

ACADEMIC AUDIT PARAMETERS

Name of the Dept. - Computer Engineering and Information Technology

Evaluation period: 1st July 2020 to 30th June 2021

	Criteria	Department's comments (Quantification as far as possible)		Reviewers Observations and comments
A	Department information			
01	Year of Establishment: 1992			
02	NBA Accreditation status	BTech (Computer Engineering & Information Technology)	Accredited Up to June 30, 2021 Compliance Report Submitted for Extension (June 2021)	NBA Accreditation is in process
		MTech (Computer Engineering)	Accredited Up to June 30, 2022	
		MTech (Information Security)	Applied for Accreditation	
03	Department vision, mission, graduate attributes/ goals clearly defined and its agreement with Institute vision, mission and goals	Vision	To be one of the best in the country by developing globally competent engineers, motivated entrepreneurs, prospective researchers, and aspiring academicians	Vision and Mission are satisfactory
		Mission	<ul style="list-style-type: none"> • To create globally competent students having ability to design, develop and test world class software, keeping pace with the latest technological developments • To promote continuous learning, all-inclusive research in core and 	

			<p>emerging areas</p> <ul style="list-style-type: none"> • To inculcate the spirit of inquiry, professionalism, team work, innovation and entrepreneurship among the students • To exchange expertise with industry, academic and research organizations • To imbibe ethical and social values among students 	
		Goals	<ul style="list-style-type: none"> • Establish minimum three state of art research laboratories in the contemporary areas such as <ul style="list-style-type: none"> o Natural Language Processing o Multimedia and Communication o Data Warehousing o High Performance Computing o Bioinformatics • Enable all students to pursue their chosen career paths such as higher education, entrepreneurship and placement in reputed organizations • To have 80% faculty members with Ph.D. qualification by 2022 • At least 5 publications in reputed international journals/conference every year 	<p>For establishing the state-of-the-art laboratories an independent building for the department should be constructed</p> <p>Faculty should be encouraged to pursue Ph.D.</p>

			<ul style="list-style-type: none"> Execute industry/R&D projects with annual 10% growth rate Introduce a new postgraduate program in a contemporary area by 2022 	PG Diploma (Data Science and Artificial Intelligence) has started	
		Agreement with Institute vision, mission and goals	Yes		
04	No. of PG programs in the department	1. MTech Computer Engineering 2. MTech Information Security 3. PG Diploma (Data Science & Artificial Intelligence)			
05	MoU's signed by Department	Attached in Annexure A 1			Satisfactory
06	Student Faculty Ratio (SFR)	UG	12.36	SFR Calculation is attached in Annexure A 2	Satisfactory
		PG	10.5		
07	Total PGD faculty required	05			50% load is shared by the faculty in-house as mentioned during the discussion Efforts should be made to fill the vacant faculty positions
	Total PGD faculty in-house	00			
	Total PGD faculty from outside	05 (List is attached in Annexure A 3)			
08	Budget and purchases as per dept. budget. (DDF utilization)	Budget of the department is Attached Annexure A 4			Satisfactory
		Budget Head	Amount (in Lakhs)		
		Maintenance	7		

		Consumable	14	
		Machinery & equipment	37	
		Research Grant	24	
		Startups	50 (All Dept.)	
09	PG Diploma courses conducted, if any	<p>We started PG Diploma in Data Science and AI from AY 2020-21</p> <p>First batch has passed out in Oct. 2021</p> <p>Course Title: Post Graduate Diploma in Data Science and Artificial Intelligence</p> <p>Period: 1 Year</p> <p>Type: Award of Certificate (PG Diploma)</p>		The receipts from this course should be used for the development of the department
10	Short Term Part-Time/Full Time CEPs / Symposia / FDPs conducted by the department, if any	<p>1. One-day awareness webinar on Outcome based Education and Accreditation Sponsored by NBA, dated on 27th Nov. 2020</p> <p>2. One-week Faculty Development Program on Cyber Security and Blockchain: Awareness, Use-cases, and Challenges (CSB-2021) during 4-8 January 2021</p> <p>3. One Day Symposium on Cyber Security: Awareness and Challenges for Teachers (February 11, 2021)</p>		Satisfactory
11	Portfolio allotment and faculty mentoring schemes in place	Yes (Attached in Annexure A 5)		Student Mentor Programme may be started wherein senior students mentor junior students
12	Emeritus Professor, Professor of Practices	<ul style="list-style-type: none"> Department has One Professor Emeritus 		

