



# SARDAR VALLABHBHAI NATIONAL INSTITUTE OF TECHNOLOGY, SURAT

Date: 22/03/2023

## The minutes (updated) of the 57<sup>th</sup> meeting of the Senate held on March 10, 2023

The aforesaid meeting was conducted on March 10, 2023, 10:00 a.m. onwards in the hybrid mode. The following members were present in the meeting.

The following members were present in the meeting.

(1)	Dr. Anupam Shukla, Professor & Director, SVNIT, Surat	: Chairman
(2)	Dr. Shashi Bala Singh, Director, NIPER, Hyderabad	: External Member
(3)	Dr. M. A. Zaveri, Prof. & Dean (Academic), SVNIT, Surat	: Member
(4)	Dr. C. D. Modhera, Prof. & Dean, (Faculty Welfare), SVNIT, Surat	: Member
(5)	Dr. V. L. Manekar, Prof. & Dean (P&D), SVNIT, Surat	: Member
(6)	Dr. Ravi Kant, Dean (SW), SVNIT, Surat	: Member
(7)	Dr. Upena D. Dalal, Professor & Dean (A&RG), SVNIT, Surat	: Secretary
(8)	Dr. A. K. Panchal, Prof. & Head, DoEE, SVNIT, Surat	: Member
(9)	Dr. Jyotirmay Banerjee, Prof. & Head, DoME, SVNIT, Surat	: Member
(10)	Dr. G.J. Joshi, Prof. & Head, DoCE, SVNIT, Surat	: Member
(11)	Dr. P. L. Patel, Professor, DoCE, SVNIT, Surat	: Member
(12)	Dr. J. N. Patel, Professor, DoCE, SVNIT, Surat	: Member
(13)	Dr. A. K. Desai, Professor, DoCE, SVNIT, Surat	: Member
(14)	Dr. C. H. Solanki, Professor, DoCE, SVNIT, Surat	: Member
(15)	Dr. K. A. Chauhan, Professor, DoCE, SVNIT, Surat	: Member
(16)	Dr. P. G. Agnihotri, Professor, DoCE, SVNIT, Surat	: Member
(17)	Dr. Rakesh Kumar, Professor, DoCE, SVNIT, Surat	: Member
(18)	Dr. R. A. Christian, Professor DoCE, SVNIT, Surat	: Member
(19)	Dr. S. M. Yadav, Professor, DoCE, SVNIT, Surat	: Member
(20)	Dr. P. A. Parikh, Professor, DoChE, SVNIT, Surat	: Member
(21)	Dr. Mousumi Chakraborty, Professor, DoChE, SVNIT, Surat	: Member
(22)	Dr. D. R. Patel, Professor, DoCSE, SVNIT, Surat	: Member
(23)	Dr. S.N. Sharma, Professor, DoEE, SVNIT, Surat	: Member
(24)	Dr. Anandita Chowdhury, Professor, DoEE, SVNIT, Surat	: Member
(25)	Dr. Varsha A. Shah, Professor, DoEE, SVNIT, Surat	: Member
(26)	Dr. J. N. Sarvaiya, Professor & I/c. Head, DoECE, SVNIT, Surat	: Member
(27)	Dr. R. Venkata Rao, Professor, DoME, SVNIT, Surat	: Member
(28)	Dr. H. K. Raval, Professor, DoME, SVNIT, Surat	: Member
(29)	Dr. D. P. Vakharia, Professor, DoME, SVNIT, Surat	: Member
(30)	Dr. K. P. Desai, Professor, DoME, SVNIT, Surat	: Member
(31)	Dr. A. A. Shaikh, Professor, DoME, SVNIT, Surat	: Member
(32)	Dr. Shailendra Kumar, Professor, DoME, SVNIT, Surat	: Member
(33)	Dr. A. K. Shukla, Professor, DoMH, SVNIT, Surat	: Member
(34)	Dr. V. H. Pradhan, Professor, DoMH, SVNIT, Surat	: Member

