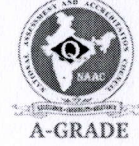


Phone: Off: +91-40-23158665
Fax: +91-40-23158665
Web : www.jntuh.ac.in
E Mail: pa2registrar@jntuh.ac.in



ACCREDITED BY NAAC



**PROCEEDINGS OF THE
JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD**

(Established by Govt. Act No. 30 of 2008)

Kukatpally, Hyderabad – 500 085, Telangana (India)

Present: Dr. M Manzoor Hussain

Registrar

Procds. No. JNTUH/DRD/Estt. of Research Centre/99/2022, Dt. 03-06-2022

Sub: Recognition of Sri Indu College of Engineering & Technology as
Research Centre under JNTUH – Reg.

Ref: Note orders of Hon'ble Vice Chancellor, Dt. 03-06-2022.

Vide reference cited based on recommendation of the Committee, the University accords recognition to Sri Indu College of Engineering & Technology as Research Centre in the following departments for a period of three years (i.e., 2022-2025).

1. Computer Science & Engineering


The Research Centres of the department recognized shall follow all the rules and regulations as prescribed in the **Guidelines for Establishment of Research Centre** of Jawaharlal Nehru Technological University Hyderabad. (Available in www.jntuh.ac.in)


REGISTRAR

To
The Principal,
Sri Indu College of Engineering & Technology,
Sheriguda (V), Ibrahimpatnam (M),
Ranga Reddy Dist – 501 510,
Telangana State.

Copy to: P.A. to Vice-Chancellor.
Copy to: P.A. to Rector.
Copy to: DRD file.
Copy to: Director, Admissions.




PRINCIPAL
Sri Indu College of Engineering and Technology
(V): SHERIGUDA-501 510,
Ibrahimpatnam(M), R.R.Dist.



RESEARCH AND DEVELOPMENT CELL
Jawaharlal Nehru Technological University Hyderabad

Kukatpally, HYDERABAD – 500 085, Telangana State

Dr. K Vijaya Kumar Reddy

M.Tech., Ph.D

**Professor of Mechanical Engineering &
DIRECTOR**

Tel : 9154089525

directorrnd@jntuh.ac.in

Dt: 25-02-2023

To
The Principals

Sir,

Sub: JNTUH – R&D Cell – List of eligible Supervisor – Interaction meeting
with Principals – Reg.

By direction I am happy to inform that the list faculty enclosed herewith are identified as research Supervisors working in your college. Further it is to inform that not-eligible faculty may be allowed to know the short falls of their credentials at Directorate of Research & Development Cell in person during evening working hours from 04:00 PM to 05:00 PM within seven days after receipt of this letter.

In this connection the guidelines and norms for allotment of research scholars to identified research supervisors working in affiliated colleges are to be discussed. Hence you are requested to attend the interaction meeting with the Hon'ble Vice Chancellor on 01-03-2023 @ 10:30 AM without fail.


Venue: Golden Jubilee Conference Hall,
Admissions Building, JNTUH.

Yours sincerely


DIRECTOR

Copy to: PA to VC
Copy to: PA to Rector
Copy to: PA to Registrar




PRINCIPAL
Sri Indu College of Engineering and Technology
(M): SHERGUDA-501 510,
Ibrahimpatnem(M), R.R.Dist.

College Name : D4 (Sri Indu College of Engg. & Tech.)			
S.No.	Name of the Faculty	JNTU Registration ID	Branch Name
1	Dr. K.S. Sadasiva Rao	1718-150411-170214	C.S.E.
2	Dr. S.R. Mugunthan	1098-160223-134532	C.S.E.
3	Dr. K. Sampath	2178-150421-01659	C.S.E.
4	DR.P. MUKUNTHAN	5107161025144740	E.C.E.
5	DR.N.C.SENDHILKUMAR	3296170118103600	E.C.E.



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RESEARCH AND DEVELOPMENT CELL
JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
KUKATPALLY, HYDERABAD-500 085. (T.S.) India.

Application for Ph.D. Course Work Registration for the Academic year

FACULTY

HT. No.

Name of the Candidate (In Block letters) :

Father's Name (In Block letters) :

Date of Admission:

Gender: Male/ Female

Address for Communication :

Working Organization:

Mobile:

Email ID:

TOPIC OF RESEARCH:
(In Block letters)

Sl. No.	Course work in M. Tech. / M.Sc./MBA	Full Time (Regular) / External (PTPG)	Papers	Subjects for Course Work	Semester & Academic Year	Remarks
1			Paper - I			
2			Paper – II			
3			Paper– III			
4			Paper– IV			

DECLARATION: The information furnished above is true to the best of my knowledge. I agree to abide by the rules & regulations governing the course. If selected, I shall attend the course definitely for the entire duration. I also undertake the responsibility to inform the respective HOD & Director R&D, JNTUH sufficiently in advance, in case I am unable to attend the course.

Place:

Date:

SIGNATURE OF THE RESEARCH SCHOLAR

Name & Signature of the Guide
With seal

Name & Signature of the co-guide
With seal

Name & Signature of the HOD
With seal

Encl.: a) Admission letter b) Academic Calendar c) Course Work Registration fee receipt

Note: 1. The Course work in four theory subjects to be selected as per Guidelines (Subjects other than Open Electives). In addition, the candidates have to attend course on Research Methodology and satisfy attendance requirements conducted by Directorate of R&D, JNTUH.

2. Research Scholars are advised to look into website(www.jntuh.ac.in) regularly for any information from time to time.

3. Course Work Registration form have to submit at R&D, JNTUH at least with in 10days from the commencement of class work.

ACADEMIC REGULATIONS COURSE STRUCTURE AND DETAILED SYLLABUS

COMMON FOR

M.Tech.

COMPUTER SCIENCE & ENGINEERING

AND

COMPUTER SCIENCE

(With effect from 2022-2023)

Choice Based Credit System (CBCS)

MR22 REGULATION



Sri Indu
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SRI INDU COLLEGE OF ENGINEERING & TECHNOLOGY

(An Autonomous Institution under UGC, New Delhi)

Sheriguda(V), Ibrahimpatnam(M), Ranga Reddy Dist. – 501 510

SRI INDU COLLEGE OF ENGINEERING AND TECHNOLOGY
(An Autonomous Institution under UGC, New Delhi)
Choice Based Credit System (CBCS)

REGULATIONS – MR22

M.Tech. (CSE & CS)

COURSE STRUCTURE AND SYLLABUS

I Year- I Semester

COURSE STRUCTURE

Sl.No.	Course Code	Course Title	L	T	P	Credits
1	R22CSE1501	Mathematical Foundations of Computer Science	3	0	0	3
2	R22CSE1502	Advanced Data Structures	3	0	0	3
3	Professional Elective - I					
	R22CSE1503	Database Programming with PL/SQL	3	0	0	3
	R22CSE1504	Deep Learning				
	R22CSE1505	Natural Language Processing				
4	Professional Elective - II					
	R22CSE1506	Applied Cryptography	3	0	0	3
	R22CSE1507	Software Quality Engineering				
	R22CSE1508	Mining Massive Datasets				
5	R22CSE1601	Advanced Data Structures Lab	0	0	4	2
6	Professional Elective - I Lab		0	0	4	2
	R22CSE1602	Database Programming with PL/SQL				
	R22CSE1603	Deep Learning				
	R22CSE1604	Natural Language Processing				
7	R22CSE1605	Research Methodology & IPR	2	0	0	2
8	Audit Course- I		2	0	0	0
	R22CSE1701	English for Research Paper Writing				
	R22 CSE1702	Disaster Management				
	R22 CSE1703	Value Education				
		Total	16	0	8	18

Professional Elective- I and Professional Elective- I Lab must be of same course.

I Year- II Semester

COURSE STRUCTURE

Sl.No.	Course Code	Course Title	L	T	P	Credits
1	R22CSE1509	Advanced Algorithms	3	0	0	3
2	R22CSE1510	Advanced Computer Architecture	3	0	0	3
3	Professional Elective - III		3	0	0	3
	R22CSE1511	Enterprise Cloud Concepts				
	R22CSE1512	Advanced Computer Networks				
	R22CSE1513	Edge Analytics				
4	Professional Elective - IV		3	0	0	3
	R22CSE1514	Bioinformatics				
	R22CSE1515	Nature Inspired Computing				
	R22CSE1516	Robotic Process Automation				
5	R22CSE1606	Advanced Algorithms Lab	0	0	4	2
6	Professional Elective - III Lab		0	0	4	2
	R22CSE1607	Enterprise Cloud Concepts Lab				
	R22CSE1608	Advanced Computer Networks Lab				
	R22CSE1609	Edge Analytics Lab				
7	R22CSE1610	Mini Project with Seminar	0	0	4	2
8	Audit Course- II		2	0	0	0
	R22 CSE1704	Constitution of India				
	R22 CSE1705	Pedagogy Studies				
	R22 CSE1706	Stress Management by yoga				
		Total	14	0	12	18

Professional Elective- III and Professional Elective- III Lab must be of same course.