		<ul style="list-style-type: none"> For Professor of Practices discussions were initiated in AY 2020-21, and now in AY 2021-22 as the policy and structure is in place, we have two faculties appointed as Professor of Practices 	This is a good practice
B	Infrastructure facilities		
Space and facilities No. of Classrooms Tutorial rooms No. of labs Dept. library and reading room Wi-fi Facility	03 Exclusive classrooms & 01 dept. Seminar hall. Remaining classrooms and tutorial rooms shared with other programs in academic complex classrooms No. of labs: 12 (Annexure B1.Labs) No of PCS: 386 Dept has its own well maintained departmental library. It has 3453 no of books. It is one of the important resources centers of the department serving both students and faculty. It includes a varied number of books purchased under the project ISEA and IMPACT. Some of the books are donated by the faculty and students of the department. Wi-Fi Facility is provided to all students and faculty	The department should have an independent building The number of books is satisfactory. Some of the high quality reference books are mentioned at the end.	
Equipments and facilities available, their status: working/not working; Log book status. Softwares, modeling and computational tools and facilities,	Institute data Center centrally manages IT needs of the campus. The IT equipment, tools and connectivity including maintenance support to the campus is provided by the department	Satisfactory	
Industry sponsored labs	NVIDIA Laboratory	Satisfactory	

		Cognizant-COEP Laboratory Data Mining – BARC Supported Cloud Computing – IBM Supported																												
	New lab/equipments added in 2020-21 New Softwares added in 2020-21	Cisco Webex, Microsoft Team, Laptops(Student/faculty) Some new and updated open source softwares used as follows: In house, Moodle is configured with cisco webex, Computer dept. Pycharm, Anaconda- Machine Learning StarUML, ArgoUML, PGmodel- Model designing	Use of open source software is the strength of the Department																											
C	Admission status																													
	Admission Status (Sanctioned v/s Actual)	<table border="1"> <thead> <tr> <th>Courses</th> <th>Sanctioned</th> <th>Actual</th> </tr> </thead> <tbody> <tr> <td>UG</td> <td>120</td> <td>120 + 12 (TFWS&EWS)</td> </tr> <tr> <td>UG NRI</td> <td></td> <td></td> </tr> <tr> <td>DSY</td> <td>6</td> <td>6</td> </tr> <tr> <td>PG1 (CE)</td> <td>12</td> <td>16</td> </tr> <tr> <td>PG2 (IS)</td> <td>18</td> <td>18</td> </tr> <tr> <td>PGD (DSAI)</td> <td></td> <td></td> </tr> <tr> <td>PG-IS</td> <td>24</td> <td>24</td> </tr> <tr> <td>PGD</td> <td>60</td> <td>22</td> </tr> </tbody> </table>	Courses	Sanctioned	Actual	UG	120	120 + 12 (TFWS&EWS)	UG NRI			DSY	6	6	PG1 (CE)	12	16	PG2 (IS)	18	18	PGD (DSAI)			PG-IS	24	24	PGD	60	22	As per norms
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	MH-CET Ranking of students	approx. distribution within first 1000 from more than 100000 ranks.																												