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(35)	Dr. Neeru Adlakha, Professor, DoMH, SVNIT, Surat	: Member
(36)	Dr. Smita Jauhari, Professor, DoC, SVNIT, Surat	: Member
(37)	Dr. M. A. Desai, Asso. Prof. & Head, DoChE, SVNIT, Surat	: Invitee
(38)	Dr. Rupa G. Mehta, Asso. Prof. & Head, DoCSE, SVNIT, Surat	: Invitee
(39)	Dr. P. N. Patel, Asso. Prof. & Head, DoECE, SVNIT, Surat	: Invitee
(40)	Dr. J. M. Dhodiya, Asso. Prof. & Head, DoMH, SVNIT, Surat	: Invitee
(41)	Dr. S. K. Sahoo, Asso. Prof. & Head, DoC, SVNIT, Surat	: Invitee
(42)	Dr. Dimple V. Shah, Asso. Prof. & Head, DoP, SVNIT, Surat	: Invitee
(43)	Dr. Pramod Mathur, Registrar, SVNIT, Surat	: Secretary

The leave of absence of the following members was noted.

(1)	Dr. R. P. Tewari, Professor, DoAM, MNNIT Allahabad	: External Member
(2)	Dr. Omkarprasad S. Vaidya, Professor, IIM Lucknow	: External Member
(3)	Dr. D. C. Jinwala, Prof. & Dean (R&C), SVNIT, Surat	: Member
(4)	Dr. Z. V. P. Murthy, Professor, DoChE, SVNIT, Surat	: Member
(5)	Dr. Jigisha K. Parikh, Professor, DoChE, SVNIT, Surat	: Member
(6)	Dr. M. Mansoor Ahammed, Professor, DoCE, SVNIT, Surat	: Member
(7)	Dr. S. A. Vasanwala, Professor, DoCE, SVNIT, Surat	: Member
(8)	Dr. R. Chudamani, Professor, DoEE, SVNIT, Surat	: Member
(9)	Dr. T. N. Desai, Professor, DoME, SVNIT, Surat	: Member
(10)	Dr. K. N. Pathak, Professor, DoP, SVNIT, Surat	: Member
(11)	Mr. Raghav Khandelwal, Student General Secretary (SGS)	: Invitee
(12)	Mr. Sarvesh Kumar, Academic Affairs Secretary (AAS)	: Invitee
(13)	Ms. Janavi Popat, Research & Innovation Affairs Secretary (RIAS)	: Invitee

### **INTRODUCTION BY THE CHAIRMAN**

At the outset, the Chairman Senate warmly welcomed the Members of the Senate, including the External Member Dr. Shashi Bala Singh, Director, NIPER, Hyderabad, for the Senate meeting. Then, the Chairman briefed comprehensively the agenda items of the 57<sup>th</sup> meeting of the Senate.

Thereafter, the Dean (Academic) was requested to precede with the agenda items.

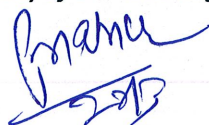
### **Items and resolutions:**

<b>Item 1</b>	<b>To confirm the minutes of the 56<sup>th</sup> meeting of the Senate held on December 30, 2022. Annexure 1</b>
<b>Res. 1</b>	Confirmed.
<b>Item 2</b>	<b>To note and approve the actions taken on the resolutions adopted in the 56<sup>th</sup> meeting of the Senate held on December 30, 2022. Annexure 2</b>
<b>Res. 2</b>	Noted and approved.
<b>Item 3</b>	<b>To consider and adopt resolutions about the 'recommendations' made in the 60<sup>th</sup> meeting of the Institute Academic Advisory Committee (IAAC) held on January 31, 2023.</b> Link: <a href="https://svn timer.ac.in/Data/minutes/iaac/Minutes%20with%20Annexure.pdf">https://svn timer.ac.in/Data/minutes/iaac/Minutes%20with%20Annexure.pdf</a>
<b>Item 3.1</b>	To discuss the reports submitted by the committee about the implementation of the National Education Policy (NEP) 2020 at SVNIT and adopt a resolution for implementation from the Academic year 2023-24. Departments are advised to submit their course structure as per NEP within 15 days so that