SRI INDU COLLEGE OF ENGINEERING AND TECHNOLOGY
 (An Autonomous Institution under UGC, New Delhi)
 Choice Based Credit System (CBCS)

REGULATIONS – MR22

M.Tech. (CSE & CS)
COURSE STRUCTURE AND SYLLABUS

II Year- I Semester**COURSE STRUCTURE**

Sl.No.	Course Code	Course Title	L	T	P	Credits
1	Professional Elective - V		3	0	0	3
	R22CSE1517	Digital Forensics				
	R22CSE1518	High Performance Computing				
	R22CSE1519	Quantum Computing				
2	Open Elective		3	0	0	3
	R22CSE1520	IPR				
	R22CSE1521	Fault Tolerance Systems				
	R22CSE1522	Intrusion Detection Systems				
	R22CSE1523	Digital Forensics				
	R22CSE1524	Optimization Techniques				
	R22CSE1525	Cyber Physical Systems				
	R22CSE1526	Graph Analytics				
	R22CSE1527	Blockchain Technology				
3	R22CSE1611	Dissertation Work Review - II	0	0	12	6
Total			6	0	12	12

II Year- II Semester**COURSE STRUCTURE**

Sl.No.	Course Code	Course Title	L	T	P	Credits
1	R22CSE1612	Dissertation Work Review - III	0	0	12	6
2	R22CSE1613	Dissertation Viva-Voce	0	0	28	14
Total			0	0	40	20



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SRI INDU COLLEGE OF ENGINEERING & TECHNOLOGY

(An Autonomous Institution under UGC, New Delhi)

M.Tech. - I Year – I Semester

L	T	P	C
2	0	0	2

(R22CSE1605) RESEARCH METHODOLOGY & IPR

Course Objectives:

1. To understand the research problem
2. To know the literature studies, plagiarism and ethics
3. To get the knowledge about technical writing
4. To analyze the nature of intellectual property rights and new developments
5. To know the patent rights

Course Outcomes: At the end of this course, students will be able to

1. Understand research problem formulation.
2. Analyze research related information
3. Follow research ethics
4. Understand that today's world is controlled by Computer, Information Technology, but tomorrow world will be ruled by ideas, concept, and creativity.
5. Understanding that when IPR would take such important place in growth of individuals & nation, it is needless to emphasis the need of information about Intellectual Property Right to be promoted among students in general & engineering in particular.
6. Understand that IPR protection provides an incentive to inventors for further research work and investment in R & D, which leads to creation of new and better products, and in turn brings about, economic growth and social benefits.

UNIT - I:

Meaning of research problem, Sources of research problem, Criteria Characteristics of a good research problem, Errors in selecting a research problem, Scope and objectives of research problem. Approaches of investigation of solutions for research problem, data collection, analysis, interpretation, Necessary instrumentations.

UNIT - II:

Effective literature studies approaches, analysis, Plagiarism, Research ethics

UNIT - III:

Effective technical writing, how to write report, Paper Developing a Research Proposal, Format of research proposal, a presentation and assessment by a review committee

UNIT - IV:

Nature of Intellectual Property: Patents, Designs, Trade and Copyright. Process of Patenting and Development: technological research, innovation, patenting, development. International Scenario: International cooperation on Intellectual Property. Procedure for grants of patents, Patenting under PCT.

UNIT - V:

Patent Rights: Scope of Patent Rights. Licensing and transfer of technology. Patent information and databases. Geographical Indications. New Developments in IPR: Administration of Patent System. New developments in IPR; IPR of Biological Systems, Computer Software etc. Traditional knowledge Case Studies, IPR and IITs.

TEXT BOOKS:

1. Stuart Melville and Wayne Goddard, "Research methodology: an introduction for science & engineering students"
2. C.R. Kothari, Research Methodology, methods & techniques, 2nd edition, New age International publishers

REFERENCES:

1. Ranjit Kumar, 2nd Edition, "Research Methodology: A Step by Step Guide for beginners"
2. Halbert, "Resisting Intellectual Property", Taylor & Francis Ltd ,2007.
3. Mayall, "Industrial Design", McGraw Hill, 1992.
4. Niebel, "Product Design", McGraw Hill, 1974.
5. Asimov, "Introduction to Design", Prentice Hall, 1962.
6. Robert P. Merges, Peter S. Menell, Mark A. Lemley, "Intellectual Property in New Technological Age", 2016.
7. T. Ramappa, "Intellectual Property Rights Under WTO", S. Chand, 2008



S. S. S.
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SRI INDU COLLEGE OF ENGINEERING & TECHNOLOGY

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M.Tech. - I Year – I Semester

L	T	P	C
2	0	0	0

AUDIT COURSE – I

(R22CSE1701) ENGLISH FOR RESEARCH PAPER WRITING

Course objectives: Students will be able to:

- Understand that how to improve your writing skills and level of readability
- Learn about what to write in each section
- Understand the skills needed when writing a Title Ensure the good quality of paper at very first-time submission

UNIT-I:

Planning and Preparation, Word Order, Breaking up long sentences, Structuring Paragraphs and Sentences, Being Concise and Removing Redundancy, Avoiding Ambiguity and Vagueness

UNIT-II:

Clarifying Who Did What, Highlighting Your Findings, Hedging and Criticizing, Paraphrasing and Plagiarism, Sections of a Paper, Abstracts. Introduction

UNIT-III:

Review of the Literature, Methods, Results, Discussion, Conclusions, The Final Check.

UNIT-IV:

key skills are needed when writing a Title, key skills are needed when writing an Abstract, key skills are needed when writing an Introduction, skills needed when writing a Review of the Literature,

UNIT-V:

skills are needed when writing the Methods, skills needed when writing the Results, skills are needed when writing the Discussion, skills are needed when writing the Conclusions. useful phrases, how to ensure paper is as good as it could possibly be the first- time submission

TEXT BOOKS/ REFERENCES:

1. Goldbort R (2006) Writing for Science, Yale University Press (available on Google Books)
2. Day R (2006) How to Write and Publish a Scientific Paper, Cambridge University Press
3. Highman N (1998), Handbook of Writing for the Mathematical Sciences, SIAM. Highman's book.
4. Adrian Wallwork, English for Writing Research Papers, Springer New York Dordrecht Heidelberg London, 2011



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SRI INDU COLLEGE OF ENGINEERING & TECHNOLOGY**(An Autonomous Institution under UGC, New Delhi)****M.Tech. – II Year – II Semester****Open Electives****L T P C****3 0 0 3****(R22CSE1520) IPR****Course Objectives:**

1. To explain the art of interpretation and documentation of research work
2. To explain various forms of intellectual property rights
3. To discuss leading International regulations regarding Intellectual Property Rights

Course Outcomes: Upon the Successful Completion of the Course, the Students would be able to:

1. Understand types of Intellectual Property
2. Analyze trademarks and its functionality
3. Illustrate law of copy rights and law of patents

UNIT- I**Introduction to Intellectual property:** Introduction, types of intellectual property, international organizations, agencies and treaties, importance of intellectual property rights.**UNIT - II****Trade Marks:** Purpose and function of trademarks, acquisition of trade mark rights, protectable matter, selecting, and evaluating trade mark, trade mark registration processes.**UNIT - III****Law of copy rights:** Fundamental of copy right law, originality of material, rights of reproduction, rights to perform the work publicly, copy right ownership issues, copy right registration, notice of copy right, international copy right law.**Law of patents:** Foundation of patent law, patent searching process, ownership rights and transfer**UNIT - IV****Trade Secrets:** Trade secret law, determination of trade secret status, liability for misappropriations of trade secrets, protection for submission, trade secret litigation.**Unfair competition:** Misappropriation right of publicity, false advertising.**UNIT - V****New development of intellectual property:** new developments in trade mark law; copy right law, patent law, intellectual property audits.

International overview on intellectual property, international – trade mark law, copy right law, international patent law, and international development in trade secrets law.

TEXT BOOKS & REFERENCES:

1. Intellectual property right, Deborah. E. Bouchoux, Cengage learning.
2. Intellectual property right – Unleashing the knowledge economy, prabuddha ganguli, Tata McGraw Hill Publishing company ltd.



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ACADEMIC REGULATIONS COURSE STRUCTURE AND DETAILED SYLLABUS

M.Tech.

EMBEDDED SYSTEMS

(With effect from 2022-2023)

Choice Based Credit System (CBCS)

MR22 REGULATION



SRI INDU COLLEGE OF ENGINEERING & TECHNOLOGY

(An Autonomous Institution under UGC, New Delhi)

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SRI INDU COLLEGE OF ENGINEERING AND TECHNOLOGY

(An Autonomous Institution under UGC, New Delhi)

Choice Based Credit System (CBCS)

REGULATIONS – MR22**M.Tech. (EMBEDDED SYSTEMS)****COURSE STRUCTURE AND SYLLABUS****I Year- I Semester****COURSE STRUCTURE**

Sl.No.	Course Code	Course Title	L	T	P	Credits
1	R22ES1501	Digital System Design with FPGAs	3	0	0	3
2	R22ES1502	System Design with Embedded Linux	3	0	0	3
3	Professional Elective - I					
	R22ES1503	CMOS VLSI Design	3	0	0	3
	R22ES1504	Pattern Recognition and Machine Learning				
	R22ES1505	Wireless Sensor Networks				
4	Professional Elective - II					
	R22ES1506	Communications Buses & Interfaces	3	0	0	3
	R22ES1507	Advanced Computer Architecture				
	R22ES1508	CMOS Analog IC Design				
5	R22ES1601	Digital system Design with FPGAs Lab	0	0	4	2
6	R22ES1602	System Design with Embedded Linux Lab	0	0	4	2
7	R22ES1509	Research Methodology & IPR	2	0	0	2
8	Audit Course – I		2	0	0	0
	R22ES1701	English for Research Paper Writing				
	R22ES1702	Disaster Management				
	R22ES1703	Value Education				
		Total	16	0	8	18

I Year- II Semester**COURSE STRUCTURE**

Sl.No.	Course Code	Course Title	L	T	P	Credits
1	R22ES1510	ARM Microcontrollers	3	0	0	3
2	R22ES1511	Digital Control Systems	3	0	0	3
3	Professional Elective - III		3	0	0	3
	R22ES1512	IoT Architectures and System Design				
	R22ES1513	Design for Testability				
	R22ES1514	SoC Design				
4	Professional Elective - IV		3	0	0	3
	R22ES1515	Hardware and Software Co-Design				
	R22ES1516	Secure Networks				
	R22ES1517	Physical Design Automation				
5	R22ES1603	ARM Microcontrollers Lab	0	0	4	2
6	R22ES1604	Advanced Digital Signal Processing Lab	0	0	4	2
7	R22ES1605	Seminar	0	0	4	2
8	Audit Course – II		2	0	0	0
	R22ES1704	Constitution of India				
	R22ES1705	Pedagogy Studies				
	R22ES1706	Stress Management by yoga				
		Total	14	0	12	18

SRI INDU COLLEGE OF ENGINEERING AND TECHNOLOGY

(An Autonomous Institution under UGC, New Delhi)

