report (format provided in Annexure-V) should mainly concentrate on the candidate's work/contribution.

- ✓ The synopsis report, i.e the presentation must cover the following aspects.
  - Objectives and scope of the study
  - Literature survey
  - Identified research gaps based on literature review
  - Problem   formulated
  - Research methodology identified
  - Experimentation/ Data collection/Analysis performed
  - General conclusions drawn
  - Specific contributions and conclusions made
  - Details of publications in journals and conferences
  - Proposed chapterization of thesis layout
  - Further scope of research
  - References

- ✓ The candidate shall submit synopsis report of the Ph.D. work carried out in the prescribed format along with application form to the Dean R&D through the HoD and School Dean.

7.9. Pre-Thesis Colloquium

- ✓ It is mandatory for every candidate, prior to the submission of thesis, to make an open presentation in the Department before the Doctoral Committee, to which all faculty members and other research candidates are to be invited. The feedbackand comments obtained during the Pre-Thesis Colloquium may be suitably incorporated in the synopsis report /thesis in consultation with the Research Supervisor, after due deliberations with the DC.

- ✓ The DC may call for a repeat pre-thesis colloquium if required.

- ✓ After successful presentation of the Pre-Thesis Colloquium and incorporating all the suggestions made, the research candidate may be allowed to submit the Thesis.

7.10. Preparation of Ph.D. Thesis

✓ The thesis shall be prepared in an organized fashion with an account of the original research work of the candidate leading to new techniques or correlation of facts already known (analytical, experimental etc.) and demonstrating a quality as to make a definite contribution to the advancement of knowledge. It should as well exhibit the candidate's ability to undertakeindependent research and present the findings in an appropriate manner with actualaccomplishments of the work, plainly stated and honestly appraised.

✓ The thesis shall be submitted for plagiarism check and the similarity index will be within the acceptable limits.

✓ The thesis shall include a certificate from the concerned Research Supervisor(and co-supervisor, if any) to the effect that the thesis is a recordof *bonafide* research work carried out by the candidate under his / her / their supervision and guidance and that the work reported in the thesis has not been submitted elsewhere for a degree or a diploma. A similar certificate from the candidate is also included in the thesis regarding the authenticity of the work.

7.11. Submission of Thesis

✓ Each Candidate, after completing the necessary formalities, is required to submit his/her e-thesis containing 3D-visualizations/animations/videos along with the duly filled in prescribed application form(Annexure-VI) and the evaluation fee (as fixed by VFSTR) within one month after the date of approval of Pre-Thesis Colloquium.

✓ Two hard copies of the thesis shall be submitted to the Dean R&D in accordance with the format (Annexure-VII) and specifications prescribed.

✓ The candidate shall submit a no dues certificate from all concerned during the submission of the thesis.

8. ADJUDICATION PROCESS, OPEN DEFENSE AND AWARD OF Ph.D. DEGREE

8.1 Adjudication Process

✓ The Supervisor in consultation with DC shall constitute panel of adjudicators as follows.

    a.   A total of nine names shall be suggested, each of whom shall be of an expert

in the area of the thesis to be evaluated. Their expertise should be well evidenced by the documents in support (and kept available with the Supervisor, for perusal if so required by the Vice Chancellor).

    b.   Out of the nine suggested panelists a minimum of four shall be from out of India and the remaining from within India.

    c.   Of the suggested panelists from India, not more than two could be from the combined states of Andhra Pradesh and Telangana.

✓ While approving the names for the evaluation panel, the Vice Chancellor shall indicate order of priority in which Dean R&D shall approach them for their acceptance to evaluate the thesis under consideration, based on the synopsis communicated.

✓ The thesis shall be forwarded by the Dean R&D to two examiners (one from within India and other from out of India), upon their acceptance selected by the Vice Chancellor from the suggested panel of examiners.

✓ The Dean R&D shall take necessary steps to get the reports from the examiners as quickly as possible. The examiners are expected to send their reports in the prescribed format within six weeks from the date of receipt of the thesis. Dean R&D shall remind the concerned examiner beyond which the thesis may be sent to alternate examiner approved/ appointed by Vice Chancellor.

✓ The examiner shall include in his/her report, an overall assessment, in the prescribed format (Annexure-VIII), placing the thesis in one of the following categories:

    a.   Recommended in present form.

    b.   Recommended in edited form (points for editing should be suggested).

    c.   Recommended with minor corrections with addendum after the approval of DC.

    d.   Recommended with major corrections and re-submission after the approval of DC.

    e.   Recommended with major corrections and advised re-submission for the re-adjudication by the concerned examiner.

    f.   Fresh Submission in the time frame as adjudicated by the examiners and as recommended by the DC.

✓ The comments of the external thesis adjudicators shall be sent to the research supervisor as soon as they are received, for necessary action and to prepare an Action Taken Report (ATR).

✓ The Action Taken Report prepared by the candidate for the comments / queries made by the external thesis adjudicators are to addressed during the Oral Defense for their approval. The revised copies of the thesis with the approval of the Doctoral Committee shall be submitted by the Research Scholar to the HoD, Library and Dean R&D for records.

✓ Individual cases not covered by the above clauses shall be referred to the SRB. On deemed fit reasons, the SRB in turn shall refer to the DC, if necessary.

8.2 Open Defense

Open Defense (OD) presentation is the final requirement. The Open Defense Committee (ODC) shall conduct the oral examination of the candidate, after the completion of the public presentation of the thesis work by the candidate. ODC shall have the following composition:

Chairman of DC	- Chairman
Adjudicators of the thesis (At least one of them should also participate in OD presentation)	- Member(s)
Dean R&D or his nominee	- Member
Members of the Doctoral Committee	- Member/(s)

Research supervisor will be the ex-officio member secretary.

After the completion of the OD, the chairman shall formally declare the release of the Ph.D. thesis.

8.3 Award of Ph.D. Degree

✓ Subsequent to the formal consent by the DC, the acceptance of Ph.D. thesis for the award of Ph.D. degree will be approved by the Vice Chancellor.

✓ Upon the formal approval by the Vice Chancellor, provisional result will be notified by the office of Dean, AAA.

✓ The candidate will be eligible to receive the Ph.D. degree in the convocation thereof.

9. FEE PARTICULARS, FINANCIAL SUPPORT AND LEAVE RULES

9.1 Fee particulars

✓ To be decided by the Institute from time to time, but to be the same for all categories of candidates. Timely deposition of the same to the Institute and maintenance of No Dues at all times, shall be the responsibility of candidate till submission of thesis or cancellation of the admission as is the case maybe. If the fee is not paid with in the

stipulated due date, a late fee will be levied. Nonpayment of the prescribed fee beyond the extended due date will lead to the cancellation of admission.

✓ A semester of minimum 16 weeks' duration and of 20 weeks including all semester-end requirements is a full semester.

✓ A semester is called an Active Semester if a candidate enrolls for the semester and registers for full load of credits assigned for that particular semester.

✓ If a candidate does not register for any credits during a semester and would like to avail leave of absence, then such a semester is referred as 'Blank Semester'. Expressed Permission for availing a Blank Semester, is however required to be taken *apriori*, by the candidate from the Supervisor and get registered with the AAA section of the Institute for records purposes. However, for the registration to remain valid and continuous, the candidate shall be required to pay the prescribed fees. Blank Semester Fees is same as the Semester Fees admissible.

9.2 Financial Support

All Internal candidates will be considered for suitable financial support –

✓ Those considered for contractual Assistant Professor positions while pursuing Ph.D studies on a regular basis will be asked to participate in Teaching and Learning process in the department concerned and in a specific 3-4 hours slot per day.

✓ Those considered for TRA (Teaching cum Research Assistantship) will be assigned with only Teaching responsibility in a stipulated slot of 2-3 hours per day.

✓ Those who are exclusively treated as Research scholars will also participate in Teaching and learning process as minimally as would be expected by a Research Scholar.

✓ The financial support schemes will be notified by the university from time to time.

