Admission in Full-Time Ph.D Programme under Visvesvaraya Ph.D Scheme for Electronic and IT, Supported by the Department of Electronics and IT (DeitY), Ministry of Communications and IT, Govt. of India, 2022-23

Andhra University College of Engineering (A), Andhra University, Invites applications from highly motivated research oriented students for admission for its full-time Ph.D Programme under Visvesvaraya Ph.D Scheme for Electronic and IT in the following department for the year 2022-23. This scheme is supported by the Department of Electronics and IT (DeitY), Ministry of Communications and IT, Govt. of India and provides fellowships and incentives to full-time Ph.D candidates, respectively. Industry personnel and Government sponsored candidates are strongly encouraged to apply under this scheme. Merely meeting eligibility criterion does not guarantee selection in the PhD programme. Further, the applicants are required to visit www.phd.digitalindiacorporation.in for details about the Visvesvaraya PhD Scheme.

Department-wise vacancy details

S. No.	Name of the Department	Full time
1.	Department of Computer Science &Systems Engineering	**02**

1. Eligibility Criterion and Admission Procedure:

i. A candidate for admission to the Programme for Degree of Doctor of Philosophy must have obtained at least a Second Class Masters degree with not less than 55% of marks of a University or a Degree recognized by the University as its equivalent in the subject in which the candidate wishes to pursue a course of research or in a subject allied thereto.

ii. Candidates who have qualified UGC/CSIR NET/JRF examination or any other equivalent examination conducted by the recognized Government Department/ Institute/ Agency/ SLET/ valid GATE Score (with qualifying marks). DST - Inspire Fellows

OR

The teacher fellowship holders of the recognized college/ university/ institution, provided that the competent employing authority issues a No Objection Certificate to the candidate to join Ph.D. Programme.

OR

ICCR-Sponsored candidates.

OR

Central/ State government/ PSU employee(s) should apply thorough proper channel and should produce No Objection Certificate at the time of interview.

iii. Selection & admission process tentatively contain written examination and/or interview for shortlisted candidates. The syllabus for written examination shall be made available on Andhra University web site.

iv. All the communication would be through e.mail given by the candidate only.

2 Fellowships:

Full-time Ph.D Candidates:

Fellowship: @Rs.38,750 p.m. (I & II years); Rs.43,750 p.m. (III - V years)

Annual Contingency grant/support: @Rs30,000 per year for consumables etc.

Reimbursement of Rent (ROR): Those Ph.D candidates who are not provided accommodation or choose not to avail the accommodation provided by the institution, the ROR would be on reimbursement basis, based on actual and subject to a ceiling of 16%.

2. How to apply:

Eligible candidates are required to download prescribed application form from www.andhrauniversity.edu.in and submit duly filled –in application form along with a D.D of Rs 1000/- (Rupees one thousand only) favoring "Principal, A U College of Engineering (A), Visakhapatnam" payable at Visakhapatnam by 15 **November 2022**. The application form and D.D may be submitted by hand/ speed post/ courier to:

The Principal,
AU College of Engineering(A),
Andhra University,
Visakhapatnam, A.P.
INDIA – 530 003.
Phone: 0891 2844915
e-mail:
auceaprincipal@gmail.com

The list of shortlisted candidates eligible for written test/interview will be displayed on the Andhra University website.

A U COLLEGE OF ENGINEERING

Andhra University, Visakhapatnam – 530 003

Please attach your recent colour passport size photograph here

Application for Full-time PhD under *Visvesvaraya PhD scheme*

DD no. _____Date_____Bank & Branch_____

1. Name of the Department applying to: COMPUTER SCIENCE & SYSTEMS ENGG.

2. Name of the Candidate (BLOCK LETTERS) _____

3. Parent/Guardian's Name (BLOCK LETTERS) _____

_____

4. (a) Date of Birth: _____ (b) Sex (M/F/Others)_____

(c) Marital status (Married/Single): _____ (d) Category(SC/ST/OBC/GEN): _____

5. Previous research experience (if any): _____

6. Publications (if any, attach papers): _____

7. GATE/NET (if any): Qualified (Yes/No): _____ Score: _____ Rank: _____

Discipline: _____ Year: _____

8. Academic Qualification: (Starting from Standard 10th or equivalent Examination)

Name of Exam passed	**Name of the School/College/Institute /University/Board**	**Year of Passing**	**Discipline/ Specialization**	**Percentage of Marks/ CGPA/CPI**