Choice Based Credit System (CBCS)

REGULATIONS – MR22**M.Tech. (EMBEDDED SYSTEMS)****COURSE STRUCTURE AND SYLLABUS****II Year- I Semester****COURSE STRUCTURE**

Sl.No.	Course Code	Course Title	L	T	P	Credits
1	Professional Elective - V					
	R22ES1518	Embedded Networks	3	0	0	3
	R22ES1519	CMOS Mixed Signal Design				
	R22ES1520	Human -Machine Interface				
2	Open Elective					
	R22ES1521	Business Analytics	3	0	0	3
	R22ES1522	Industrial Safety				
	R22ES1523	Operations Research				
	R22ES1524	Cost Management of Engineering Projects				
	R22ES1525	Composite Materials				
3	R22ES1606	Dissertation Work Review - II	0	0	12	6
		Total	6	0	12	12

II Year- II Semester**COURSE STRUCTURE**

Sl.No.	Course Code	Course Title	L	T	P	Credits
1	R22ES1607	Dissertation Work Review - III	0	0	12	6
2	R22ES1608	Dissertation Viva-Voce	0	0	28	14
		Total	0	0	40	20



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SRI INDU COLLEGE OF ENGINEERING & TECHNOLOGY**(An Autonomous Institution under UGC, New Delhi)****M.Tech. - I Year – I Semester**

L	T	P	C
2	0	0	2

(R22ES1509) RESEARCH METHODOLOGY & IPR**Course Objectives:**

- To understand the research problem
- To know the literature studies, plagiarism and ethics
- To get the knowledge about technical writing
- To analyze the nature of intellectual property rights and new developments
- To know the patent rights

Course Outcomes: At the end of this course, students will be able to

1. Understand research problem formulation.
2. Analyze research related information
3. Follow research ethics
4. Understand that today's world is controlled by Computer, Information Technology, but tomorrow world will be ruled by ideas, concept, and creativity.
5. Understanding that when IPR would take such important place in growth of individuals & nation, it is needless to emphasis the need of information about Intellectual Property Right to be promoted among students in general & engineering in particular.
6. Understand that IPR protection provides an incentive to inventors for further research work and investment in R & D, which leads to creation of new and better products, and in turn brings about, economic growth and social benefits.

UNIT- I:

Meaning of research problem, Sources of research problem, Criteria Characteristics of a good research problem, Errors in selecting a research problem, Scope and objectives of research problem. Approaches of investigation of solutions for research problem, data collection, analysis, interpretation, Necessary instrumentations

UNIT- II:

Effective literature studies approaches, analysis, Plagiarism, Research ethics

UNIT- III:

Effective technical writing, how to write report, Paper Developing a Research Proposal, Format of research proposal, a presentation and assessment by a review committee

UNIT- IV:

Nature of Intellectual Property: Patents, Designs, Trade and Copyright. Process of Patenting and Development: technological research, innovation, patenting, development. International Scenario: International cooperation on Intellectual Property. Procedure for grants of patents, Patenting under PCT.

UNIT- V:

Patent Rights: Scope of Patent Rights. Licensing and transfer of technology. Patent information and databases. Geographical Indications. New Developments in IPR: Administration of Patent System. New developments in IPR; IPR of Biological Systems, Computer Software etc. Traditional knowledge Case Studies, IPR and IITs.

TEXT BOOKS:

1. Stuart Melville and Wayne Goddard, “Research methodology: an introduction for science & engineering students”
2. Wayne Goddard and Stuart Melville, “Research Methodology: An Introduction”

REFERENCE BOOKS:

1. Ranjit Kumar, 2nd Edition, “Research Methodology: A Step by Step Guide for beginners”
2. Halbert, “Resisting Intellectual Property”, Taylor & Francis Ltd ,2007.
3. Mayall, “Industrial Design”, McGraw Hill, 1992.
4. Niebel, “Product Design”, McGraw Hill, 1974.
5. Asimov, “Introduction to Design”, Prentice Hall, 1962.
6. Robert P. Merges, Peter S. Menell, Mark A. Lemley, “Intellectual Property in New Technological Age”, 2016.
7. T. Ramappa, “Intellectual Property Rights Under WTO”, S. Chand, 2008



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SRI INDU COLLEGE OF ENGINEERING & TECHNOLOGY

(An Autonomous Institution under UGC, New Delhi)

M.Tech. - I Year – I Semester

L	T	P	C
2	0	0	0

AUDIT COURSE – I

(R22ES1701) ENGLISH FOR RESEARCH PAPER WRITING

Course objectives: Students will be able to:

- Understand that how to improve your writing skills and level of readability
- Learn about what to write in each section
- Understand the skills needed when writing a Title Ensure the good quality of paper at very first-time submission

UNIT-I:

Planning and Preparation, Word Order, Breaking up long sentences, Structuring Paragraphs and Sentences, Being Concise and Removing Redundancy, Avoiding Ambiguity and Vagueness

UNIT-II:

Clarifying Who Did What, Highlighting Your Findings, Hedging and Criticizing, Paraphrasing and Plagiarism, Sections of a Paper, Abstracts. Introduction

UNIT-III:

Review of the Literature, Methods, Results, Discussion, Conclusions, The Final Check.

UNIT-IV:

key skills are needed when writing a Title, key skills are needed when writing an Abstract, key skills are needed when writing an Introduction, skills needed when writing a Review of the Literature,

UNIT-V:

skills are needed when writing the Methods, skills needed when writing the Results, skills are needed when writing the Discussion, skills are needed when writing the Conclusions. useful phrases, how to ensure paper is as good as it could possibly be the first- time submission

TEXT BOOKS/ REFERENCES:

1. Goldbort R (2006) Writing for Science, Yale University Press (available on Google Books)
2. Day R (2006) How to Write and Publish a Scientific Paper, Cambridge University Press
3. Highman N (1998), Handbook of Writing for the Mathematical Sciences, SIAM. Highman's book.
4. Adrian Wallwork, English for Writing Research Papers, Springer New York Dordrecht Heidelberg London, 2011



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(An Autonomous Institution under UGC, New Delhi)

M.Tech. - II Year – I Semester

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3	0	0	3

(R22ES1523) Operations Research

(Open Elective)

Course Outcomes: At the end of the course, the student should be able to

1. Students should be able to apply the dynamic programming to solve problems of discrete and continuous variables.
2. Students should be able to apply the concept of non-linear programming
3. Students should be able to carry out sensitivity analysis
4. Student should be able to model the real world problem and simulate it.

Unit-I:

Optimization Techniques, Model Formulation, models, General L.R Formulation, Simplex Techniques, Sensitivity Analysis, Inventory Control Models

Unit-II:

Formulation of a LPP - Graphical solution revised simplex method - duality theory - dual simplex method - sensitivity analysis - parametric programming

Unit-III:

Nonlinear programming problem - Kuhn-Tucker conditions min cost flow problem - max flow problem - CPM/PERT

Unit-IV:

Scheduling and sequencing - single server and multiple server models - deterministic inventory models - Probabilistic inventory control models - Geometric Programming.

Unit-V: Competitive Models, Single and Multi-channel Problems, Sequencing Models, Dynamic Programming, Flow in Networks, Elementary Graph Theory, Game Theory Simulation

Text Books / Reference Books:

1. H.A. Taha, Operations Research, An Introduction, PHI, 2008
2. H.M. Wagner, Principles of Operations Research, PHI, Delhi, 1982.
3. J.C. Pant, Introduction to Optimisation: Operations Research, Jain Brothers, Delhi, 2008
4. Hitler Libermann Operations Research: McGraw Hill Pub. 2009
5. Pannerselvam, Operations Research: Prentice Hall of India 2010
6. Harvey M Wagner, Principles of Operations Research: Prentice Hall of India 2010



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PRINCIPAL
Sri Indu College of Engineering and Technology
(Vill): SHERGUDA-501 510,
Brahmapatnam(M), R.R.Dist.



JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
KUKATPALLY, HYDERABAD - 500 085, TELANGANA STATE, INDIA

Role of the Institution for Ph.D. (External) Admissions at Institute Level

- Affiliated college management has to give notification for Ph.D. admission adhering to the University guidelines and regulations in vogue.
- The vacancy position department wise should be certified by Research & Development Cell, JNTUH.
- Maximum of five Ph.D. part time scholars are permitted to each department subject to availability of research supervisors. Not to allot more than one research scholars under any supervisor.
- The applications received by the college through notification should be scrutinized by the University BoS chair person.
- After completion of the scrutiny process, written test has to be conducted by following the University instructions from time to time. For interviews the University nominee is mandatory for selection process.
- The selected list has to sent to the Director, Admissions to obtain the University admission letter, in turn the research scholars has to report at Directorate of Research & Development.
- The admission criteria declared by the University shall be based on the guidelines / norms provided by the UGC and other statutory organisations concerned, as well as any other rules created by the University from time to time.
- The University relevant department shall administer the Ph.D. programme.
- The Ph.D. admissions are usually held annually, generally before the end of August of the every year.
- The registered Research Scholars progress of the research work will be monitored by the Research and Development Cell, JNTUH time to time as per the norms of the University and tuition fee should be paid through online only towards the Registrar JNTUH R&D.
- Through proper channel the supervisors of the Autonomous/Affiliated colleges should communicate progress of the work to Research & Development Cell, JNTUH as per rules framed from time to time.