D		Academics (Teaching learning process)																									
1	Syllabus Content % UG	<table border="1"> <thead> <tr> <th>Course</th> <th>% of Credits</th> </tr> </thead> <tbody> <tr> <td>Basic Science Course</td> <td>16.30%</td> </tr> <tr> <td>Engineering Science Course</td> <td>10.80%</td> </tr> <tr> <td>Self Learning Course (Scheme A) / (Scheme B)</td> <td>3.60%</td> </tr> <tr> <td>Humanities/Social Sciences/Management Course</td> <td>4.80%</td> </tr> <tr> <td>Liberal Learning Course</td> <td>0.60%</td> </tr> <tr> <td>Skill Based Course (Scheme A) / (Scheme B)</td> <td>9.60%</td> </tr> <tr> <td>Interdisciplinary Foundation Course</td> <td>2.50%</td> </tr> <tr> <td>Interdisciplinary Open Course</td> <td>3.60%</td> </tr> <tr> <td>Department Elective Course</td> <td>3.60%</td> </tr> <tr> <td>Program Core Course</td> <td>33.80%</td> </tr> <tr> <td>Laboratory Course</td> <td>10.80%</td> </tr> </tbody> </table> Annexure D2 BTech Curriculum	Course	% of Credits	Basic Science Course	16.30%	Engineering Science Course	10.80%	Self Learning Course (Scheme A) / (Scheme B)	3.60%	Humanities/Social Sciences/Management Course	4.80%	Liberal Learning Course	0.60%	Skill Based Course (Scheme A) / (Scheme B)	9.60%	Interdisciplinary Foundation Course	2.50%	Interdisciplinary Open Course	3.60%	Department Elective Course	3.60%	Program Core Course	33.80%	Laboratory Course	10.80%	<p>The syllabus is well structured. However, all core courses should be over by sixth semester so as to enable students to appear for competitive examinations such as GATE and interviews etc.</p>
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2	Syllabus in line with AICTE model curriculum	<p>Yes</p> Annexure D2 AICTE Model Curriculum																									
3	Syllabus Content % PG	<table border="1"> <thead> <tr> <th>Course</th> <th>% of Credits</th> </tr> </thead> <tbody> <tr> <td>Program Specific Mathematics Course</td> <td>5.90%</td> </tr> <tr> <td>Program Specific Bridge Course</td> <td>4.40%</td> </tr> <tr> <td>Department Elective Course</td> <td>13.20%</td> </tr> <tr> <td>Program Core Course</td> <td>32.40%</td> </tr> <tr> <td>Laboratory Course</td> <td>2.90%</td> </tr> </tbody> </table>	Course	% of Credits	Program Specific Mathematics Course	5.90%	Program Specific Bridge Course	4.40%	Department Elective Course	13.20%	Program Core Course	32.40%	Laboratory Course	2.90%	<p>Introduction to Randomised Algorithms may be included in the Algorithms and Complexity Theory course</p> <p>Advanced Concepts in</p>												
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Interdisciplinary Open Course	4.40%										
Liberal Learning Course	1.50%										
Self Learning Course	8.80%										
Skill Based Course	26.50%										
4	<p>Rotation of faculty for subject teaching</p> <p>Faculty matrix of teaching of his/her number of courses</p> <p>Availability of alternate faculty for teaching-evaluation of every course</p>	<p>Yes</p> <p>Annexure D4 Faculty-Subject Mapping</p>	Over the years the faculty should have taught most of the core courses in Computer Science								
5	% of Senior faculty engaging UG Courses	Yes, 61% (Faculties having teaching experience more 10 years)	Good Practice								
6	Faculty course files containing handouts, assignments, tutorial sheet, question bank, list of resources/reference materials , Lab manuals/handouts etc.	<ul style="list-style-type: none"> In an online teaching mode, exhaustive use of online tools such as Moodle and Github is practiced by teacher and students Instructions, online lectures, resource sharing, quizzes, assignments, and discussion forums 	Questions on the Theory of NP-completeness should be asked in the Design and Analysis of								