9.3 Leave Rules

✓ All the Research Candidates are eligible for 15 days of casual leave in a calendar year on pro-rata basis. The total period of absence through casual leave should not be more than 10 days at a time. Head of Department, through concerned Supervisor would be the competent authority to sanction the leave.

✓ Medical leave up to 10 days in a calendar year is admissible to Research Candidates on valid medical grounds, with the production of medical certificate issued by authorized medical authority. Registrar, with the recommendation from Supervisor

and Head of the Department, would sanction medical leave for a stretch of maximum 6 days continuous.

✓ Academic Leave of 15 days in a calendar year is permissible to Research Candidates for attending conferences and workshops, with due approval from the Supervisor, Head of the Department and Dean (R&D). 'On Duty' leave may be granted to Candidates for visit / work at other Institutions for carrying out the approved researchwork, with due approval from the Supervisor, Head of the Department and DeanR&D.

✓ In addition, the women candidates may be provided Maternity Leave/Child Care Leave once in the entire duration of Ph.D. for up to 90 days.

10.   CERTAIN CIRCUMSTANCES

10.1 Honorable Exits

✓ Honorable exit option is provided to alleviate the possible disappointment due to incompletion of research work because of unforeseen exigencies.

✓ Candidates admitted with UG qualification can exit with PG Diploma / M.Tech. after five semesters from the date of registration, if he/she fulfills respective credit and publication requirements, subject to the recommendation by the DC in consultation with School Dean, Dean R&D and approval of Vice Chancellor.

✓ Candidates admitted with PG qualification can exit with PG Diploma / M.Tech. after three semesters, if he/she fulfills respective credits and publication requirements, subject to the recommendation by the DC in consultation with School Dean, Dean R&D and approval of Vice Chancellor.

✓ In such cases, all the remaining credit requirement of the PG Diploma/ M.Tech. may have to be completed in a span of one semester. No scholarship will be paid during such duration.

✓ After a due course of time, if the candidate wishes to re-join the Ph.D. program he/she can do so by surrendering the PG Diploma/M.Tech. degrees to VFSTR based on the recommendations of the committee constituted by Vice Chancellor.

✓ On case to case basis either special extension or re-registration may be considered.

10.2. Transfer / Migration of Candidates

Transfer / Migration from a Ph.D. program of other recognized universities / institutions to VFSTR shall be possible only for an eligible candidate, as approved by Vice Chancellor. The School Dean in consultation with concerned head of the

Department shall establish the equivalence of the credits that is eligible to be transferred from the existing University. For such transfer/migration, only the credits for the coursework shall be transferable. Further, such a candidate shall submit a "No Objection Certificate" from the previous University / Research Centre including the Research Supervisor.

Any candidate interested in transferring out or discontinuing the Ph.D. program of the University, before the completion of duration, shall be liable to pay the balance tuition fee for the remaining minimum period of the program. After fulfilling these requirements, the Registrar shall make arrangements to issue a "No Objection Certificate" to such a candidate on the recommendation of the Dean R&D and with the approval of the Vice- Chancellor.

10.3 Termination of Registration

The registration of a research candidate may be cancelled by the Dean R&D, under any one of the following conditions, based on the recommendation of the DC and school Dean with the approval of Vice Chancellor.

✓ Involvement in anti-social activities.

✓ Fails to clear prescribed course work

✓ The progress is not satisfactory for a period of two semesters consecutively.

✓ He/she has not submitted the thesis by the end of the extended period as per prescribed norms.

✓ He / she has not duly registered for any semester.

✓ In case of relocation of Ph.D.. woman candidate due to marriage or otherwise, the research data shall be allowed to be transferred to the University to which the candidate intends to relocate provided all the other conditions in these regulations are followed in letter and spirit and the research work does not pertain to the project secured by the parent institution/ supervisor from any funding agency. The candidate will however give due credit to the parent guide and the institution for the part of research already done.

10.4. Change of Research Supervisor

✓ Any change of Research Supervisor (s) under appropriate request (Format provided in Annexure-IX), either from the Research Supervisor or from the candidate, the DC will evaluate the merit of the case and may recommend the same to the concerned School Dean for approval.

- ✓ When a Supervisor of a candidate happens to be away from the University for more than six months, he/she shall continue to guide the candidate, but a Caretaker Supervisor shall be appointed by the School Dean in consultation with HoD for administrative purpose only.

- ✓ The Supervisor who retires from service shall continue to guide a candidate already registered under him/her provided the provisional registration of the candidate is confirmed, upto a maximum period of one year from the date of his/her retirement on his/her written request.

- ✓ When a Supervisor migrates to other University / Institution, such Supervisors shall be permitted to guide the candidates already registered under him/her provided their provisional registration is confirmed, otherwise an alternate Supervisor shall be nominated by the School Dean based on the request of the Supervisor and the recommendation of the HoD and report the same to Dean, R &D.

- ✓ When a supervisor expires, a new supervisor will be appointed, if necessary, on recommendation of the DC.

10.5 Change of PhD Supervisor at a Late Stage

Guiding PhD students by a supervisor is one of the longest and strongest associations between a student and faculty. It is based on mutual trust and respect, in which a student expects the supervisor to protect his/her interests, and supervisor expects high quality research work. While change of supervisor at early stages is not uncommon and there is a standard process for it, sometimes, due to various reasons, the student-supervisor relationship is formally terminated even at a late stage. If the change of supervisor happens at a late stage when some research has been already done, The guidelines are as follows.

- ✓ Change of the supervisor at a later stage of the Scholar's PhD should be avoided and all attempts should be made to take the relationship to its logical conclusion – namely submission of the thesis. The possibility of having the previous supervisor continue as a co-supervisor should also be explored. Change of supervisor at a later stage should happen only as the last resort.

- ✓ If the scholar continues in the Institute with some other supervisor and does not want to use previous work (e.g., start on a new problem), then this is like the normal change of supervisor, which can follow existing process.

- ✓ If the scholar continues in the Institute with some other supervisor and wishes to use some of the past works in his/her thesis, the following steps will be taken:

- A meeting shall be called between the previous supervisor, new supervisor and the student. They may invite any other faculty member of the department as well. If they can reach an agreement regarding use of previous work and role of previous supervisor (including, for example, him/her remaining as a co-supervisor without being an examiner for the thesis), that agreement will be recorded and followed.

- If the meeting does not result in any agreement, then in the final thesis certificate, contribution of the previous supervisor will be explicitly recorded (e.g., it may be stated that Prof. X was supervisor from date1 to date2, and Prof. Y from date2). If the previous work included in the thesis is substantial, the previous supervisor can also have a claim to be a co-supervisor, without any administrative rights and without being an examiner for the thesis.

✓ In case change of supervisor becomes unavoidable, only then will another faculty member who has successfully supervised at least one Ph.D. scholar will be considered as the supervisor.

✓ If the scholar leaves the Institute, and wishes to use past work in his/her thesis and continue with another supervisor in any university/institute, he/she may approach and seek permission through the new university/institute for use of the works. The Institute will take a view based on IP protection and approval of the previous supervisor.

✓ In case of the unprecedented exit of the supervisor, the possibility of him/her continuing as a supervisor or co-supervisor can be explored. If such an arrangement is not possible or fails for any reason, the scholar can use the previous work in the thesis. In this case, it will be explicitly recorded in the final thesis certificate that the outgoing faculty member was the supervisor from Date1 to Date2.

✓ Other cases not covered by the above, or any exceptions to the above, or any disputes arising in implementing these guidelines, will be brought to the notice of the Vice Chancellor by the Dean R&D. The decision of the Vice Chancellor will be final and binding.

10.6 Regarding IPR issues in Ph.D. Thesis (Arising because of the change of Supervisor)

✓ The problem conceptualization, methodology adopted and work flow formalization along with the research output in the form of publications, concept note, review paper and patent and product, is the sole intellectual

properties of the researcher (candidate and the supervisor).

- ✓ In case of change of supervisor; the problem statement, the methodology adopted and work flow involved in solving the existing research problem and the results and intellectual outcomes in the form of publications, patents, models and product cannot be used by the researcher with the new supervisor.