- Supervisors are not allowed for change of working place of research Institution. If any supervisor is changes his / her working place, in such case University have right to withdraw the recognition of the guideship and research scholars will be allotted to another supervisor working in the University colleges by the Research and Development Cell, JNTUH.
- The Institute has to endorse a list of research facilities available at the College.
- The Research Scholars, who are permitted to join research programme, must pay the prescribed tuition, admission and registration fee as per the University norms.
- During the research period time of JNTUH, the scholar shall not register for any other course, at any other University or Institution, leading to the award of a degree. In the case of any such ambiguity, he/she will forfeit the admission at the JNTUH.
- If a situation arises where there is a conflict between Research Scholar and Supervisor/Co-Supervisor, the decision of University regarding change of Supervisor/Co-Supervisor is final.
- In the case of any doubt or ambiguity in the interpretation of the above rules, the decision of the Vice-Chancellor is final.
- The University reserves the right to alter the regulations from time to time as and when necessary.
- The institution has to maintain adequate separate physical infrastructure for research laboratory.
- Institute shall have Reading Room facilities for researchers with proper furniture and other associated infrastructure facilities.
- Library should have adequate number of books, at least two reputed Journals & online journals (e-Journals) in the concerned subject.
- The institution library shall have requisite number of books in the fields of specialization and shall also be a regular subscriber of national and international journals print version and online journals (e-Journals) for particular' subjects / fields of specialization.
- Availability of broadband internet connection in Research Laboratory/ Library
- Institute has to make necessary arrangement for financial budget provision for research in the Institute's annual budget for its continued maintenance including futuristic expansions.
- **The University shall have the right to withdraw the recognition of the supervisor at any time.**



Academic Regulations and Guidelines for Ph.D.

(Effective from the Academic Year 2021-22)



DIRECTORATE OF RESEARCH AND DEVELOPMENT

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

Kukatpally, Hyderabad - 500 085, Telangana State, INDIA

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E-mail: directornd@jntuh.ac.in

Website: www.jntuh.ac.in



JNTUH COLLEGE OF ENGINEERING JAGTIAL



Academic Block - I



Academic Block - II



Godavari Hostel



College Campus



Academic Regulations and Guidelines for Ph.D.

(Effective from the Academic Year 2021-22)

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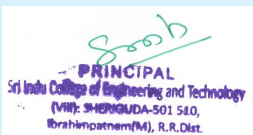
MESSAGE

In the current rapidly evolving world, research plays a vital role for nation's socio-economic growth.

Jawaharlal Nehru Technological University Hyderabad (JNTUH) on a whole and Directorate of Research & Development (DRD) in particular is committed to align its goals in line with the National goal of achieving self-reliance in technology front. Accordingly, DRD of JNTUH is bringing out this booklet of Academic regulations and guidelines for Ph.D. programme. I complement DRD team for their effort in detailing the various processes / stages involved in the Ph.D. research programme. I am sure that will definitely help the students pursuing the research programme.


JNTUH is the first technological university in the Country and today it is one of the largest affiliating Universities in the state of Telangana. There is an increase in demand for research programmes and the University is taking all measures to maintain the quality while providing the research environment on the campus.

I congratulate all the students who got admission in Ph.D. research programme and I hope that they live up to the expectations with their individual ethical values, academic and research excellence. I wish all the students meaningful stay on the campus and success in their future endeavour.



VICE-CHANCELLOR

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PRINCIPAL
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1. INTRODUCTION

Jawaharlal Nehru Technological University Hyderabad (JNTUH) is focusing on research programmes on need-based technology and solutions for societal problems. Accordingly, an independent Directorate of Research and Development (DRD) was established in the year 2005 to promote and monitor the research programmes offered in the University. The DRD administers Ph.D. programme in external and full-time modes and monitors the research progress of the scholars.

Directorate of Research and Development coordinates with the Directorate of Admissions for selection and admission of research scholars, and also interacts with Directorate of Evaluation for issue of Provisional and Original Certificates. Further, DRD interacts with the Constituent Units of University for academic activities of research degree and also with Directorate of University Foreign Relations (DUFR) for the admission of foreign national students. DRD conducts Research Review Meetings (RRMs) once in every six months to evaluate and monitor the research work progress of the scholars and conducts viva-voce examinations for the award of the Ph.D. degree in the faculties of engineering, science & technology including pharmacy, management and humanities and social sciences.

Directorate of Research and Development initiates all necessary academic activities for monitoring and evaluation of candidates admitted for Ph.D. programme in the following disciplines offered by the University. The list of subjects may vary from year to year.

List of Faculty/Department in which Ph.D. programme is offered

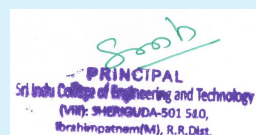
ENGINEERING


Aeronautical Engineering

Chemical Engineering*

Civil Engineering

Computer Science & Engineering





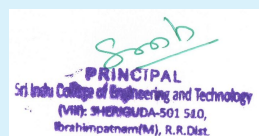
Electrical & Electronics Engineering
Electronics & Communication Engineering
Energy Systems
Industrial Engineering
Mechanical Engineering
Metallurgical Engineering
Transportation Engineering

SCIENCE & TECHNOLOGY

Bio-technology
Chemistry
Environmental Science & Technology
Earth & Atmospheric Sciences*
Mathematics**
Nano Science & Technology
Physics**
Spatial Information Technology*
Water Resources
Pharmaceutical Sciences
Food Technology*

MANAGEMENT

Management Sciences



HUMANITIES AND SOCIAL SCIENCES

English**

Physical Education**

*As such no Ph.D. admissions are open in these departments due to non-availability of regular faculty in the University.

**As such no Ph.D. admissions are open in these departments due to no PG programmes offered right now in these departments.

2. DEPARTMENTAL RESEARCH COMMITTEE (DRC)

The Departmental Research Committee (DRC) for each faculty shall consists of the following members.

- i Head of the Department as Chairperson.
- ii. Two senior faculty members of the Department, where one of them shall be a subject specific expert.
- iii. Chairperson of BoS as member and convener.

Conduct of RRM or Colloquiums or any other activity connected to the research progress of Research Scholars shall be carried out in the respective departments by DRC under the control of Principal / Director.

DRC shall conduct Colloquium within 4 weeks from the receipt of information from the Director, R&D. If the supervisor is not available for any reason, written communication must be sent to Director, R&D. In such case, Co-Supervisor's presence is mandatory.

The DRC is empowered to accept the scholar's work for thesis submission or may advise him to revise and reappear for Colloquium with modifications. The DRC shall specify in writing, the reasons/ remarks for revision, duly signed by all members.

Change of title of thesis (which is final) shall be advised by DRC during colloquium, if necessary.

3. RESEARCH SUPERVISOR AND CO-SUPERVISOR

Any regular Professor / Associate Professor / Assistant Professor of the University with at least five research publications in referred journals and two years after completion of their Ph.D. shall be recognized as Research Supervisor.

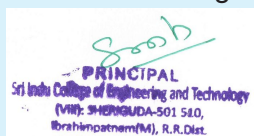
Only full-time regular teacher of the University / Institute with a minimum of five years teaching / research experience can act as a supervisor.

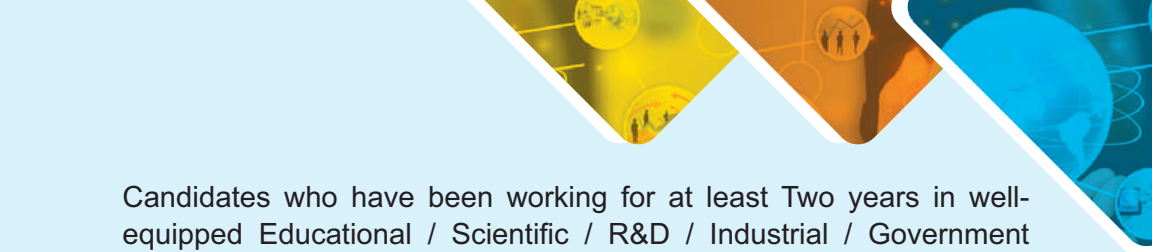
In case of topics which are of inter-disciplinary in nature where the Department concerned feels that expertise in the Department has to be supplemented from outside, the Department may appoint a Research co-supervisor from the Department itself, who shall be recognised as the Research supervisor. However, any outside the Department / Faculty / College/Institution will be permitted on such terms and conditions as may be specified and as agreed upon by the consenting Institutions / Colleges with the approval of the University only at the time of registration.

The number of research scholars, from among eligible faculty member as supervisor/co-supervisor shall be Professor: 11, Associate Professor: 8 and Assistant Professor: 5. This is justified in view of the fact that JNTUH is a Technological University in Telangana State with a large number of affiliated colleges. It requires large number of qualified faculty members with Ph.D. as minimum mandatory requirement for Professor and Associate Professor as stipulated by the statutory bodies which are also insisting Ph.D. for the teaching staff in order to work in the academic institutions to enhance the quality of technical education.

4. STUDENT CATEGORIES

There are seven types of student categories in the research programme. The seven types are based on the nature of the research, sponsorship and scholarship. All these students are also categorized as External or Full Time as the case may be.





Candidates who have been working for at least Two years in well-equipped Educational / Scientific / R&D / Industrial / Government organizations and engaged in Scientific / Technological / Engineering / Managerial activities, as the case may be, and possessing the minimum required qualifications, shall be deemed as external candidates. The seven categories are listed below:

Category 1: Candidates with JNTUH Fulltime Fellowship for Ph.D. (JFFP) / (AICTE/NDF) (Full Time)

Category 2: Candidates with Government fellowship awardees like TEQIP/QIP/FIP/CSIR/UGC/DST/DOE/etc. (Full Time)

Category 3: Candidates working in sponsored R&D projects (Project fellow) (Full Time)

Category 4: (i) Candidates who are Regular Faculty members of JNTUH (External)

(ii) Assistant Professor (Contractual) in JNTUH (External)

(iii) Industrial Executives having MOU with JNTUH (External)


Category 5: Candidates under External Registration (External)

Category 6: Candidates under External Registration and having MOU with JNTUH (External)

Category 7: Candidates of Foreign Nationals (Full Time)

Category 1: JNTUH Full Time Fellowship for Ph.D. (JFFP)

Candidates admitted under Research Fellowship Programme of JNTUH are considered as Full-Time Research Scholars, these research scholars are required to work Full-Time in any Constituent Units of JNTUH for the stipulated duration on the research topic and they shall not be permitted to undertake any employment during that period.



Candidates selected under JFFP must execute a bond stating that they would refund the Fellowship amount received, in full, at the time of leaving the Institute (i) if they fail to submit their thesis within 6 years, (ii) if they discontinue the research work in between of the stipulated time.