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	it can be discussed and approved in the next IAAC. The template was circulated to HoDs for deciding the Exit-Equivalence Degree awarding, Entry-Requirement, Curriculum Structure, and Subjects list for Core / Specialization. The guidelines and the template are attached in <b>Annexure 1.4</b> .
<b>Item 3.2</b>	<p>To consider the recommendations of 101th DAAC, Department of Chemical Engineering conducted on 27/12/2022. (Minutes Ref. No. DoChE/154/2022-23 dated 09/01/2023)</p> <p>The following are the resolutions after discussion:</p> <p>GATE is a standard examination and the candidate should have cleared only once. As per the O.M. of MHRD dated 30 January 2019 NET / GATE National level examinations are mandatory.</p> <p>It is resolved that from the next academic year 2023-24 the written test requirement as per Academic Rules and Regulation for Doctoral Programmes July 2019 point 2.2.2, is not mandatory for the department. The written test may be conducted at the discretion of the department. The department has to publish the criteria for the selection process on the institute website along with the list of eligible candidates called for the admission process. The department should provide the eligible list of degrees for the PhD admission in the respective discipline approved by a DAAC of the respective department and the same information will be included in the information brochure.</p> <p>With reference to resolution 2.2 of 60<sup>th</sup> IAAC mentioned above, the cut-off criteria in a written test is at the discretion of the department. The department has to publish the criteria for the selection process on the institute website along with the list of eligible candidates called for the admission process.</p> <p>The comprehensive examination as per Academic Rules and Regulation for Doctoral Programmes July 2019 point number 3 will be discontinued for the new entrant from the academic year 2023-24.</p> <p>The change in "No Objection Certificate" letter format is discussed and it will be included in the new academic admission form. The proposed format is attached as <b>Annexure-2.2</b>.</p> <p>The process / product patent granted will be considered towards the granting the pre-synopsis in the thesis evaluation point number 12 of Academic Rules and Regulation for Doctoral Programmes July 2019. It should be read as below:</p> <p>"The permission for conduct of Pre-synopsis shall be given only when the student has acceptance of (i) minimum TWO Technical papers in Journals enlisted in SCI/SCI(E) (Clarivate Analytics) / Scopus/Web of Science (non-paid journal) or (ii) minimum TWO process / product patents granted or (iii) ONE Technical paper in Journals enlisted in SCI/SCI(E) (Clarivate Analytics) / Scopus/Web of Science (non-paid journal) and ONE process / product patent granted.</p>
<b>Item 3.3</b>	To approve the 'addition' of an external Supervisor, i.e. Dr. Manoranjan Parida (Director, CSIR – Central Road Research Institute, New Delhi), for the Ph.D. thesis supervision of Student Ayushi Shah (DS21CE009). Currently, the Ph.D. Student is being supervised by Dr. G.J. Joshi (Professor, Department of Civil Engineering, SVNIT, Surat). Approved as per Academic Regulation 10.6 (c).
<b>Item 3.4</b>	To consider the recommendations of DAAC, Department of Computer Science & Engineering, to discuss and adopt resolutions about 'the proposed the four year B.Tech. AI programme proposal to commence from the academic Year 2023-24. The DAAC (Department of Computer Science & Engineering) recommended the four year B.Tech. AI programme. Advised to submit B.Tech. AI curriculum scheme as per NEP within 15 days for discussion in next IAAC.
<b>Item 3.5</b>	To approve the Ph.D. category conversion of Mr. Santosh L. Kakad (D20EL010) of Department of Electrical Engineering from the FIR to the PEC. Approved as per Academic Regulation 11.3 (d).