9. (a) Address for Communication: _____
(BLOCK LETTER)

_____

(b) Telephone / Mobile No. _____

(c) E-mail ID_____

10. Name of the employer, if applicable, & total experience

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11.Research information of the candidate (attach separate sheet if necessary)
(i) Research work already done & deliverables:

_____

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(ii) Plan of Research work proposed & suitability to the theme of the scheme:

_____

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_____

I do hereby declare that the information furnished in this application is true to the best of my knowledge and belief. If selected, I promise to abide by the rules and regulations of the Institute.

Date:

Place:

Full Signature of the Applicant

SYLLABUS: COMPUTER SCIENCE & SYSTEMS ENGINEERIG:

Section 1: Engineering Mathematics

Discrete Mathematics: Propositional and first order logic. Sets, relations, functions, partial orders
and lattices. Monoids, Groups. Graphs: connectivity, matching, coloring. Combinatorics: counting,
recurrence relations, generating functions.
Linear Algebra: Matrices, determinants, system of linear equations, eigenvalues and eigenvectors,
LU decomposition.
Calculus: Limits, continuity and differentiability. Maxima and minima. Mean value theorem.
Integration.
Probability and Statistics: Random variables. Uniform, normal, exponential, poisson and binomial
distributions. Mean, median, mode and standard deviation. Conditional probability and Bayes theorem.
Computer Science and Information Technology

Section 2: Digital Logic

Boolean algebra. Combinational and sequential circuits. Minimization. Number representations and
computer arithmetic (fixed and floating point).

Section 3: Computer Organization and Architecture

Machine instructions and addressing modes. ALU, data - path and control unit. Instruction
pipelining, pipeline hazards. Memory hierarchy: cache, main memory and secondary storage; I/O
interface (interrupt and DMA mode).

Section 4: Programming and Data Structures

Programming in C. Recursion. Arrays, stacks, queues, linked lists, trees, binary search trees, binary heaps, graphs.

Section 5: Algorithms

Searching, sorting, hashing. Asymptotic worst case time and space complexity. Algorithm design
techniques: greedy, dynamic programming and divide - and - conquer. Graph traversals, minimum
spanning trees, shortest paths

Section 6: Theory of Computation

Regular expressions and finite automata. Context-free grammars and push-down automata.Regular and contex-free languages, pumping lemma. Turing machines and undecidability.

Section 7: Compiler Design

Lexical analysis, parsing, syntax-directed translation. Runtime environments. Intermediate code
generation. Local optimisation, Data flow analyses: constant propagation, liveness analysis, common subexpression elimination.

Section 8: Operating System

System calls, processes, threads, inter - process communication, concurrency and synchronization.
Deadlock. CPU and I/O scheduling. Memory management and virtual memory. File systems.

Section 9: Databases

ER - model. Relational model: relational algebra, tuple calculus, SQL. Integrity constraints, normal
forms. File organization, indexing (e.g., B and B+ trees). Transactions and concurrency control.

Section 10: Computer Networks

Concept of layering: OSI and TCP/IP Protocol Stacks; Basics of packet,circuit and virtual circuitswitching;
Data link layer: framing, error detection, Medium Access Control, Ethernet bridging;
Routing protocols: shortest path, flooding, distance vector and link state routing; Fragmentation
and IP addressing, IPv4, CIDR notation, Basics of IP support protocols (ARP, DHCP, ICMP), Network Address Translation (NAT); Transport layer: flow control and congestion control, UDP,
TCP, sockets; Application layer protocols: DNS, SMTP, HTTP, FTP, Email.