The University reserves the right to terminate the Fellowship of any candidate if the progress of research work is not satisfactory.

Faculty members involved in active research may be considered for supervisorship for JFFP students. The decision of Hon'ble Vice Chancellor in allotting Research supervisors to a particular research scholar is final.

In one notification, only one research scholar will be allotted subject to a maximum of two full time scholars under faculty at any given time. The allotment is based on the (i) subject specificity (ii) seniority in the department and (iii) consent of a particular faculty member. However, the decision of university is final.

JFFP fellowship and other eligibility criteria are as per UGC norms from time to time.

In any circumstances there should not be any conversion from full time scholar to external / part time. If the JFFP scholar desires to leave the Ph.D. full time fellowship without completing Ph.D., he/she has to refund Scholarship/ Fellowship received under JFFP scheme. This is applicable to all the Full-time scholars admitted under any scheme.

The release of monthly fellowship will be based on the attendance / research performance as assessed by the research supervisor. A monthly progress report along with the attendance particulars may be submitted to R & D through proper channel.

If a situation arises where there is a conflict between Research Scholar and Supervisor / Co-Supervisor, the decision of University regarding Change of Supervisor / Co-Supervisor is final.

Category 2: Candidates with Government Fellowship (Full Time)

Candidates who are qualified at the UGC-CSIR/NET examination, awarded with a Research Fellowship (for a minimum of two years) by UGC/CSIR/ICMR/DBT/etc Government Organization may be exempted from JNTUH written test for Ph.D. admissions. However, they should appear for the interview conducted by selection committee of JNTUH.

The candidates with ICSSR/RGNF/MANF/NIN-JRF or SRF awarded by national level bodies/institutes having NET/SET & Ph.D. eligibility test qualification also are admitted directly to the Ph.D. programme. However, they should appear for the interview conducted by selection committee of JNTUH.

All conditions including minimum qualifications for admission to research programmes prescribed for other categories of scholars would apply to these candidates as well.

TEQIP students must attend JNTUH test followed by University Interview


Category 3 : Candidates in sponsored R & D projects (Project Fellow).

Notification will be issued by the Director, Admissions for such candidates. The Selection will be made as per the University norms from time to time.

No scholarship or financial assistance be provided to such candidates from the university funds. The payment is the responsibility of Principal Investigator of that project.

The candidates must be qualified at any of the national tests conducted by CSIR / UGC / JNTUH eligibility test etc. and followed by interview by selection committee of the university.

All conditions including minimum qualifications for admission to the Ph.D. program prescribed for other categories of scholars would apply to these candidates as well.



The project fellows who are appointed by duly constituted committee at JNTUH for a duration less than 3 years and not qualified at NET/GATE/GPAT etc., shall apply in response to part time / external Ph.D. admission notification issued from time to time.

Category 4:

(i) Regular Faculty members of JNTUH.

Members of teaching and non-teaching staff of JNTUH may be permitted to join the Ph.D. programme provided prior permission has been obtained from the university before applying for admission to the programme, if they satisfy all the conditions of eligibility.

For admission to the Ph.D. programme, staff member must fulfil the prescribed norms at the qualifying examination.


All common rules laid down in the Ph.D. regulations relating to course work, execution of research work and evaluation of research progress by DRC shall be applicable to all the staff members, when being enrolled.

The staff members, who are permitted to join research programme, must pay the prescribed tuition, admission and registration fee as per the University norms.

A faculty member must hold a permanent post in the university.

A member of non-teaching staff seeking permission to join the research programme must hold a permanent post in the institute and must have at least three years of service in the post.

The application for administrative permission to join a research programme by a member of non-teaching staff must be submitted through the Head of the Department / Centre / Section in-charge, as the case may be. While submitting the application, he must give an undertaking that he will abide by all the rules and regulations of research programme of the university.



Every application for permission under these rules shall be examined by Director R&D taking into account whether the proposal for joining the programme for which permission is sought, is out of genuine interest and ability.

After the permission is granted, he/she will submit his/her application on a prescribed form together with the prescribed admission-cum-registration fee. The minimum period to be spent in the research work by a member of non-teaching staff registered for the Ph.D. degree shall be 5 years. The maximum period admissible for completion of the work and submission of the thesis shall be eight years.

All conditions including minimum qualifications for admission to research programmes prescribed for other categories of scholars would apply to these candidates as well.

(ii) Assistant Professor (Contractual) in JNTUH (External)


Assistant Professor (Contractual) of JNTUH may be permitted to join the Ph.D. programme provided prior permission has been obtained from the university before applying for admission to the programme, if they satisfy all the conditions of eligibility.

For admission to the Ph.D. programme, Assistant Professor (Contractual) in JNTUH must fulfil the prescribed norms at the qualifying examination.

All common rules laid down in the Ph.D. regulations relating to course work, execution of research work and evaluation of research progress by DRC shall be applicable to all the Assistant Professor (Contractual), when being enrolled.

The staff members, who are permitted to join research programme, must pay the prescribed tuition, admission and registration fee as per the University norms.

Every application for permission under these rules shall be examined by Director R&D taking into account whether the proposal for joining the



programme for which permission is sought, is out of genuine interest and ability.

After the permission is granted, he/she will submit his/her application on a prescribed form together with the prescribed admission-cum-registration fee. The minimum period to be spent in the research work by a member of non-teaching staff registered for the Ph.D. degree shall be 5 years. The maximum period admissible for completion of the work and submission of the thesis shall, however, remain to be eight years, as in the case of regular candidates.

All conditions including minimum qualifications for admission to research programmes prescribed for other categories of scholars would apply to these candidates as well.

(iii) Industrial Executives having MOU with JNTUH (External)

The industrial executives must have minimum experience of five (5) years in the same organization where the candidate is working and his/her experience should be relevant to the research area.


Applicant working in National Level Scientific Organisations should not be less than the Rank of Scientist 'E' or equivalent cadre

Applicant working in National/State Level Public Sector Organisation should not be less than the rank of Manager drawing pay equivalent to Associate Professor.

Applicant/Civil Servant working in Government Departments should not be less than the rank of Group-1 cadre of State/Central Government.

Applicant in Defence services should not be below the rank of Squadron Leader/Major/Lieutenant Commander.

Applicant (Professional) Working in Private Sector Organisation/ Industry preferably with annual turnover of not less than Rs. 200 Crores, with a position should not be less than Chief Technology Officer (CTO) or equivalent.



The Private Organisation should have an established R&D facility in the concerned field/subject.

A Co-supervisor, if considered, from the parent organisation must have Ph.D. in the concerned subject with at least five Research Publications in Peer reviewed journals.

A committee including the Director Admissions, Director, R&D and chairperson BoS of the concerned subject shall visit the organisation to verify the facilities.

Each organisation must have an MoU or an Academic Collaboration Agreement with the concerned department/unit or college, JNTUH. If the organizations which do not have an MoU must enter into an Academic Collaboration Agreement with JNTUH.

Scrutiny of the applications for eligibility may be based on all the above criteria, in addition to regular Ph.D. Admission guidelines of JNTUH.

The selection of the candidates for admission shall be based on the Interview performance and facilities available in the organisation where the candidate is working.

The Research Supervisors from JNTUH may be allotted from eligible Supervisor's list in the concerned subject by creating the vacancy as supernumerary. Only one candidate may be allotted per Supervisor per year with a condition not more than two candidates in total.

All conditions including minimum qualifications for admission to research programmes prescribed for other categories of scholars would apply to these candidates as well.

Category 5: Candidates under External Registration

A candidate seeking admission as external scholar will have to declare and register as such and produce the following at the time of registration.

A letter from the employer permitting the candidate to pursue the course (No Objection Certificate)

A commitment from the candidate and sanction from the employer that he/she would be permitted to avail leave at least for six months in not more than two instalments during the tenure of Ph.D. programme to attend the assigned subjects, for course work and thesis compilation, etc.

An undertaking for IPR and publications. The publication will have the affiliation of JNTUH, with respect to student scholar.

All conditions including minimum qualifications for admission to research programmes prescribed for other categories of scholars would apply to these candidates as well.

Category 6: Candidates under External Registration and having MOU with JNTUH

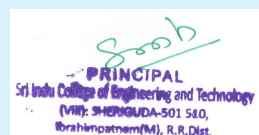
Scientists / engineers working in National Research Labs, PSUs and research organizations having MOU with JNTUH with research facilities with the qualifications prescribed by JNTUH will come under this category.

All conditions including minimum qualifications for admission to research programmes prescribed for other categories of scholars would apply to these candidates as well.

Category 7: Candidates of Foreign Nationals (Full Time)

The students under this category will be admitted by Directorate of University Foreign Relations under single window system in which the admission process of the foreign students, their welfare, day to day activities for their Ph.D. program, the collection of fees, etc., will be taken care of by DUFR.

All conditions including minimum qualifications for admission to research programmes prescribed for other categories of scholars would apply to these candidates as well.



5. ELIGIBILITY

In all faculties/departments, candidates must have passed the post graduate degree examination of the Jawaharlal Nehru Technological University Hyderabad (JNTUH) or an examination recognized as equivalent by UGC in the discipline concerned with a minimum of 55% marks in aggregate, and for SC and ST category the aggregate shall be 50% marks in the concerned subjects. The maximum age limit for the Full-Time Research Programme shall be 35 years in case of fresh candidates, and 55 years in case of candidates in service in Educational Institutions / Government Organizations/ Industry/ Research Organizations. The desirable maximum age limit for external Research Programme is 65 years. The educational qualifications for Ph.D. are given below.

- ❖ **ENGINEERING:** B.Tech. / B.E. and M.Tech. / M.E. in appropriate / relevant branch of Engineering.