- ✓ However, in such a case the candidate may continue with the same topic after getting NO OBJECTION CERTIFICATE from the Supervisor. Whilst submitting the thesis the work carried out with the earlier supervisor should be acknowledged.

10.7. Handling of Conflict

- ✓ In case of any conflict between the Research Supervisor and/or Research Co-Supervisor and the candidate, the School Dean, on receipt of request letter from either of the parties or both, shall refer the matter to the Dean R&D. The Dean R&D shall constitute a Conflict Handling Committee duly approved by the Vice Chancellor to examine the case and submit its report to Dean R&D.

- ✓ The committee shall make every effort to salvage the academic program of the candidate while ensuring due credits to the current supervisor in publications, patents and thesis. The same is informed to Vice Chancellor for possible action. The decision of the Vice Chancellor shall be final and binding.

10.8 Discipline and Ethics

- ✓ Every candidate for the Ph.D. programme shall maintain discipline and decorous behaviour both inside and outside the Campus and shall not indulge in any activity that could compromise the reputation of the University. Any act of indiscipline of a candidate shall be referred to the University Discipline Committee for inquiry and necessary disciplinary action, if any.

- ✓ The Registrar, with the approval of the Vice- Chancellor, may suspend a candidate from the programme, pending inquiry based on prima facie evidence.

- ✓ Any act of unethical practices including plagiarism by the candidate (as determined by the concerned Doctoral Committee, School Dean, Dean R&D, the Registrar and the like) shall automatically result in the dismissal of such a candidate from the programme and his/her admission will stand cancelled.

Further, such a candidate shall not be eligible to apply for any programme of study offered by the University.

✓ He /She shall be debarred from registering for any other program in VFSTR. Also, the recognition of his/her guide shall be withdrawn for a period of five years and the guide and co-guide (if any) shall be debarred from guiding the research candidates for any research program in VFSTR till such a period completed

✓ In the event of complaints from any source and the Thesis being proved to be copied, plagiarized, misrepresented academically or the result of any other unethical practices, the University shall have the right to rescind the degree at any time. Such candidates shall not be considered eligible for registering for any programme at the University in the future.

✓ A candidate may appeal against the disciplinary action taken against him/her to the Vice Chancellor, whose decision shall be final and binding.

10.9 Change of Registration status

A candidate admitted to External Registration program may be allowed to change his/her registration to Internal mode on the recommendations of DC in consultation with School Dean and Dean R&D with the approval of Vice Chancellor.

✓ Similarly, a candidate admitted to a Internal Ph.D. Program may be permitted to change his/her registration to External Category based on a request from him/her, provided:

- He/she has completed the prescribed course work.
- The request is endorsed by the supervisor(s) and the DC.

A No Objection Certificate' to be obtained from the Head / Dean of the Institutions / University / Organization in which he / she proposes to join.

10.10. Intellectual Property

A candidate shall not publish his/her Thesis as a whole without specific written permission from the University. Any intellectual property resulting from the research work of the candidate shall be the claimed joint ownership by the candidate, Research Supervisor or Co-Supervisor where applicable, and VFSTR.

10.11. Protection of Action Taken in Good Faith

No suit or other legal proceedings shall lie against any Officer or other employee of the University for anything, which is done in good faith or intended to be done in pursuance of the provisions of these Regulations.

10.12. Bar to Claim damages for Delay

No candidate shall be entitled to claim any damages, whatsoever from the University on the account of late declaration of result, delay in the issue of grade sheets or any other certificates, Thesis evaluation or any other process associated with the examinations or evaluation, or other like cases.

10.13. Interpretation

Any question that may arise regarding the interpretation of these Regulations, shall be decided by the Vice Chancellor, whose decision shall be final and binding. The University shall have the power to issue clarification to remove any doubt, difficulty or anomaly which may arise during implementation of the provisions of these Regulations.

10.14. Power to Modify

Notwithstanding what is mentioned in the above said regulations, the Vice Chancellor reserves the right to modify any part or all of the above from time to time.

Office of Dean R&D
Dr. G. Srinivasa Rao- Dean R&D

✓ Updating Research Policy, Consultancy Policy and IPR Policy
✓ Amendment of Ph.D. Regulations
✓ Monitoring the overall progress on Research activities of University

Area	Name of the Professor assigned with	Responsibilities
, Academic Research	**Joint Dean** Dr. P. Ashok Kumar Professor, Dept. of Chemical Engineering **Assoc. Dean** Dr. A.R. Vijay Babu**,** Assoc. Professor, Dept. of EEE	➢ Encouraging Student Research ➢ Ph.D. admissions & accounting ➢ Post-doctoral admissions & accounting ➢ Conduction and monitoring of Pre. Ph.D. Course work ➢ Intimation of DC meetings ➢ Plagiarism check ➢ Arrangement of Synopsis and ODEC meetings
Sponsored Research and Consultancy	**Joint Dean**, Dr. A. Sivashankar**,** Professor, Dept. of Civil Engineering **Asst. Dean**, Dr. B. Sujit Kumar**,** Asst. Professor, Dept. of Applied Engineering	➢ Coordinating the conduction of National / International Conferences, Seminars, Webinars and Workshops ➢ Research Publications and Awards ➢ Research Communications (H-index, Citations) ➢ Collaborating with Government Research Funding agencies ➢ Collaborating with Research Institutions ➢ Acquiring and Monitoring the progress of consultancy projects ➢ Seed Grants / Advanced SEED grants / Research Incentive Grants for students ➢ Encourage submission of Research proposals
Innovation Ecosystem	**Joint Dean** Dr. B. Nageswara Rao, Professor, Dept. of Mechanical Engineering **Assoc. Dean** Dr. P. Sambaiah**,** Assoc. Professor, Dept. of ECE	➢ Monitoring the faculty to file the patents ➢ Liaison with the patent registration organization ➢ Coordinating the patents filed, published, Granted and commercialized ➢ Organizing the ideation programs ➢ Collecting the infrastructure for incubation the ideas ➢ Interface with industry for show casing the incubated products ➢ Monitoring the progress of collaborative activities ➢ Monitoring the Research Extension activities
Research Promotion	**Joint Dean**, Dr. Y.Ravisekhar**,** Professor, Dept. of ECE	➢ Activation of STEM journal ➢ Monthly Research News Letter ➢ Creation of Research Facilities - COEs, RCs ➢ Collaborating with Industries ➢ Non-Government projects

Extramural Category of Ph.D. Admission

A. Preamble:

The Extramural Research programme in VFSTR offers an opportunity for self-creative and self-motivated working professional to submit their research work for the grant of the Ph.D degree. This programme supports to fulfil the doctorate dreams of researchers, scientists and administrative executives working in various public and private organizations. The employees who have an experience of more than a decade in any priority sector can avail this facility without being away from their professional responsibilities. VFSTR recognizes their contributions in their field of research and facilitates to convert their work into a doctoral research Thesis. Their expertise in their field of study will be valued and the eligible research work can be permitted to submit as a thesis for Ph.D.

B. Eligibility Criteria:

✓ Candidates with PG qualification in respective disciplines of Engineering/Technology/Sciences/Humanities/Management.

✓ Candidates with UG qualification in the disciplines with a minimum of 4 years of UG program such as Engineering/Technology/Agriculture/Medical in respective discipline with a minimum of 60% or equivalent CGPA.

✓ Candidates under this category should have a minimum of 12 years of experience in Industry / R&D Organization/ Academic Institutions / Universities / Organizations.

✓ Candidates should be working in the proposed area of expertise predominantly during the recent 8 years out of 12 years and are eligible to submit Thesis for Ph.D in self mode.

C. Screening of Applications:

✓ The candidate who desires to be considered under the extramural category shall submit detailed synopsis report of the research work carried out during the recent 8 years of his/her professional life along with the application form to the screening board appointed by the Vice-Chancellor.

✓ The synopsis shall be accepted for consideration only if the candidate has acquired at least **14 cumulative research points (Refer section 7.6) in the recent 4-5 years** on the theme of the research as brought out in the synopsis.