  
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<b>Item 3.6</b>	To discuss and adopt resolutions about ‘the proposed revised curricula and PEOs, POs and PSOs of the ‘Two’ M. Tech. Programmes : Power Electronics & Electrical Drives and Power Systems of the Department of Electrical Engineering. Head of the Department is advised to discuss the matter with Dean (Academic) before next IAAC.								
<b>Item 3.7</b>	To approve the ‘addition’ of a co-supervisor, i.e. Dr. Akanksha Shukla (Assistant Professor, Department of Electrical Engg. SVNIT, Surat) for the Ph.D. thesis supervision of Student Tejavath Suresh (D21EL011). Currently, the Ph.D. Student is being supervised by Dr. V.A. Shah (Professor, Electrical Engg., SVNIT, Surat). Approved as per Academic Regulation 10.6 (c)								
<b>Item 3.8</b>	To consider examination scheme for the course of Summer Training (EE405) in curriculum of B.Tech IV. Approved as per DAAC recommendation								
	Course Code	Course	L Hrs	T Hrs	P Hrs	Credits	Examination Scheme		
							Internal Marks	External Marks	Total Marks
	EE405	Summer Training	0	0	0	02	50	50	100
<b>Item 3.9</b>	<p>To discuss and adopt a resolution about discontinuing Ph.D. Written Test and Ph.D. Comprehensive Exam.</p> <p>Resolved as follows: With reference to Item 3.2 mentioned above, the cut-off criteria in a written test is at the discretion of the department. The department has to publish the criteria for the selection process on the institute website along with the list of eligible candidates called for the admission process.</p> <p>The comprehensive examination as per Academic Rules and Regulation for Doctoral Programmes July 2019 point number 3 will be discontinued for the new entrant from the academic year 2023-24.</p>								
<b>Item 3.10</b>	<p>A request of Mr. Rohit Chirag V (DS16EL003), working under the supervision of Dr. P.B. Darji and Dr. H.R. Jariwala, for the category conversion from the FIR to PEC recommended by the DAAC.</p> <p>Mr. Rohit Chirag (DS16EL003) has to return scholarship amount of overlap period of 11 days. During these days he availed the scholarship from institute and the financial package from industry. As penalty, he has to pay 1 month scholarship amount (Rs. 35000/-) to Account Section. His request for conversion FIR to PEC category is accepted subjected to the return of scholarship amount of overlap period of 11 days and payment of 1 month scholarship (Rs. 35000/-).</p>								
<b>Item 3.11</b>	To discuss and adopt a resolution about discontinuing Ph.D. Comprehensive Exam, the recommendations of DAAC, Department of Electronics Engineering. Refer to Resolution numbers 2.2 and 2.5 of 60 <sup>th</sup> IAAC (Item 3.2).								
<b>Item 3.12</b>	To discuss and adopt a resolution about discontinuing Ph.D. Written Test, the recommendations of DAAC, Department of Electronics Engineering. Agenda Item discussed in length. Refer to Resolution numbers 2.2 and 2.5 of 60 <sup>th</sup> IAAC (Item 3.2).								
<b>Item 3.13</b>	An IAAC approval of a request of Mr. Patel Jigar Lallubhai (D17ME004), working under the supervision of Dr. D. I. Lalwani, for extension to submit the thesis. The thesis will be submitted upto 10/12/2022. Request is approved.								
<b>Item 3.14</b>	To approve the ‘addition’ of a Co-supervisor, i.e. Dr. Jyotirmay Banerjee (Professor Department of Mechanical Engineering, SVNIT, Surat), for the Ph.D. thesis supervision of Student Mr. Rahul Kumar (DS21ME003). Currently, the Ph.D. Student is being supervised by Dr. Prabhanshu (Assistant Professor, Department of Mechanical Engg., SVNIT, Surat). Approved as per Academic Regulation 10.6 (c).								
<b>Item 3.15</b>	A request of Mr. Hemant Bhardwaj (D19MA002), working under the supervision of Dr. Neeru Adlakha, for the category conversion from the FIR to PEC. Approved as per Academic Regulation 11.3 (d).								