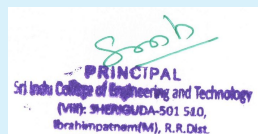
M.Tech./M.E. specialization will be considered for deciding the faculty in which the admission is sought

- ❖ **SCIENCE & TECHNOLOGY:**

- M.Sc. or M.Sc. (Tech.) in appropriate / relevant field of Science & Technology
- MCA with M.Tech.
- MCA with M.Phil.
- For Pharmaceutical Sciences: B.Pharmacy and M.Pharmacy or Pharma.D


- ❖ **MANAGEMENT:** Master of Business Administration (MBA)

- ❖ **HUMANITIES AND SOCIAL SCIENCES:** Master Degree in the respective Discipline




6. ADMISSION PROCESS

- 6.1. Admissions for the Research Program Ph.D. shall be made by Director, Admissions, JNTUH, Hyderabad by conducting written test followed by interview following the UGC/University norms time to time. Interviews will be conducted for the candidates qualified in the Entrance Examination conducted by JNTUH.
- 6.2. The Directorate of R&D has to initiate the process of issuing notification / internal circular for notifying the number of vacancies in each Department / Subject-wise / Specialization wise and faculty member name-wise for admissions into Part Time / Full Time Ph.D. notification during the Feb-March after duly taking the approval from the Hon'ble Vice-Chancellor and the same may be forwarded to the Directorate of Admissions for further processing.
- 6.3. The office of the Directorate of Admissions has to issue the notification for admissions into Part Time / Full Time Ph.D. as per the vacancy position received from Directorate of R&D. Applications received through the notification are to be scrutinized by the respective Departmental subject Committees constituted, based upon the candidate's qualifications.
- 6.4. Entrance Test will be conducted for those who are shortlisted after scrutiny subject-wise by the office of the Directorate of Admissions. The minimum qualifying marks in the entrance test is 50% in case of Open Category candidates, 45% in case of B.C. candidates and 40% in case of SC/ST candidates. Students who qualified in UGC-NET / UGC-CSIR NET / SLET / GATE / Teacher fellowship holder(as per UGC 2016 guidelines) are exempted from University entrance test. However, there is no entrance test for Industrial Executive admitted under student's category 4(iii).

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- 6.5. The allocation of Research Supervisor for a selected research scholar, shall be decided by the Department concerned depending on the number of scholars registered under each Research Supervisor, the available specialization among the Supervisors and the research interest of the scholars as indicated by them at the time of interview.
 - 6.6. Reservation policy on overall admissions will be as per state level norms as per notification issued by UGC, 2016.
 - 6.7. Preparation of Schedule of interviews, conduct of interviews subject wise by respective interview boards with the permission of the Hon'ble Vice-Chancellor will be taken-up by the Directorate of Admissions.

7.PERIOD OF STUDY AND EXTENSION

- 7.1. Research Scholars registered for Ph.D. can submit the thesis after completion of a minimum of three years from the date of admission, subjected to fulfilment of all prerequisites i.e., successful completion of Research Methodology, Course Work (4 subjects relevant to the research area chosen), RRM I & II, Research Publications as stipulated for submitting Ph.D. thesis and Colloquium.
- 7.2. Full-Time/External Candidates should complete the research work within a maximum period of 6 years respectively. They should pay Tuition Fee until the end of the year in which the thesis is submitted. If the Tuition Fee is not paid as per rules, penalty may be levied 10% of Tuition Fee per every year of late payment, by the Director, R&D. If Tuition Fee is not paid for two consecutive years, then the registration stands cancelled.
- 7.3. Procedure for Late Submission in case of External registered scholars: If the candidate fails to submit thesis within stipulated period, (Six years, i.e., double the course duration) has to apply for extension of time by following the mentioned procedure.



The research scholar should apply for extension of time at least three months before the lapse of validity of duration. No application will be entertained if the candidate fails to apply within the stipulated time.

The application should be submitted in the prescribed format along with the recommendations of the guides and the reasons for delay.

The maximum period of study to submit the thesis is ten academic years from their registration, failing which the admission stands cancelled. However, from 7th academic year onwards the scholar has to pay the penal fee imposed per year along with yearly tuition fee.

8. COURSEWORK & RESEARCH METHODOLOGY

8.1. Research Methodology (RM)

One Course (Theory) on “Research Methodology”, is mandatory with compulsory attendance and internal audit. They must produce a certificate of satisfactory completion of the course issued by the Director R&D, at the time of submission of thesis. The research scholar shall complete this Research Methodology course work preferably within six months from the date of registration and before RRM.

The course work on “Research Methodology” shall be offered Twice in a year, commonly for all the research scholars of identified areas of specialization, at JNTUH campus by DRD. All the scholars must have to be physically present and maintain the required minimum attendance criterion (75%) in this course; however, the evaluation will be done by the concerned teacher internally, and the audited performance outcome shall be indicated as - Satisfactory or Not-Satisfactory. All scholars whose performance have been graded as Not-Satisfactory, shall have to repeat the course as and when offered. This is a compulsory course and each scholar must attend this course of one-week duration at DRD, JNTUH.

DRD will initiate steps to frame syllabus for the Research Methodology course. The syllabus can be different for Engineering stream and Humanities & Sciences stream and streams. Some portion of the

syllabus can be common for both the streams. In faculties like Pharmacy, Humanities etc. where Part-Time programmes are not available the candidates have to take subjects in other faculties in institutes wherever they are available/offered.

Research methodology is an audit course and Scholars have to register for this course as per the guidelines given by R&D. Attendance is compulsory for this course. The fee is Rs. 5,000/-. The University reserves its right to amend the fee from time to time.

8.2.Coursework

As per the UGC Guidelines, a Course work is compulsory. The course work for the Ph.D. programme therefore shall also include Four Subjects (theory) with compulsory attendance and associated mid-semester (internal) + end-semester (external) examinations. All candidates admitted to Ph.D. programme shall be required to complete the course work prescribed by the department during the initial one or two semesters. The course work pertaining to the Registered scholars under category 4 (iii) and category 6 shall be decided by the respective DRC in consultation with DRD as per the MoU between University and the Organization.

The Four theory Subjects will have to be chosen from the available lists of subjects prescribed for the Regular (Day-Time) PG or Part-time PG Programmes of the concerned field of specialization (or the nearest specialization) and being offered by the Constituent Academic Unit/ Department/Centre of JNTUH at Hyderabad Campus, in that Semester (either odd semester or even semester). The choice and selection of the four Subjects must be approved by the candidate's Supervisor and Co-Supervisor, and the same must be communicated to the Director, R&D in hard copy form, with appropriate signatures and seals of Supervisor, Co- Supervisor and Head of the Department concerned (offering those four courses); Subjects once chosen, cannot be changed in the entire research period. The research candidates have to be physically be present for the teaching classes in the above four subjects, throughout that semester, and shall have to maintain the required 75% of attendance, based on which alone they will be



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permitted to write the end-semester exams. In these subjects internal examinations shall be conducted by the concerned teacher at specified times. Evaluation pattern in mid- exams and end-semester exams shall be as per the University norms as prescribed by examinations unit. The candidates shall attend the classes and appear for all the exams together with the other students of the concerned PG/PTPG Programme.

Course work may be carried out in departments/institutes/ Autonomous colleges (which are identified as Research Centres) of JNTUH. However, Ph.D. scholars registered under external category working in Research Centres, has to pursue the coursework in any other institution apart from his / her parent institute. If the candidates fail in any of the subjects, they have to reappear for the exams of the related subjects, as and when offered, as per the Academic Regulations; they need not attend class-work again, provided they maintained the minimum attendance requirements earlier. However, if the candidates do not have the required minimum percentage of attendance in any subject, they will be detained in those subjects, and shall have to reappear for class-works in those subjects again, as and when they are offered.

During selection of course work subjects one should be cautious, where they cannot be changed once registered.

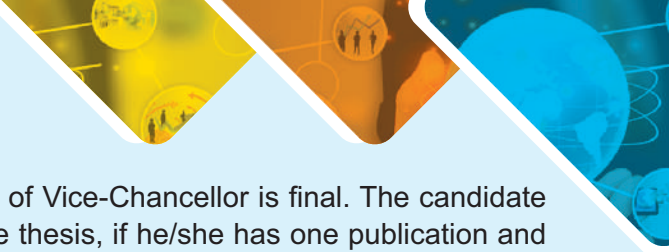
9. PROGRESS OF RESEARCH WORK

9.1. Publications

For the candidate to submit the thesis for Ph.D., he/she shall publish 4 research papers with at least two papers must be published in Web of Science indexed/Science Citation Indexed (SCI)/SCOPUS Indexed Journals which are peer reviewed with good Impact factor as per the mandatory requirement of UGC. CARE list of UGC shall be taken into account in case of ambiguity. In the research publications, the research scholars name must be as the first author followed by Supervisor & (or) co-supervisor (This order is mandatory) name with JNTUH affiliation. Any special cases in this clause shall be referred to the Vice-Chancellor



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through DRD. The decision of Vice-Chancellor is final. The candidate will be allowed to submit the thesis, if he/she has one publication and one recognized patent rights (with relevant to the thesis work), whose evidence and details are to be enclosed.

9.2. Research Review Meeting (RRM)

For the purpose of monitoring the progress of Research works, all the research candidates including those who are on the current rolls of JNTUH for Ph.D. are required to attend Research Review Meetings (RRM) and make Power Point presentations as and when they are conducted. However, a research scholar can apply for RRM-I only after successful completion of RM, Course Work examination. At the time of RRM, research scholars should submit hard copies of their research progress report in duplicate, in prescribed format after taking approval from Supervisor and Co-Supervisor.

Additionally, tangible output if any, but not limited to Journal Publications/ Presentations in a Conference/ Poster Presentation in a Seminar/ Conference or a Patent, etc. should be submitted. For the RRM, the presence of Supervisor or Co-supervisor will be considered as additional DRC member but optional. The intimation of RRM will be on the JNTUH website/by email/ by SMS whichever is convenient. Candidates are requested to see JNTUH website periodically. No individual letters will be sent to research scholars.

Each research scholar must attend at least two RRM and the reports should be satisfactory. The progress of research work is assessed by DRC in terms of Satisfactory/ Unsatisfactory.

9.3. Colloquium

A candidate has to successfully complete RM, Course-work and two RRM with satisfactory reports and Paper Publications as prescribed, before applying for Colloquium. Further, research scholar keep in mind the he/she should appear with a draft copy of the thesis and has to submit the final thesis within 6 months after successful completion of Colloquium, failing which the scholar has to take colloquium once again.