✓ The candidates while furnishing the documents pertaining to the compliance of at least 14 cumulative research points, should also submit the letter from the coauthors of the research papers/patents conveying the volunteer willingness in recommending the **said joint work** in getting the research paper/patent as major contribution by the candidate; and therefore he/she has all appreciation to consider the thesis for submission of Ph.D degree in the self-mode.

✓ The screening committee will assess the quality of research work as evidenced by the synopsis, publications/patents and would declare if the application is fit enough to be considered to get the thesis adjudicated for the award of Ph.D in the self-mode.

✓ The candidate has to submit the thesis in the format specified with in a period of **maximum of six months** from the date of approval conveyed by the Dean R&D.
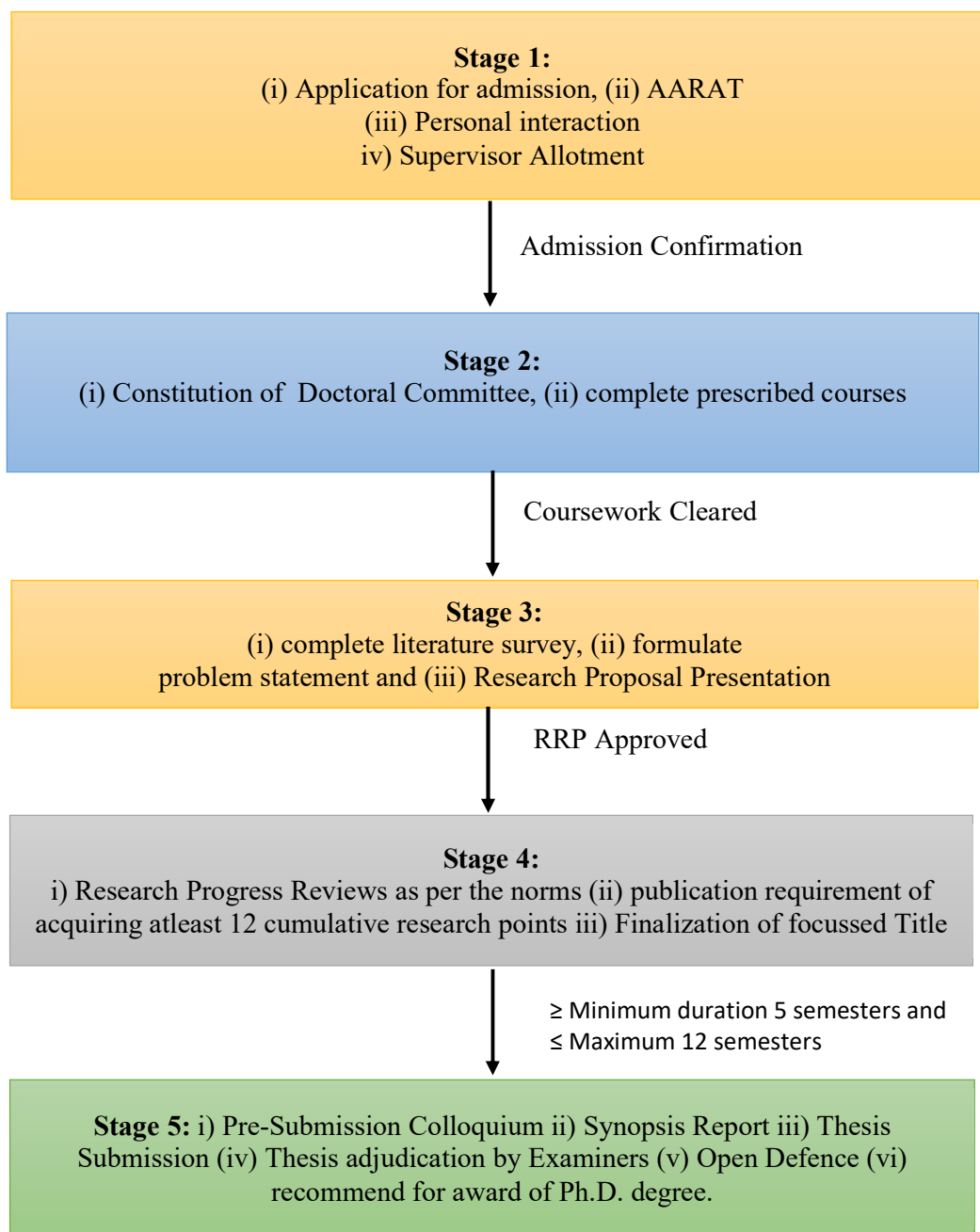
D. Adjudication Process:

✓ For the adjudication process, a total of nine names shall be suggested by the screening committee constituted, each of whom shall be an expert in the area of the thesis to be evaluated. Their expertiseshould be well evidenced by the documents in support (and kept available with the Supervisor, for perusal if so required by the Vice Chancellor).

✓ Out of the nine suggested panelists a minimum of four shall be from out of India and the remaining from within India.

✓ Of the suggested panelists from India, not more than two could be from the combined states of Andhra Pradesh and Telangana.

✓ While approving the names for the evaluation panel, the Vice Chancellor shall indicate order of priority in which Dean R&D shall approach them for their acceptance to evaluate the thesis under consideration, based on the synopsis communicated.

✓ The thesis shall be forwarded by the Dean R&D to four examiners (at least one from out of India), upon their acceptance selected by the Vice Chancellor from the suggested panel of examiners.

✓ Out of 4 examiners, at least three examiners should recommend the thesis for awarding the Ph.D Degree.

✓ If only two examiners have recommended the acceptance of the thesis, then the thesis will be sent to two more examiners for adjudication. Overall, at least three examiners should recommend the acceptance of the thesis for the award of Ph.D degree. Otherwise, the candidate may be given a suitable time extension, as suggested by the examiners to revise the thesis and resubmit the same as a fresh thesis. The evaluation details are in accordance with section 8.1 of R22 Ph.D regulations.

E. Fee Structure:

The application and processing fee will be decided from time to time. However at this point of time they are stated as below.

S.No	Particulars	Amount (Rs.)
1	Application Fee (at the time of submitting the synopsis for consideration)	**Rs. 50,000/-**
2	Processing Fee (after the acceptance is conveyed by the screening committee)	**Rs. 1,00,000/-**
Total		**Rs.1,50,000/-**

Annexure-III

FLOW OF Ph.D PROGRAMME

Stage 1:
(i) Application for admission, (ii) AARAT
(iii) Personal interaction
iv) Supervisor Allotment

↓ Admission Confirmation

Stage 2:
(i) Constitution of Doctoral Committee, (ii) complete prescribed courses

↓ Coursework Cleared

Stage 3:
(i) complete literature survey, (ii) formulate
problem statement and (iii) Research Proposal Presentation

↓ RRP Approved

Stage 4:
i) Research Progress Reviews as per the norms (ii) publication requirement of acquiring atleast 12 cumulative research points iii) Finalization of focussed Title

↓ ≥ Minimum duration 5 semesters and
≤ Maximum 12 semesters

Stage 5: i) Pre-Submission Colloquium ii) Synopsis Report iii) Thesis Submission (iv) Thesis adjudication by Examiners (v) Open Defence (vi) recommend for award of Ph.D. degree.

Annexure-IV

Research Progress Review- Report

BRANCH	
Date of meeting	

PART – A

(To be filled by student and verified by supervisor)

1. Name of the Student & Roll Number :

2. Mode of registration (FT/PT/External) :

3. Month & Year of Joining :

4. Name of the Supervisor & Affiliation :

5. Name of the Co-Supervisor (if any)
   & Affiliation :

6. Proposed Area / Title of Research :

7. Fee dues :

8. Details of the course work:

S.No.	Code No.	Course Name	Result (Pass / Fail) with grade
1			
2			
3			
4			
5			

9. Previous 'Doctoral Committee' meeting details:

   No. of 'Doctoral Committee' meetings attended
   till now

   Date of previous 'Doctoral Committee' meeting

   Result of previous 'Doctoral Committee'

10. Progress report (as per enclosed format) to be attached:

Signature of the Student   **Signature of the Supervisor**

Research Progress Review- Report
PART – B

(For Department use)

Name of the Student & Roll Number   :

Results of 'Doctoral Committee' meeting   :   Satisfactory   ☐

Not Satisfactory ☐

Remarks of DC members:

Signatures of 'Doctoral Committee' members.