		Online Moodle course. Hyperlink a course https://moodle.coep.org.in/moodle/course/view.php?id=1552 Annexure D6 Papers Annexure D6 COPO	Algorithms course
7	Syllabus revision frequency UG PG PGD No. of new electives added during last revision and MOOC courses	<ul style="list-style-type: none"> Syllabus revision is done in every 4 year with guidelines from Institute and meetings with BoS and IAB members appointed in department 3 additional courses added in TY, BTech curriculum revision is due in AY 2021-22 MOOC courses are subject to list introduced by NPTEL every year Annexure D7 BoS & IAB Members	Satisfactory
8	Teaching Assistants in Department	MTech CE & IS Students : 33 Annexure D8 MTech TA	
9	Full time PhDs in the department	04 Annexure D9 Phd Students	The number of full time students should be increased
10	PhDs having potential to IPR generation	02 Annexure D10 PhD IPR Details	Satisfactory
11	Ph.D. status Ongoing and completed	Ongoing : 22, Completed : 19	Satisfactory
12	Exam Evaluation scheme for Theory and Practicals	As Per Institute Guidelines examination patterns were followed Annexure for instructions and guidelines from	As per the Institute norms

	<p>Avg. numerical/analytical content per course</p> <p>Audit of question papers through experts</p> <p>External examiners participation in Theory and Practocal evaluation</p> <p>CO-PO Assessment</p>	<p>Dean Academics for Conduction of Continuous assessments and examinations for theory and lab</p> <p>Annexure D12 Academic Evaluation Schemes</p>	
13	Co-Teaching scheme	<p>Domain Experts from various organizations are invited for co-teaching schemes in every semester</p> <p>Annexure D13 Co-Teaching</p>	This is a good practice
14	DUPC-DPPC: UG & PG	<p>DUPC and DPPC meetings are conducted twice a year after every exam</p> <p>Annexure D14 DUPC-DPPC Members</p>	Satisfactory
15	<p>Evaluation of Projects: Mid term and End Sem Evaluation</p> <p>UG & PG</p>	<ul style="list-style-type: none"> To maintain quality of Project work, Project examinations are conducted which are to be evaluated by Panel of faculties and Industry Experts Students of PG publish research papers in various indexed conferences and journals UG students are encouraged to publish project work in recommended conferences/journals <p>Annexure D15 UG Project Scheme</p>	This is a good practice
16	Dept. webpage Status	Department information on college website is updated time to time	Satisfactory

17	Full time adjunct faculty in the dept.	05 Annexure D17 Faculty details	As per requirement
E	Faculty contributions		
1	Sponsored R&D projects/ Interdisciplinary projects/ Consultancies Completed/ On going	Annexure E_1	Number should increase
2	Faculty publications in SCI/Scopus/UGC Listed/E-SCI/SCI-E indexed journals (Individual) (Dept. total- will not be simple addition as faculty can be common) List of Journal Publications of AY 2020-21 to be attached	Faculty have published their research in many reputed journals, attached in Annexure E_2	Satisfactory
3	Faculty Publications in Reputed Conferences	Faculty have published their research in many reputed conferences, attached in Annexure E_3	Satisfactory
4	Faculty publication ratio SCI/Scopus indexed journals (recommended 1-1.5)	No. Of pub/Total faculty=0.57 as per last academic year 0.75 as per current number of faculties	The number of publications should increase
5	Books, Monograms, book chapters	Few Book chapters are published by faculties Annexure E_5 is attached	Satisfactory
6	IPR like Patents etc.	3 patents are files and granted by faculty with phd students as their Research work	Satisfactory