The scholar should submit five copies of synopsis to DRC highlighting original/significant contributions made in the research work.

The candidates are expected to make a PPT presentation before DRC committee about the research work done by them. The DRC is empowered to accept the scholar's work for thesis submission or may advise him to revise and reappear with modifications. The DRC shall specify in writing, the reasons/remarks for revision, duly signed by all members.

In case of revision and reappearing for colloquium, the scholar shall reapply to Director, R&D after a minimum period of 3 months.

A maximum of three attempts are permitted to apply for Colloquium.

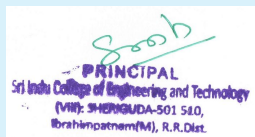
Change of Title of thesis shall be advised by DRC during colloquium, if necessary.

10. THESIS WRITE-UP AND FORMATTING

Paper, Typing & Format: 100 GSM Bond paper should be used for the preparation of the Thesis. Typing should be done on the 12-font size letter, Bookman old style font. The lay-out should provide margins of 1½ inch on the left side, 1 inch on top and bottom, 1 inch on the right side. Fresh Para should commence after five spaces. 1½ line spacing shall be provided throughout the dissertation / thesis. The thesis document is to be printed on both sides of the executive bond-paper.

Binding: Thesis hard copy should be in A4 Size format with 300 gsm White Sheet Soft Binding. The bound front cover should indicate in Navy Blue colour letter. Two plain blank papers should be provided at the beginning and at the end.

For other details, like formats for Certificate, declaration form, Acknowledgment and other front and last page formats, please refer to JNTUH website.



11. ANTI-PLAGIARISM

For ensuring originality of submitted content, the thesis will be checked by an anti-plagiarism software. After successful completion of Colloquium, the thesis should undergo anti-plagiarism check irrespective of the year of admission.

After completion of Colloquium a soft copy of thesis in word format should be brought in person to R & D and have it checked for Plagiarism. The limits of similarity index (the University reserves the right to change the limits from time to time) are as follows:

The overall similarity index shall not exceed 24%.


The similarity index from a single source (other than author's publication) shall not exceed 3%.

A maximum of 3 chances will be given to the research scholar, if the percentage of plagiarism exceeds the approved limit.

The revised soft copy of the thesis after removing the plagiarism material must be submitted by the research scholar for the second or the third verification within one month itself. The fourth chance may be considered if the reason is genuine and also with the approval of honourable Vice-Chancellor.

12. THESIS SUBMISSION AND PROCESSING

A candidate may submit the thesis any time during one month before or after the expiry of the stipulated period of research. However, the candidate may be permitted to submit his/her thesis during the above period duly recommended by the Research Supervisor and with the permission of the Director, Research and Development within a grace period of two months after expiry period of research. Each Scholar, after obtaining No-Due certificate is required to submit to the specified number of copies of his/her synopsis and thesis, along with the prescribed application form available at R&D downloads. The minimum



duration or period for the thesis submission is only after 3 years from the date of registration.

A candidate has to submit, one copy of the approved synopsis, five copies of thesis, an application enclosed with a Demand Draft of Rs. 5000/- (for evaluation fee which will be revised from time to time in favour of the Registrar, JNTUH Hyderabad), copy of Certificates/Marks Memo pertaining to RM, Course work, RRM I & II, Research Papers, Colloquium report and a sealed cover containing Panel of Examiners, to the Director, Research and Development, JNTUH.

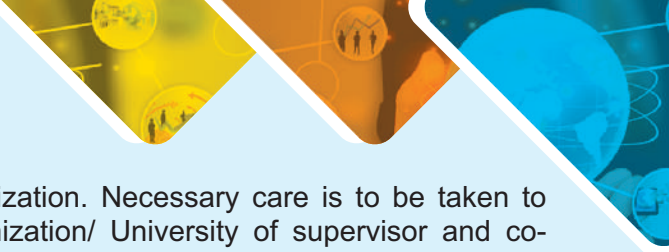
Five copies of the thesis should be submitted, incorporating a certificate from the supervisor to the effect that the thesis is an original work of the candidate and a declaration by the candidate to the effect that the thesis either in part or full does not constitute any part of any thesis/ dissertation/ monograph submitted by him/her or any other person to any University/Institute.

The thesis should also contain the signature of the Head of the Institution/Organization (from place of work) in addition to the Supervisor's signature.

The candidate shall be held responsible for the genuineness of his/her work and any false statement shall lead to cancellation of his/her registration/degree at any stage even after the declaration of results.

The thesis shall be submitted only upon the positive recommendation of the DRC in colloquium. The Supervisor of the candidate shall send a panel of nine (9) Examiners in a sealed cover to the Director, R&D.

The Panel of Examiners, three from IITs/ IISc/ Foreign Universities or equivalent National level Research Institutions such as IIIT Hyderabad, IIIT Bangalore, ISI Kolkata, CCMB, IICT, Defence Research Labs etc., three from NITs/IIITs or Research Labs of National repute or equivalent and three (3) from other Government Universities within or out of state. The University has the right to revise the panel of examiners if necessary. Out of the panel of nine names of examiners submitted, at least six shall be outside the state of Telangana and no examiner from



the same University/Organization. Necessary care is to be taken to avoid the names of Organization/ University of supervisor and co-supervisor and its affiliated colleges.

Panel of the names is to be submitted with all particulars, like complete address, designation, telephone numbers/fax/ email; number of publications of the examiner etc. Only one examiner may be included from the panel from any Organization/ Institution/ University.

Subject experts from the Organization where the Supervisor/Co-supervisor belongs, and persons related to candidate shall not be included in the panel of the examiners.

A softcopy of candidate's photo should be submitted to Director, R&D at the time of registration.

13. EVALUATION OF THE THESIS

The thesis shall be evaluated independently by three examiners, external to the University, one of whom shall be from outside the State and preferably from IITs/IISc/ Institute of high reputation where Ph.D. programmes are offered.

The examiners external to the University shall be selected by the Vice-Chancellor from amongst a panel of 9 names, submitted by Director, R&D.

The examiners are required to:

Outline the main features of the thesis.

Critically evaluate the thesis and send a report on the thesis in not less than 500 words.

Make one of the following four definite recommendations.

The thesis attains the standard required for the award of the Ph.D. degree.

The thesis requires revision and re-submission for viva- voce examination.

The thesis requires revision and re-submission for re- evaluation by the same examiner.

The thesis is rejected.

The university shall take a decision on the thesis based on the three reports according to the following:

Recommendation of Examiners			Decision
1	2	3	4
Accept	Accept	Accept	Accept
Revise	Revise	Revise	Revise
Reject	Reject	Reject	Reject
Accept	Accept	Revise	Revise
Accept	Revise	Revise	Revise
Accept	Accept	Reject	Revise. However, necessary revision should take place based on the remarks of the examiner who rejected the thesis.
Accept	Reject	Reject	Sent to 4th examiner*
Revise	Revise	Reject	Revise. However, necessary revision should take place based on the remarks of the examiner who rejected the thesis.
Revise	Reject	Reject	Reject

* If the 4th examiner also rejects, a committee may be constituted to examine such cases and based on the recommendations, the decision will be taken by the University.

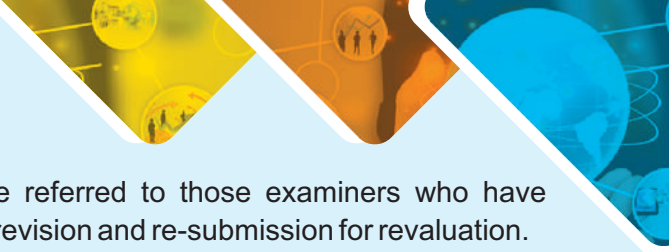
14. Revision and Re-submission of Thesis

If one examiner rejects the thesis, the comments made by the examiner should be forwarded to the Supervisor and also to the candidate for their justification / clarification. After receiving their justification / clarification, the Viva-Voce examination may be conducted.

If two examiners reject the thesis, the candidate shall revise and re-submit it after one year, which will be sent for evaluation to the same examiner who had rejected it. If the two examiners reject it again, the thesis is summarily rejected. If the thesis is accepted at the second time, it will be accepted.

The thesis shall be summarily rejected if all the three examiners reject it.

For revision and re-submission of the thesis, the candidate will be given a maximum period of Six weeks from the date of communication of the report(s) to the candidate.



The revised thesis shall be referred to those examiners who have originally recommended for revision and re-submission for revaluation.


15. VIVA-VOCE EXAMINATION

Once the thesis is accepted, a comprehensive Viva-Voce examination shall be arranged by the Director, Research and Development on receipt of communication from the Director of Evaluation, JNTUH. The internal examiner should contact the Director, Research and Development before fixing the dates for Viva-Voce Examination. The Scholar should bring the thesis copy for Viva – Voce Exam.

One copy of approved Ph.D. thesis and a soft copy shall be submitted by the candidate before the Viva-Voce examination to the Director, Research and Development. The same shall be placed in the University Library as a record and the copy of the thesis shall be uploaded to Shodhganga. The Scholar must submit a Hard Copy of thesis to the HOD for the Department Library. The Research Scholar should contact the HOD, one day before to ensure the logistic arrangements for Viva-Voce examination. There should not be any communication from Director of Evaluation to research scholar at any time.

The open Viva-Voce examination shall be conducted in the concerned Department / Unit / Center / Directorate of Research and Development by a Board of Examiners, consisting of two examiners, one of whom has evaluated the thesis and the other is the supervisor. The internal examiner before fixing the date for the Ph.D. viva-voce exam should consult HOD; Director, Research and Development in addition to the candidate and external examiners. In case the Examiners who accepted the thesis are not available for the Conduct of the Viva - Voce Examination, the Vice-Chancellor may nominate another examiner from the original panel of examiners.

The reports of the external examiners shall be made available to the Board for the Viva- Voce examination. The Viva-Voce examination should primarily be designed to test the understanding of the candidate on the subject matter of the thesis, including methodology employed



and the candidate's competence in the general field of study. The candidate should also be asked to clarify any of the points raised by the external/adjudicators in their reports.