S. No.	Name and Designation of the member	Designation & Affiliation	Signature of the member
1	Expert from within or outside university: (Chairman)		
2	HoD (Ex-offcio member)Internal Dept., Expert:		
	Research Supervisor (Member Secretary & Convener)		
3	Research Co supervisor		
4	HoD's Nominee		
5	School Dean Nominee/ Inter School expert		

Board of Research Member   **Head of the Department**

Doctoral Committee Report – Regular reviews - Part C

Progress report

Branch: **Registered No:**

Student Name:

A. Brief description of the work done before previous 'Doctoral Committee' meeting (maximum 1 page).

B. Details of work done after previous 'Doctoral Committee' meeting (maximum 4 pages).

C. Conferences attended, papers communicated, papers accepted and papers published (maximum 1 page).

Signature of the student

Date:

Add copies of proofs.

(Note: *4 copies of the technical document along with Part A are to be prepared (type written only) for student, supervisor, department and R&D section. The report should be stapled and light blue taped, equidistant on both sides, and submitted along with Part B.)*

Guidelines for preparation of Synopsis Report **Annexure-V**

SYNOPSIS OF

\<Title of the work – TNR – 16 font size - Bold>

A THESIS

to be submitted by

\<Name of the student – TNR – 12 font size -Bold >

for the award of the degree

of

Doctor of Philosophy

\<Name of the School – TNR – 12 Font size – All caps – Bold>
\<Name of the Department – TNR – 12 Font size – All caps – Bold>
VIGNAN'S FOUNDATION FOR SCIENCE, TECHNOLOGY & RESEARCH
(Deemed to be University), VADLAMUDI
GUNTUR – 522 213, ANDHRA PRADESH, INDIA

\<Month, Year>

1. INTRODUCTION
<sample text is given here. Use Times new Roman Font with 12 size>.

In general, any component failure starts at the surface due to either an isolated manufacturing discontinuity or gradual deterioration of the surface quality. One of the important parameters contributing to the surface integrity of components is the surface roughness. Surface roughness is an important indicator of product quality in addition to dimension and form. In manufacturing, surface finish must be maintained very much within the designer's specifications as it has direct influence on many of the fundamental requirements such as the load bearing strength of the assemblies, fatigue strength, coating/plating of surfaces etc. Surface roughness is a vital indication of the quality of machined work pieces and the manufacturing process as well (Al-Kindi et al, 1992).

But there are certain disadvantages of this contact mechanical stylus instrument which include the possibility of surface/stylus damage due to wrong handling and longer inspection time etc. (Kiran et al, 1998, Gupta et al, 2001).

A computer is then used to process and analyze the images based on the intended application, often by trying to recognize a pattern or by making a measurement.

2. MOTIVATION
<sample text is given here. Use Times new Roman Font with 12 size>.
Over the years, the non-contact optical methods have attracted researchers' attention for the assessment of surface roughness. Most of the methods are based on statistical analysis of grey-level images in the spatial domain.

3. OBJECTIVES AND SCOPE OF THE PRESENT WORK
The objectives of the present work are
1. <Objectives are mentioned here. Use TNR Font with 12 size, all objectives numbered>.
2. Estimation of optical surface roughness parameters of inclined components using images.
3. Prediction of surface roughness of inclined component using ANN, ANFIS and GMDH.
4. Use of shadow detection and removal algorithm on images of inclined components.
5. Analysis of effect of shadow on smooth and rough surfaces with particular reference to inclined components.

4. DESCRIPTION OF THE RESEARCH WORK
4.1. <Sub heading – TNR – 12 font size – capitalize each word - bold>
<sample text is given here. Use Times new Roman Font with 12 size>.

A rough surface in general is expected to have more shadows in the image. It causes the light to scatter in all directions. While a perfectly smooth surface is likely to have more brightness and less shadow, reflect light more uniformly in the same direction confining to a small narrow region. Shadows occur either at places where the path from the light source is blocked or on the surfaces which are oriented away from the light source.

4.1.1 <Sub-sub heading – TNR – 12 font size – sentence case - bold>
<sample text is given here. Use Times new Roman Font with 12 size>.

The schematic diagram of the machine vision system is shown in fig. 2. The basic experimental set-up consists of a vision system (CCD camera: Pulnix -TM6, 768 x 565 pixels) and an appropriate lighting arrangement. Illumination of the specimens was accomplished using a diffused white light source, which is kept at an angle of approximately 45° incidence with respect to the specimen surface as shown in fig. 2.

4.1.2 <Sub-sub heading – TNR – 12 font size – sentence case - bold>
<sample text is given here. Use Times new Roman Font with 12 size>.

The most important requirement in roughness assessment using machine vision is to extract the roughness parameters of surfaces using images. In this work, surface roughness parameters are extracted based on statistical parameters using histogram, spatial frequency domain, grey level co-occurrence matrix etc.

4.1.2.1. <Sub-sub-sub heading – TNR – 12 font size – sentence case - bold>
<sample text is given here. Use Times new Roman Font with 12 size>.

The intensity distribution of the pixels (grey level histogram) of images is plotted. Based on the statistical parameters associated with each histogram, calculations were made to determine the roughness parameters were estimated.

Optical Roughness Parameter, R

$$R = \frac{SD}{RMS}$$, Where SD is standard deviation of the distribution, RMS is root mean square height of the distribution.

Average grey level coefficient, α

$$\alpha_{cell} = \sqrt{\sum (F_{m,n} - F_{i,j})^2 / (8F_{av})}$$

$(m, n) = (i, j-1), (i, j+1), (i+1, j), (i+1, j-1), (i+1, j+1), (i-1, j), (i-1, j-1)$ and $(i-1, j+1)$

$F_{av} = \sum F_{m,n} / 8$, and α for whole image is given by $\alpha = \sum_{1}^{N} \alpha_{cell} / N$

4.1.3. <Sub-sub heading – TNR – 12 font size – sentence case - bold>
<sample text is given here. Use Times new Roman Font with 12 size>.

With nine test samples and twelve varying angles of inclinations as indicated, 117 combinations are possible and all of them have been used for estimation. Roughness parameters are then calculated for all the 9 test specimens at different angles of inclination (0°-12°). The input and output data are separated into training and testing sets. Out of 117 images 94 are used for training and remaining 23 are used for testing. The selection of testing and training data is based on the work done and the results obtained by earlier researchers.

4.2. <Sub heading – TNR – 12 font size – capitalize each word - bold>
<sample text is given here. Use Times new Roman Font with 12 size>.

Traditional pre-processing algorithms do not specifically consider shadows present in an image. But this is particularly crucial for the roughness estimation of the specimens as they are likely to have an inclination with the horizontal during imaging. Therefore, it is essential to possibly remove shadows present, if any, due to such inadvertent inclinations or due to high/low illumination. Several algorithms for shadow detection and removal exist in the literature (Finlayson et al, 2002 and Levin et al, 2005). While removing the shadow from an image, it is important to consider the application for which the pre-processing is carried out. In this case, the requirement is to extract meaningful information from an image representing the surface texture. It is necessary to obtain the resulting image, which is shadow free and contains the details present in the original image without any loss of information.

5. CONCLUSIONS
<sample text is given here. Use Times new Roman Font with 12 size>.

In general, it has been observed that imaging of surfaces to evaluate the surface finish of components have problems such as illumination, inclination of the components etc.

Therefore, it is understood that the proposed methodology in this work can be applied for evaluation of surface roughness using machine vision approach in a much-improved fashion.

REFERENCES
<All references should be alphabetically arranged. A few examples of formats of references are given below and the student should be consistent in following the style>

Journals
Exner, H.E. (1979). Physical and Chemical Nature of Cemented Carbides, *International Metals Review*, 24, 149-173.
Spriggs, G. E. (1970). The Importance of Atmosphere Control in Hard Metal Production, *Powder Metallurgy*, 13 (26), 369-393.