<b>Item 3.16</b>	To discuss and adopt resolutions about the “Dual Degree Programme: Bachelor of Technology and Master of Technology in Mathematics and Computing for the consideration of the IAAC. Head of the Department is advised to submit the curriculum scheme as per NEP within 15 days or before next IAAC.
<b>Item 3.17</b>	To discuss and adopt resolutions about ‘the proposed the four year B.Tech. (Engg. Phys.) programme proposal to be commenced from the academic Year 2023-24. Head of the Department is advised to submit curriculum scheme as per NEP within 15 days or before next IAAC.
<b>Item 3.18</b>	To discuss and adopt the resolution regarding M.Tech. Dissertation Evaluation Committee. It is resolved that, M.Tech. Dissertation Evaluation Committee will be re-structured. The evaluation of group of students working in a similar broad area will be carried out by a group of internal examiners consist of minimum three examiners including supervisor. The number of groups of students and examiners will be decided by the HoD based on specialization. There will be no Chairman in Committee and external examiner for evaluation with immediate effect.
<b>Item 3.19</b>	To discuss and adopt the resolution regarding Research Progress Committee for Ph.D. It is resolved that Research Progress Committee structure will remain same as per existing, consist of two nominees of examiners one from supervisor and another from DAAC chairman but there will be no Chairman in the Committee with immediate effect. The same committee members will evaluate the Credit Seminar of PhD Scholar.
<b>Item 3.20</b>	To discuss and adopt the resolution regarding Time-table Committee at the institute level. It is resolved that Time-table Committee will be constituted at the institute level to frame the timetable for all years. This committee consists of timetable coordinators from the respective department and Associate Dean (Academic) will be the chairman of the committee. The committee members’ names will be announced in the month of April of every academic year.
<b>Item 3.21</b>	To discuss and adopt the resolution regarding Ph.D. Programme and Admission suggested modifications <b>Annexure 13.1</b> For all Engineering Department, GATE will be compulsory for admission and getting Institute fellowship for FIR student. Candidate with Master’s degree in science must have qualified in GATE/NET for fellowship. As per the O.M. of MHRD dated 30 January 2019 NET / GATE National level examination are mandatory for availing institute fellowship. Sub items (2), (3) and (4) refer to Item 3.2. Sub item 5 is deferred. For sub item (6): It is decided to reduce the credit requirement from 16 credits to 12 credits and the subject “Research Methodology” is not mandatory. Each department is also requested to offer “Research Methodology” at PG level and the same course may be registered by the PhD student from any department. The course code for the “Research Methodology” subject offered by respective department will be different. The 12 credits should be earned within first two semesters. These 12 credits may be earned through (i) three theory courses or (ii) two theory courses and one credit seminar. For sub item (7), refer Item 3.2. For sub item (8), No objection certificate is revised and attached as <b>Annexure 2.2</b> . At present there is no relaxation in stay at campus for one semester. For sub item (9) will be discussed in next IAAC. For sub item (10) will be discussed in next IAAC.
<b>Item 3.22</b>	It is discussed and approved Academic Calendar for academic Year 2023-24. <b>Annexure 14.1.</b>
<b>Item 3.23</b>	To discuss the Minor program running as per NEW education policy NEP 2020