The Viva-Voce Board may on the basis of the unanimous opinion recommend either:

That the candidate be awarded the Ph.D. Degree or

That the candidate may appear for the Viva-Voce examination again after a stipulated time

Any candidate who does not satisfy the above condition will not be considered for the award of degree.

Upon successful completion of the Viva-Voce Examination, and on consideration of the reports of the individual examiners, the candidate has to apply for Provisional Certificate.

The Hon'ble Vice-Chancellor may approve the announcement of the award of the provisional Ph.D. Degree to the candidate and Provisional Certificate (P.C.) will be issued. At the time of collecting P.C. the candidate must submit a soft copy of thesis with all the modifications made as suggested by the examiner in Viva-Voce, if any. Submission of CD with revisions if any is necessary to collect the Provisional Certificate/Original Degree. The soft copy of the thesis submitted by the candidate will be sent to Information and Library Network Centre (INFLIBNET) of UGC to upload into the web Shodhganga which is mandatory. As such the candidates have to submit the proforma (Specimen Format for Thesis of Month) and an undertaking form with 1 or 2 pages of Abstract with a soft copy. The candidate must submit a copy of the SSC pass certificate for the record of the name on Provisional Certificate/Original Degree. The candidate's name must be as per SSC record only in the admission register of R&D, marks memos and also on the thesis.

The award of the Degree shall be confirmed by the Executive Council of the University.

16. CHANGE OF SUPERVISOR/CO-SUPERVISOR

For major research related issues, the DRC will examine on a case-by-case basis and give its recommendations.

In case of demise of supervisor or unwillingness to guide due to health problems, the research scholar may request for a new supervisor. In such cases, if the research scholar is already having co-supervisor, the co-supervisor will act as supervisor and a new co-supervisor will not be permitted.

In case of demise or unwillingness on the part of co-supervisor due to health problems, the research scholar will continue with the existing supervisor and a new co-supervisor will not be permitted.

If supervisor is not satisfied with the research work of scholar, he should express his dissatisfaction and unwillingness to guide the research scholar before RRM1 only, and change of supervisor will be permitted. In this case, if co-supervisor is there, the co-supervisor will act as supervisor and inclusion of a new co-supervisor will not be permitted.

If co-supervisor is not satisfied with the research work of scholar, he should express his dissatisfaction and unwillingness to guide the research scholar before RRM1 only. The research scholar will continue with the existing supervisor and a new co-supervisor will not be permitted.

If both supervisor and co-supervisor express unwillingness to guide the research scholar, an appropriate alternative arrangement will be made by the University.

17. CHANGE OF AREA OF RESEARCH WORK


If a candidate wants to change the topic/title, it should be done with the approval of the Director, R&D. For this purpose, the candidate should apply in the prescribed format and submit to the Director, R&D. The application from the candidate for change of title/topic shall be endorsed by the supervisor and co-supervisor is necessary.

Any change in the title of the thesis must be approved in the colloquium. If the colloquium committee suggests any modifications/changes in the title proposed by the candidate, the new title must be clearly written in the colloquium committee report duly signed by the chairman and other members of the committee. There shouldn't be any deviation in the title approved in colloquium to the title given on the thesis copies.

The University may permit modification in the topic or area of research before the completion of Course-work, RRM's. If the re-submitted topic of work is different from the original proposed topic, it constitutes a change of topic and represents a major change. For such cases, the thesis submission date eligibility will be three calendar years after the change is affected. Further, research scholar should reappear for RRM's if already completed with journal publications in the modified research topic. Further it should be noted that change of topic will not be entertained after three years from the date of registration.

18.FEE PARTICULARS


Fee Particulars	External Registration Scholars	Full-Time Scholars	Regular/Contract JNTUH Faculty Annual Fee
Annual Fee	30000/- (External Scholars)	20000/-	5000/- (for Regular teaching faculty)*.
	60000/- (Industrial Executives)		15000/- (for Asst. Prof. Contract)*.
RM Fee	5000/-	5000/-	5000/-
Course Work Fee (Per subject)	5000/-	5000/-	5000/-
RRM Fee	--	--	--
Colloquium Fee	--	--	--
Anti-Plagiarism Fee	--	--	--
Thesis Submission Fee	5000/-	5000/-	5000/-
Extension Fee	25000/- for every year	25000/- for every year	25000/- for every year



* Any concession in tuition fee is applicable for five academic years only. There after a prescribed fee on par with other full time and external scholars is to be paid.


19. GENERAL INFORMATION

- 19.1. The registration of a Ph.D. scholar may be cancelled by the Director, R&D, if the candidate fails to satisfy the conditions stipulated in the admission order or violates the rules and regulations of Ph.D. after giving notice to the concerned candidate.
- 19.2. The Director, R&D may cancel the registration of a Ph.D. scholar on the recommendation of the supervisor and/or DRC under the following circumstances after giving notice to the candidate:
 - 19.2.1. Where the progress has been reported to be unsatisfactory for two years in consecutive half yearly RRM's.
 - 19.2.2. If the Research Scholar does not pay tuition fee for two consecutive academic years, his/her Ph.D. admission is liable to be cancelled.
 - 19.2.3. Where a Scholar discontinues research, and/or where they have accepted any of appointment other than specified earlier, without the written consent from JNTUH.
 - 19.2.4. If any research scholar desires for cancellation of admission due to their personal reasons, then the scholar has to pay the tuition fee as prescribed for minimum duration of the programme.
- 19.3. The Directorate of Research & Development will maintain Receipt books, cash book, details of financial transactions etc. The original certificates and admission folio of the scholar shall be maintained by the Office of the Research &




Development, till the completion of the research programme of the respective candidates.

- 19.4. A Student Admission Number, which will also be the Hall Ticket number / registered number will be assigned to the scholar. An Identity Card for the exclusive use of academic facilities of JNTUH, will be given to each candidate signed by Director, Research & Development.
- 19.5. During the research period time of JNTUH, the scholar shall not register for any other course, at any other University or Institution, leading to the award of a degree. In case of any such ambiguity, he/she will forfeit the admission at JNTUH.
- 19.6. In any letter being submitted to the Director, R&D by the candidate the signatures of Research Supervisor and/or co-supervisor are necessary and mandatory.
- 19.7. Faculty members involved in active research may be considered for supervisorship. The decision of Hon'ble Vice Chancellor in allotting Research supervisors to a particular research scholar is final.
- 19.8. If a situation arises where there is a conflict between Research Scholar and Supervisor / Co-Supervisor, the decision of University regarding Change of Supervisor / Co-Supervisor is final.
- 19.9. The scholars are required to actively involved in doing original research resulting in possible IPR and patents.
- 19.10. The academic regulations should be read as a whole for purposes of any interpretation.
- 19.11. In case of any doubt or ambiguity in the interpretation of the above rules, the decision of the Vice-Chancellor is final.

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- 19.12. The University reserves the right to alter the regulations from time to time as and when necessary.
- 19.13. Research Scholars shall show due respect to the officers and teachers of the Institute and other employees of the institute. Proper courtesy and consideration should be extended to all employees of the Institute. They shall also pay due attention and courtesy to visitors.
- 19.14. Research Scholars are required to develop a friendly camaraderie with fellow scholars. In particular, they are expected to show kindness and consideration to the new scholar's admitted to the Institute every year. Ragging of newcomers in any form is banned by law: acts of ragging will be considered gross indiscipline and will be severely dealt with.
- 19.15. The following acts of omission and/or commission shall constitute gross violation of the code of conduct and are liable to invoke disciplinary measures:
- 19.15.1. Ragging
- 19.15.2. Lack of courtesy and decorum; indecent behaviour anywhere within or outside the campus
- 19.15.3. Wilful damage or stealthy removal of any property / belongings of the Institute or of fellow scholars
- 19.15.4. Possession, consumption or distribution of alcoholic drinks or any kind of hallucinogenic drug
- 19.15.5. Adoption of unfair means in the examinations
- 19.15.6. Mutilation or unauthorized possession of library books
- 19.15.7. Noisy and unseemly behaviour, disturbing studies of fellow scholars Commensurate with the gravity of the offense, the

punishment may be reprimand, fine, suspension of fellowship, debarment from an examination or RRM, rustication for a specified period or even outright expulsion from the Institute.

- 19.16. The Head of the Department, BoS, the Head of the Unit (Principal/Director) respectively, shall have the authority to reprimand or impose fine or take any other suitable measures for maintaining the discipline.
- 19.17. No scholar can receive scholarship/fellowship from more than one source, either Government or Private.
- 19.18. The fee particulars and mode of payment and other related details may be obtained from the office of Research and Development of JNTUH. Fee payment for Full-Time as well as External Candidates is year-wise may be paid before 31st July of every year in DRD. Payment can be made through Online mode (Please refer to JNTUH website for further details).
- 19.19. In the event of cancellation of Ph.D. registration by the candidate on his/her requestor by the University for any reason, all the fee amount due must be cleared by the candidate for the return of original certificates. If any reason a candidate takes his/her Original Certificates temporarily from the R&D office during the course of research work, the original certificates must be returned within the stipulated time as decided by Director, R&D, otherwise their admission is liable to be cancelled. The requisition for Original Certificates on temporary basis must be given on a Rs. 10/- bond paper mentioning the date before which the certificates will be returned back to the office. The details are available in the University website.


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- 19.20. There is no provision for issuing Transfer Certificate on completion of Ph.D. degree, however Migration certificate can be obtained from Examination Branch of the University.



JNTUH COLLEGE OF ENGINEERING MANTHANI



Academic Block - I



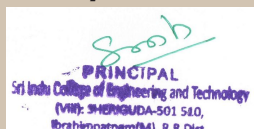
Academic Block - II



Godavari Hostel



College Library



JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD CAMPUSE



Boys Hostels



Girls Hostels



College Library



Solar Power Plant



JNTUH COLLEGE OF ENGINEERING SULTANPUR

DIRECTORATE OF RESEARCH AND DEVELOPMENT

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

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