Conference Proceedings
Fischmeister, H. F. (1982). Development and Present Status of the Science and Technology of Hard Materials, *Science of Hard Materials*, R.K. Viswanadham, D.J. Rowcliffe, and J. Gurland (eds.), Plenum Press, New York, NY, USA, 1-45.
Baek, W. H, Hong, M. H, Lee, S and Chung, D T. (1995). A Study on the Shear Localization Behavior of Tungsten Heavy Alloy, *Tungsten and Refractory Metals*, A. Bose and R.J. Dowding (eds.), Metal Powder Industries Federation, Princeton, NJ, USA, 463-471.
Books
German R. M. (1994). Powder Injection Molding, Metal Powder Industries Federation, Princeton, NJ, USA, 1990.
Thesis
Johnson, J. L. (1994). Densification, Microstructural Evolution, and Thermal Properties of Liquid Phase Sintered Composites, Ph.D. Thesis, The Pennsylvania State University, University Park, PA, USA.
Technical Reports
Zukas, E.G, Rogers, P. S. Z and Rogers, R. G. (1992). Experimental Evidence for Spheroid Growth Mechanisms in the Liquid Phase Sintered Tungsten Based Composites.
Patents
Oenning, V and Clark, I. S. R. (1991). Tungsten skeleton structure fabrication method, U. S. Patent No. 4988386.
Journals in Non-English Language
Weihong, L and Xiuren, T. (1988). Tungsten Matrix in Cu-W Contact Materials by Impregnation Process, *Powder Metallurgy Technology*, 6 (8), 1-4. (in Chinese)

PROPOSED CONTENTS OF THE THESIS
<The chapter headings with sub/sub-sub headings to be mentioned here. A sample is provided>
CHAPTER 1   Introduction
      1.1 General
      1.2 Surface roughness evaluation
      1.3 Machine vision approach
      1.4 Objectives and scope of the present work
      1.5 Organization of the thesis

PUBLICATIONS BASED ON THIS RESEARCH WORK

<u>**Refereed International Journal:**</u>

<Publications came out of the thesis (only the published and accepted papers) to be mentioned here. Example is shown below>

➢ Nevin, A. (1990). The changing of teacher education special education. *Teacher Education and Special Education: The Journal of the Teacher Education Division of the Council for Exceptional Children*, 13(3-4), 147-148.

<u>**International Conference:**</u>

➢ Priya, P and Ramamoorthy, B. (2006). Surface Roughness Analysis of Inclined Components Using Machine Vision, *International Conference on Global Manufacturing and Innovation (GMI-2006)*, CIT Coimbatore, INDIA.

➢ Priya, P and Ramamoorthy, B. (2006), Roughness Estimation of Inclined Surfaces Using Artificial Intelligence, *18th IMEKO World Congress, Metrology for Sustainable   Development,* Rio de Jeneiro, Brazil.

➢Priya, P and Ramamoorthy, B. (2006), Surface Roughness Assessment of Inclined Components Using Machine Vision and Adaptive Neuro Fuzzy Inference System, *22nd AIMTDR Conference*, IIT Roorkee, INDIA, pp 163-168.

<All figures and tables to be kept after the text. Figures to be named below and tables above.>

(a) Flat and horizontal rough surface. (b) Inclined rough surface.

(c) Flat and horizontal smooth surface. (d) Inclined smooth surface.

Fig. 1 Illustration of creation of shadow on rough and smooth surfaces.

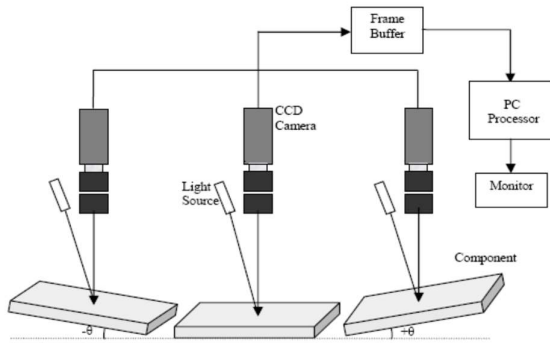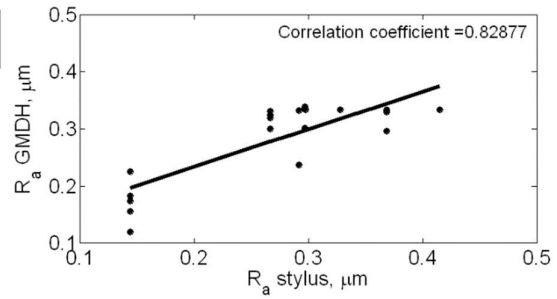**Fig. 2** Schematic diagram of the machine system.

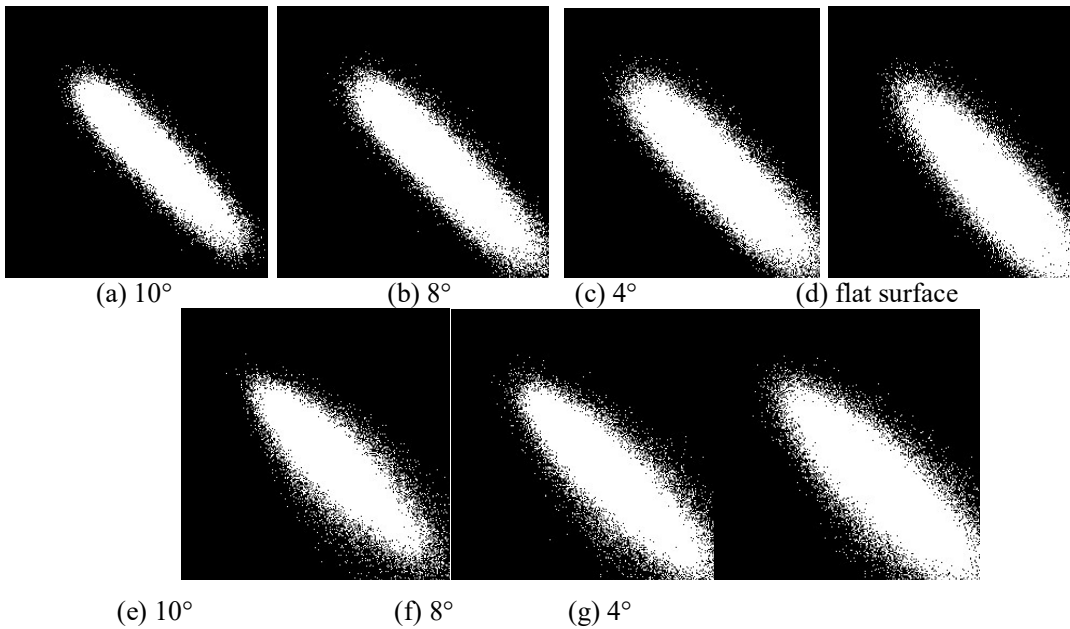**Fig. 3** Relationship between calculated R_a vision values using GMDH and stylus R_a values.

(a) 10°   (b) 8°   (c) 4°   (d) flat surface

(e) 10°   (f) 8°   (g) 4°

Fig. 4 2D plots of GLCM (a), (b), (c), (d) before shadow removal and (e), (f), (g) after shadow removal at varying inclination

General Instructions:

a. Letters type - Times Roman, Font size 12, single spacing

b. Number of pages 14 to maximum of 20.

c. The first page to be precisely followed as shown.

d. Literature survey – must contain points related to the thesis and suitably added with comments.

e. Reference of the literature has to shown in the text as given – to be followed as a standard.

f. References in the end are to be given in the alphabetical order. All the references MUST be referred in the text.

g. All the Equations, figures, graphs, charts and tables are to be numbered, Fig 1, Fig 2… Table 1, Table 2, … and referred in the text.

h. All the figures, graphs, charts and tables titles must be self-explanatory, Figure titles should appear at the bottom and the Table titles at the top.

i. At the time of Synopsis meeting, rough draft of the thesis must be presented to the committee. The thesis MUST be submitted within one month from the date of approval of the synopsis.

j. It is suggested that the Tables, figures etc are to be given in the end to adjust and minimize the space and number of pages.

k. Guide MUST present the list of examiners (5 Indian and 5 foreign examiners) to the committee for approval.

l. Synopsis report in the prescribed format to be stapled and taped with green color for submission.