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	implementation. For better implementation of Minor and Honors programs it is decided that the Minor and Honors program from respective department will be executed as per NEW education policy NEP 2020.
	<b>Item by Chair</b>
<b>Item 3.24</b>	To include the date of convocation in the academic calendar for better planning and execution. For better planning and execution of convocation program, the convocation date should be announced with academic calendar. After discussion it is resolved that the convocation shall be scheduled either of 15 September which is celebrated as Engineer's Day – a birth anniversary of Dr. Mokshagundam Visvesvaraya or 31 October which is a birth anniversary of the Iron Man of India, Sardar Vallabhbhai Patel.
<b>Res. 3</b>	<p>Items 3.1 to 3.15 of 60<sup>th</sup> IAAC was approved by Senate.</p> <p>Items 3.16 and 3.17 regarding Dual Degree Programme: Bachelor of Technology and Master of Technology in Mathematics and Computing and B.Tech. (Engg. Phys.) programme for the consideration of the IAAC. It is resolved for considering both these proposal for starting from the academic year 2024-25. HoDs are also advised for exploring the ways for better placement scenarios and improving the rank of admitted students in these programs.</p> <p>Item 3.18 regarding the re-structuring of M.Tech. Dissertation Evaluation Committee: For M.Tech. and M.Sc. programs, the Dissertation Evaluation Committee will be re-structured. The evaluation of group of students working in a similar broad area will be carried out by a group of internal examiners consist of minimum three examiners including supervisor. The number of groups of students and examiners will be decided by the HoD based on specialization. There will be no Chairman in Committee and external examiner for evaluation with immediate effect.</p> <p>Item 3.19 It is resolved that Research Progress Committee structure will remain same as per existing, consist of two nominees of examiners one from supervisor and another from DAAC chairman but there will be no Chairman in the Committee with immediate effect. The same committee members will evaluate the Credit Seminar of PhD Scholar. The Chairman will be appointed through DAAC chairman for Pre-synopsis and through Dean Academic for Final viva-voce examination of PhD candidate.</p> <p>Item 3.20 of 60<sup>th</sup> IAAC was approved by Senate.</p> <p>Item 3.21 regarding discussing and adopting the resolution regarding Ph.D. Programme and Admission suggested modifications, for sub-item 6, the resolution in 60<sup>th</sup> IAAC minutes is discussed and resolved as follows. It is decided to maintain the credit requirement to 16 credits along with the subject "Research Methodology" for every department. Each department shall offer a Research Methodology subject at PG level and the same course may be registered by the PhD student from any department. The 16 credits should be earned within the first two semesters. Four credits should be earned through the subject "Research Methodology". The remaining 12 credits may be earned through (i) three / four theory courses or (ii) two / three theory courses and one credit seminar.</p> <p>Item 3.22 regarding Academic Calendar for academic Year 2023-24 is approved with minor suggestion: the duration for scheduling PhD Research Progress Seminar is extended till the last working day of the week before the beginning of the next semester. (<b>Annexure 14.1</b>)</p> <p>Item 3.23 to discuss the Minor program running as per NEW education policy NEP 2020 implementation. For better implementation of Minor and Honors programs, it is decided that the Minor and Honors programs from respective department will be executed as per NEW education policy NEP 2020.</p> <p>Item 3.24 regarding including the date of convocation in the academic calendar for better</p>