		Annexure E 6	
7	<p>Faculty self development</p> <p>Faculty deputed for QIP</p> <p>NPTEL courses completed</p>	<p>1 faculty is deputed for QIP</p> <p>Aparna santra- IIT Indore, For PHD</p> <p>Annexure E 7 is attached for NPTEL courses completed by faculty</p>	The number of faculty members with Ph.D. degree should increase
8	<p>Webinar, Conference, seminars, workshops, FDPs, STTP, Trainings etc.</p> <p>Conducted</p> <p>Attended</p>	Attached Annexure 8.1 and Annexure 8.2 for conducted and attended event details	Satisfactory
10	<p>Faculty industry connect</p> <p>Industry partners</p> <p>Own industry summer internship</p> <p>MoU signed</p>	<p>Few Members from Industry are on board of studies, who help us to revise syllabus per year</p> <p>TCS funded projects is an ongoing activity for students since 2019</p> <p>Summer Internship is majorly provided by industries like Arcesium, Bajaj Finance, Barclays, CITI Corporation, Credit Suisse, Decimal Point, EQ Technologies, FINIQ, Mastercard, Nuance, Persistent</p> <p>Annexure E 10 is attached</p> <p>MOU is Signed with TCS, IBM, Credit Suisse</p>	Satisfactory
11	Industry participation in:	TCS Industry funded for 3 projects this year total fund received is 8,5 lakhs	Industrial consultancy

	Funded projects Co-teaching	Annexure 11.1 is attached for the details of co teaching done by the industry	should increase
12	Professional society's Memberships/ national council member faculty, activities, students chapters Expert lectures organized/given	Professional Memberships like IEEE, ACM, IET, CSI student Chapters are available. Under this Conference, symposium, Faculty development programs, Lecture series are getting arranged. Annexure E 12 Expert Lectures through CSI students' Chapter are conducted	Satisfactory
F	Supporting staff contributions		
1	Qualification and participation in academics (Class 2 and 3: Lab/ office maintenance)	<ul style="list-style-type: none"> Supporting staff of the department are associated with different labs and related activities. Lab maintenance, System service and software updations time to time Annexure F 2_3 Staff Details	Technical support staff is less
2	Filing and data record keeping	Annexure F 2_3 Staff Details	
3	Class 4: House keeping	Yes Annexure F 2_3 Staff Details	
G	Students Participation and Achievements		
1	Student Performance in Academics (Passing out in first attempt % Student scoring first class (> 6.75 CGPA))	UG PG - Computer PG - Information Security	78 17 18

	UG PG PGD	PGD	16	
2	No. of UG students graduating/ed in 4 years	84		
3	Number of Students Graduating/ed in more than 4 years	5		
4	No. of PG students graduating/ed in 2 years	MTech in Computer Engineering: 18/20 M.Tech in Information Security: 20/24		
5	Number of PG Students Graduating/ed in more than 2 years	Computer: 2/20 Information Security: 4/24		
6	Students with CGPA 10 Students with CGPA 9 to < 10 Students with CGPA 8 to < 9 Rest all UG, PG, PGD	UG Students with CGPA 10 Students with CGPA 9 to < 10 Students with CGPA 8 to < 9 Rest all UG (Less than 8) PG - Computer Students with CGPA 10 Students with CGPA 9 to < 10 Students with CGPA 8 to < 9 Rest all PG (Less than 8)	0 12 30 47 0 2 4 14	

		<p>PG - Information Security</p> <p>Students with CGPA 10 0</p> <p>Students with CGPA 9 to < 10 2</p> <p>Students with CGPA 8 to < 9 9</p> <p>Rest all UG (Less than 8) 13</p> <p>PGD- DSAI</p> <p>Students with CGPA 10 0</p> <p>Students with CGPA 9 to < 10 4</p> <p>Students with CGPA 8 to < 9 9</p> <p>Rest all PGD (Less than 8) 9</p>	
7	UG (Co/extra – curricular activities) PG	Annexure G_7 UG (Co/extra –curricular activities)	Satisfactory
8	Student internships major industries UG PG PGD	UG:11 Industry project UG: 1 (SY)+115(TY)+46(BTech) PG: 16	Satisfactory
9	Student publications	Students Publication Count: 24 Annexure G_9 Student publications	Satisfactory