Ph.D

Application form for submission of Ph.D. Thesis for Examination

Name of the Candidate: ………………………………………………………..
Reg No.
Branch:
Title of the Thesis:

Please affix your photograph duly attested by the HOD

Address of the candidate:

Signature of the candidate:

E mail:
Phone No.

The student has completed all the requirements for the submission of Ph.D. Thesis.

Signature of Co-guide & address   **Signature of the Guide & address**

E mail: **E mail:**

Phone No   **Phone No.**

Enclosures:
1. Synopsis viva minutes and Action Taken Report.
2. Copies of marks memos.
3. Thesis copies – 2 nos.
4. Synopsis copies – 2 nos.
5. Panel in sealed cover.
6. Thesis Evaluation fee receipt.
7. Approved No dues form

Receipt to be given to candidate by D.E.O

Received the application along with fee challan from student bearing Regd.
No._____ on _____

Fee paid	:		**Challana No**	**:**
Date	:		**Jr. Asst. Signature**	**:**
			(R&D Section)	

Guidelines for preparation of Thesis　　　　　　　　　　**Annexure-VII**

<Title of the thesis – all caps - Times New Roman 15 font size>

A THESIS

submitted by

<Name of the student – Times New Roman – 15 font size>

for the award of the degree

of

DOCTOR OF PHILOSOPHY

Under the guidance of

<Name of the Guide – Times New Roman – 15 font size>

<Name of the School – TNR – 12 Font size – All caps – Bold>
<Name of the Department – All Caps – Times New Roman – 12 Font size>

VIGNAN'S FOUNDATION FOR SCIENCE, TECHNOLOGY AND RESEARCH (Deemed to be University), VADLAMUDI
GUNTUR – 522 213 ANDHRA PRADESH, INDIA

<Month Year – Times New Roam – 15 Font Size>

Dedicated

to

<candidate's choice!>

DECLARATION

I certify that

a. The work contained in the thesis is original and has been done by myself under the general supervision of my supervisor.
b. I have followed the guidelines provided by the Institute in writing the thesis.
c. I have conformed to the norms and guidelines given in the Ethical Code of Conduct of the Institute.
d. Whenever I have used materials (data, theoretical analysis, and text) from other sources, I have given due credit to them by citing them in the text of the thesis and giving their details in the references.
e. Whenever I have quoted written materials from other sources, I have put them under quotation marks and given due credit to the sources by citing them and giving required details in the references.
f. The thesis has been subjected to plagiarism check using a professional software and found to be within the limits specified by the University.
g. The work has not been submitted to any other Institute for any degree or diploma.

(<Name of the student>)

CERTIFICATE

This is to certify that the thesis entitled **<Title of the thesis – Times New Roman – 12 Font size – all caps>** submitted by **<Name of the students - Times New Roman – 12 Font size – all caps>** to the Vignan's Foundation for Science, Technology and Research (Deemed to be University), Vadlamudi. Guntur for the award of the degree of **Doctor of Philosophy** is a bonafide record of the research work done by him under my supervision. The contents of this thesis, in full or in parts, have not been submitted to any other Institute or University for the award of any degree or diploma.

ACKNOWLEDGEMENT

I would like to acknowledge my deep sense of gratitude to my supervisor _____ Department of _____, Vignan's Foundation for Science, Technology and Research (Deemed to be University), Vadlamudi, Guntur, for his constant valuable guidance and encouragement. He gladly accepted all the pains in going through my work again and again and gave me opportunity to learn essential research skills. This thesis would not have been possible without his insightful and critical suggestions, his active participation in constructing right models and a very supportive attitude. I will always remain grateful to him for giving direction to my life.

I express my sincere thanks to _____, Vice Chancellor, _____, Head of the Department of _____ for providing the necessary facilities for carrying out the research work. I would like to thank the doctoral committee panel, _____, _____, _____ for providing me with their suggestions.

I would like to express my heartiest thanks to my colleague _____ for valuable comments, suggestions and discussions. I am grateful to _____ for his uncountable help during the hardware implementation in cadence Lab despite of his numerous duties and busy schedule.

I would like to acknowledge the support of my parents and my sisters for their continuing support and encouragement.

\<Name of the candidate\>

(This is just a sample only. The candidate is free to include his acknowledgement)

ABSTRACT

<Title of the thesis – Times New Roman – 14 font size – all caps>

<Brief description of the work – Times New Roman – 12 Font Size> Not to be more than 1.5 pages. A sample is given below:

Surface topography of cylinder liner surface plays a major role in determining friction, wear, lubrication and sealing tightness of the piston assembly which in turn affects the running performance, emissions and longevity of the automotive engines. The cylinder liner surfaces can be considered as engineered surfaces as the 'run-in' engine surface behaviour is generated during the manufacturing stage itself using a three-stage honing process. Plateau honing process is used to generate different layers of surface geometric structure with deep valleys which are meant for oil retention and relatively smooth surface geometry on the top that serves as the bearing contact for the piston ring sliding. The cross hatched honing angle generated on the surface as a consequence of the honing process mechanics is also a tribologically significant parameter. The resultant surfaces are currently characterized using multiple surface topographical parameters such as Abbott-Firestone curve parameters namely reduced peak height (Rpk), core roughness depth (Rk), reduced valley depth (Rvk), material ratio at the peak zone ($Mr1$) and material ratio at the valley zone ($Mr2$) and honing angle.

KEYWORDS: <Times New Roman – 12 Font Size – minimum 4 key words>

CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF SYMBOLS AND ABBREVIATIONS

$^\circ$	Degree
ω	Angular Velocity, rad/s
s	Second
σ	Horizontal Stress, N/m^2
CC	Current Conveyor
CC-CDBA	Current controlled Current Differencing Buffered Amplifier
CCCDTA	Current controlled Current Differencing Transconductance Amplifier
CCII	Second-Generation Current Conveyor
CDBA	Current Differencing Buffered Amplifier
CDTA	Current Differencing Transconductance Amplifier

(This is sample only)

<div align="right">**CHAPTER I**</div>

INTRODUCTION

1.1 <Sub heading – Times New Roman – 12 Font Size – each word capitalized -bold>

<text matter in times new roman font – 12 size>

1.1.1   <Sub-sub heading – Times New Roman – 12 Font Size – Sentence case-bold>

<text matter in times new roman font – 12 size>

1.2 <Sub heading – Times New Roman – 12 Font Size – each word capitalized -bold>

<text matter in times new roman font – 12 size>

1.X Thesis Objectives

<text matter in times new roman font – 12 size>

1.XX Organization of Thesis

<text matter in times new roman font – 12 size>

<div align="right">**CHAPTER II**</div>

<Name of the chapter – TNR-16 Font size-all caps-bold>

1.3 <Sub heading – Times New Roman – 12 Font Size – each word capitalized -bold>

<text matter in times new roman font – 12 size>

1.3.1   <Sub-sub heading – Times New Roman – 12 Font Size – Sentence case-bold>

<text matter in times new roman font – 12 size>

1.4 <Sub heading – Times New Roman – 14 Font Size – each word capitalized -bold>

CHAPTER XX

CONCLUSIONS AND SCOPE FOR FUTURE WORK

1.5 \<Sub heading – Times New Roman – 12 Font Size – each word capitalized -bold\>

\<text matter in times new roman font – 12 size\>

1.5.1   \<Sub-sub heading – Times New Roman – 12 Font Size – Sentence case-bold\>

\<text matter in times new roman font – 12 size\>

1.6 \<Sub heading – Times New Roman – 14 Font Size – each word capitalized-bold\>

\<text matter in times new roman font – 12 size\>

REFERENCES

\<All references to be formatted as shown below examples. All references need to be mentioned in the text. It should be arranged alphabetically.\>

Nevin, A. (1990). The changing of teacher education special education. *Teacher Education and Special Education: The Journal of the Teacher Education Division of the Council for Exceptional Children*, 13(3-4), 147-148.

Priya, P and Ramamoorthy, B. (2006), Roughness Estimation of Inclined Surfaces Using Artificial Intelligence, *18th IMEKO World Congress, Metrology for Sustainable Development,* Rio de Jeneiro, Brazil.

Priya, P and Ramamoorthy, B. (2006), Surface Roughness Assessment of Inclined Components Using Machine Vision and Adaptive Neuro Fuzzy Inference System, *22nd AIMTDR Conference*, IIT Roorkee, INDIA, pp 163-168.

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BIBLIOGRAPHY

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Baek, W.H., Hong, M. H., Lee, S and Chung, D. T. (1995). A Study on the Shear Localization Behavior of Tungsten Heavy Alloy, *Tungsten and Refractory Metals,* A. Bose and R.J. Dowding (eds.), Metal Powder Industries Federation, Princeton, NJ, USA, 463-471.

German, R. M. (1994). Powder Injection Moulding, Metal Powder Industries Federation, Princeton, NJ, USA, 1990.

Spriggs, G. E. (1970). The Importance of Atmosphere Control in Hard Metal Production, *Powder Metallurgy*, 13 (26), 369-393.

Zukas, E. G., Rogers, P. G. Z and Rogers, R. S. (1972). Experimental Evidence for Spheroid Growth Mechanisms in the Liquid Phase Sintered Tungsten Based Composites.

APPENDIX A

<Table/data in TNR Font – 12 size>

SPECIFICATIONS OF TRACTOR AND IMPLEMENTS

A1. Major specifications of the selected tractor

Parameter	Specification
Model	E 3.342, Water cooled
Operation cycle	Three cylinder, 4 stroke
Rated power, hp	47 (35 kW)
Speed at rated power, rpm	2200
Maximum torque at engine, kg-m	18 at 1400-1600 rpm
Bore and stroke, mm	110 x 120
Displacement, cc	3420
Steering type	Bevel pinion with sector gears
No of forward speeds	Ten
No of reverse speeds	Two
Mass of tractor without ballast, kg	1890
Seat	Adjustable, parallelogram suspension

A2. Major specifications of the selected implements

Parameter	Specification
MB Plough	
Type of Implement	Mounted type
No. of plough bottom	2
Width of cut, mm	400
Depth of operation, mm	180
Weight of implement, kg	215
Disk harrow	
Type of Implement	Mounted type
No. of gang	02
No. of disk per gang	07
Width of cut, mm	240
Diameter of disc, mm	510
Depth of operation, mm	90
Weight of implement, kg	285
Rotavator	
Type of Implement	Mounted type
No. of Tynes	30
Type of rotary Blade	L shape
Width of cut, m	1.3
Weight of implement, kg	260

PUBLICATIONS BASED ON THIS RESEARCH WORK

Refereed International Journal:

- Priya, P and Ramamoorthy, B. (2007). The Influence of Component Inclination on Surface Finish Evaluation Using Digital Image Processing, *International Journal of Machine Tools and Manufacture*, 47, 570-579.

International Conference:

- Priya, P and Ramamoorthy, B. (2006), Surface Roughness Analysis of Inclined Components Using Machine Vision, *International Conference on Global Manufacturing and Innovation (GMI-2006),* CIT Coimbatore, INDIA.
- Priya, P and Ramamoorthy, B. (2006), Roughness Estimation of Inclined Surfaces   Using Artificial Intelligence, 18th *IMEKO World Congress*, Metrology for Sustainable Development, Rio de Jeneiro, Brazil.

(Published / accepted papers only should be mentioned here)

Annexure-VIII

Adjudicator's check sheet – Ph D
(Sign on every page of the report)

Name of the candidate   :

Department   :

Register No   :

Title of the thesis   :

(Please tick [ ] wherever appropriate)

1.   Recommended in present form   ☐

2.   Recommend in edited form (points for editing should be suggested)   ☐

3.   Recommend with minor corrections with addendum after the approval of DC ☐

4.   Recommend with major corrections and re-submission after the approval of DC ☐

5.   Recommended with major corrections and advised re-submission for the re-   ☐
      adjudication by the concern examiner.

6.   Fresh Submission in the time frame as adjudicated by the examiners and as ☐
      recommended by the DC .

I grade the thesis as:

    HIGHLY COMMENDED   ☐

    COMMENDED   ☐

Signature with date   :

Name and address of the examiner   :

Report on the thesis (attach additional sheet, if necessary)

Name of the candidate   :

Title of the thesis   :

Date of receipt of the thesis   :

<u>Detailed report</u>   :

<u>Bank details of the Adjudicator for payment of remuneration</u>

Kindly furnish the following details correctly, for in time payment of remuneration and submit along with the evaluation report.

Account holders Name	:
Address	:
Account Number	:
Bank Name	:
Branch	:
Bank Locality	:
Bank Area	:
Swift code	:
City Name	:
State Name	:
Country Name	:
IFSC Code	:
Zip Code	:
Country	:
IBAN	:
Any other relevant details	:
Signature of Examiner	:
Date	:
Name & Address of Examiner	:

Annexure-IX

OFFICE OF RESEARCH AND DEVELOPMENT
APPLICATION FOR CHANGE OF SUPERVISOR

1. Name of the Research Scholar   : _____

2. Address   : _____

3. Reg No   : _____

4. Date of admission into Research Program   : _____

5. (a) Name of the Research Program   : Ph.D./M. Phil/ M.S (tick relevant one)

   (b) Faculty in which Candidate Registered : _____

6. Name of the existing Supervisor with designation & address:

   _____

   _____

7. Name of the new Supervisor with designation & address:

   _____

   _____

8. Brief of progress of Research work Supervisor(s)   : Attach separate Sheet, to be signed by candidate and
   :

9. Bio-data of the New Supervisor(s)   : Enclosed / Not enclosed

10. Reasons for Change of Supervisor   :

   _____

   _____

I hereby accept to work under the new supervisor and I understand that any further request for change of supervisor will not be permitted by the University.

The following enclosures are to be made along with this application in addition to the above.
a) Admission letter b) Fee Receipts c) Pre-Ph. D. Mark Memo d) Resume of Proposed to be Supervisor and (his/ her) Publications

Signature of the Research Scholar

I have No objection for change of Supervisor   **I accept to act as Supervisor**

Signature of existing Supervisor with seal   Signature of New Supervisor with seal

Recommended   BoR Member   Head   Dean (R&D)

Approved

<u>OFFICE OF RESEARCH AND DEVELOPMENT</u>
APPLICATION FOR CHANGE/ ADDITION OF SUPERVISOR

1. Name of the Research Scholar   : _____

2. Address   : _____

3. Reg No   : _____

4. Date of admission into Research Program   : _____

5. (a) Name of the Research Program   : Ph.D./M. Phil/ M.S (tick relevant one)

    (b) Faculty in which Candidate Registered : _____

6. Name of the existing Co-Supervisor with designation & address :

    _____

    _____

7. Name of the new Co-Supervisor with designation & address:

    _____

    _____

8. Brief of progress of Research work   : Attach separate Sheet, to be signed by candidate and
    Supervisor(s)   :

9. Bio-data of the New Co-Supervisor   : Enclosed / Not enclosed

10. Reasons for Change / Adding of Co-Supervisor   :

    _____

    _____

I hereby accept to work under the new Co-Supervisor and I understand that any further request for change of supervisor will not be permitted by the University.

The following enclosures are to be made along with this application in addition to the above.
a) Admission letter b) Fee Receipts c) Pre-Ph. D. Mark Memo d) Resume of Proposed to be Co-Supervisor and (his/ her) Publications

Signature of the Research Scholar

I have No objection for change of Co-Supervisor   **I accept to act as Co-Supervisor**

Signature of existing Co Supervisor   Signature of New Co-Supervisor
with seal   with seal

Recommended   BoR Member   Head   Dean (R&D)

Approved