10	Qualifying exams (GATE, Higher studies-MS/PhD, Others)	GRE 20-21- 07 CAT:01 Gate: 02 Annexure G_10 Qualifying exams (GATE, Higher studies-MS/PhD, Others)	Satisfactory										
11	Student Achievements	Annexure G_11 Student Achievements	Satisfactory										
12	Student Startups	UG:01 Jagruti Jhetwani 02: Aniket Jagtap	Satisfactory										
H Student's Placement													
		<table border="1"> <thead> <tr> <th>Number of Students appeared for placement</th> <th>Number of Students placed</th> </tr> </thead> <tbody> <tr> <td>162</td> <td>154</td> </tr> <tr> <td>17</td> <td>14</td> </tr> <tr> <td>24</td> <td>18</td> </tr> <tr> <td>22</td> <td>12</td> </tr> </tbody> </table>	Number of Students appeared for placement	Number of Students placed	162	154	17	14	24	18	22	12	Satisfactory
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162	154												
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I Other Important Aspects													
1	Feedback system	<ul style="list-style-type: none"> Feedback mechanism monitors academic-feedback(teaching-learning) 	Satisfactory										

	<p>Passing out students</p> <p>Alumni</p> <p>Industry</p>	<p>from student every semester (mid-semester and end-semester)</p> <p>Annexure I 1</p> <ul style="list-style-type: none"> • Exit feedback from passing out students is collected at Institute level • Informal feedback from industry and alumni are collected through focused group meetings when they are at institute during expert Lecture Sessions, BoS-Academic Council and Department meetings, Academic Examinations, FDPs and Seminars 	
2	<p>Alumni connect and their involvement in dept. activities</p>	<ul style="list-style-type: none"> • Dr. Gauri Shah graduated with a bachelor's in computer engineering in 1998. She was the best outgoing student of COEP. Shah family in the fond memory of Late Dr. Gauri Shah donated Rs. 5 Crore to the department. This amount will be utilized for infrastructure development. The infrastructure thus created will be named Dr. Gauri Shah School of Computer Engineering and Information Technology. • Scholarship instituted by B.E. Computer Engineering batch of 1999 <p>Annexure I 1 2 Alumni Connect Activities</p>	Satisfactory
3	<p>Department Best Practices</p> <p>Additional practices the dept evolved during the pandemic period</p>	<p>Annexure I 3 Department Best Practices</p>	Satisfactory

4	Adaptability of Students, Faculty and Organization to the changing times like covid, Online classes, Online lab.	<ul style="list-style-type: none"> • In an online teaching mode, exhaustive use of online tools such as Moodle and Github is practiced by teacher and student • Instructions, online lectures, resource sharing, quizzes, assignments, discussion forums 	Satisfactory
5	Activities having societal impact	<ul style="list-style-type: none"> • Department faculties and students are actively involved in Unnat Bharat Abhiyaan • Provided technical services for procuring laptops to needy students with the support of Alumni and Industry • Department faculties extending their services for Technical assessment, Technical expertise for at DRDO, Maharashtra Police, and other government departments • Department faculties are contributing their services for other institutes and universities as part of their academic bodies and for assessment audits 	Satisfactory

J Reviewer's final comments on dept. strengths and scope for improvement and signature

Strengths:

- Two faculty appointed as Professor of Practice

- Domain Experts from various organizations are invited for co-teaching schemes in every semester
- To maintain quality of Project work, students projects are evaluated by the experts from industry at an early stage.
- The students are encouraged to use open source software.

Scope for Improvement:

- The department should have an independent building
- The number of faculty members with Ph.D. degree should increase.
- Efforts should be made to fill up the vacant faculty positions.
- The number of technical support staff should increase.

Reference Books for the Departmental Library

1. Algorithmics: The Spirit of Computing by David Harrel
2. Computers and Intractability: A Guide to the Theory of NP-Completeness by Michael Garey and David S. Johnson
3. The Art of Computer Programming Volumes by Donald E. Knuth

Date of the Academic Audit: 13-12-2021



Dr. S. R. Sathe
Professor (HAG)

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