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	planning and execution. After discussion, it is resolved that the convocation shall be scheduled either on 15 September or 31 October.
<b>Item 4</b>	<p><b>To consider and adopt resolutions about the 'recommendations' made in the 61<sup>st</sup> meeting of the Institute Academic Advisory Committee (IAAC) held on February 28, 2023.</b></p> <p>Link:  <a href="https://svnit.ac.in/Data/minutes/iaac/61ST%20MEETING%20OF%20THE%20INSTITUTE%20ACADEMIC%20ADVISORY%20COMMITTEE.pdf">https://svnit.ac.in/Data/minutes/iaac/61ST%20MEETING%20OF%20THE%20INSTITUTE%20ACADEMIC%20ADVISORY%20COMMITTEE.pdf</a></p>
<b>Item 4.1</b>	<p>The curriculum structure and Multiple Entry Multiple Exit (MEME) for implementing National Education Policy (NEP) 2020 are discussed. Various suggestions like the seamless movement of students should be allowed across NITs, IITs and IIITs. The screening (written) test will be conducted for the students coming from other NITs, IITs and IIITs. No screening test for SVNIT's own students who were admitted in the first year of the program. The examination pattern for the subject will be the same as that of existing pattern – continuous evaluation (20), Mid-semester (30), and End semester (50) marks for theory and practical (40%) continuous evaluation and (60%) end-semester evaluation. For vocational training / experiential learning, the evaluation criteria and mode of evaluation (written / practical / continuous) will be decided and announced by the respective department. The total marks of evaluation for vocational training / experiential learning are 100. The Multiple Entry and Multiple Criteria and Curriculum Structure depicted in <b>Annexure 1.1</b> is approved by 61<sup>st</sup> IAAC for further approval in the next Senate meeting for implementation from the Academic year 2023-24.</p> <p>The curriculum template is indicative of designing the curriculum by the respective department. In the curriculum template, a total of 10 Elective subject slots are proposed (1) One Elective in the third semester (2) One Elective in the fourth semester (3) Two Electives in the fifth semester (4) Two Electives in the sixth semester (5) Four Electives in the seventh semester. Out of these elective subject slots, One slot in the fifth semester, One slot in the sixth semester, and Two slots in the seventh semester can be used for defining the specialization track across the departments or Minor / Honour. The rules and regulations for B.Tech. and M.Tech. will be announced in connection with NEP 2020 implementation from the academic year 2023-24 covering all guidelines for specialization track, Minor, Honour, Vocational training, and Experiential learning. The curriculum defined by various departments are attached as <b>Annexure 1.2 of 61<sup>st</sup> IAAC (Total 17 curriculum schemes 6 UG Engineering existing programs + 3 Science M.Sc. Integrated programs + 3 UG new Engineering programs + 4 PG programs + 1 Dual Degree program).</b></p>
<b>Item 4.2</b>	<p>The action plan with starting of the program from the next academic year, faculty requirement, student strength, and infrastructure requirement with intake strength of student for each program are discussed and approved for further approval of the senate and finance committee and the detail is attached in <b>Annexure 2.1 of 61<sup>st</sup> IAAC and forwarded for BoG notification of new programs for admissions through JoSAA and CCMT respectively.</b> The programs considered for the next academic year, 2023-24 are as follows: (1) M.Tech. Computer Science and Engineering with Specialization in Information Security and Privacy (2) M.Tech. Computer Science and Engineering with Specialization in Data Science (3) M.Tech. Mechanical Engineering with Specialization in Machine Design (4) B.Tech. Artificial Intelligence and (5) Five years integrated program in Master of Business Administration. (6) Two years program in Master of Business Administration (MBA) (7) B.Plan. (8) B.Tech. Electronics and VLSI Engineering. It is resolved that the program B.Tech. and M.Tech. Dual Degree Programme in Mathematics</p>

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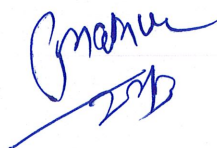


	and Computing will be considered for starting from the academic year 2024-25.
<b>Item 4.3</b>	The curriculum structure and syllabus of B.Tech. AI is presented by the HoD of the Department of Computer Science and Engineering as per the NEP curriculum structure format. It is approved for further approval by the Senate. The curriculum of B.Tech. Artificial Intelligence is attached in <b>Annexure 1.2 of 61<sup>st</sup> IAAC</b> .
<b>Item 4.4</b>	To discuss and adopt resolutions about the curriculum and syllabus of the Dual Degree Programme: Bachelor of Technology and Master of Technology in Mathematics and Computing in reference to resolution no. 61.17.1 of 61 <sup>st</sup> meeting of BoG held on 27 <sup>th</sup> September, 2022. The head of the department is advised to explore the placement scenarios of the currently running five years integrated M.Sc. in Mathematics program which will help in starting the new program B.Tech. and M.Tech. in Mathematics and Computing. It is resolved to consider the item for starting the program from the academic year 2024-25.
<b>Item 4.5</b>	The head of the mathematics department and faculty of management presented Two years PG program in MBA, and the scheme and syllabus are approved. From the chair, it is requested for proposing Five years integrated program in Master of Business Administration with an exit option after four years B.Tech. degree. Both these programs will be started under the Department of Management Studies. The curriculum of Five years integrated program in Master of Business Administration with an exit option after four years B.Tech. degree and Two years PG program in MBA are attached in <b>Annexure 1.2</b> .
<b>Item 4.6</b>	To consider a proposal to start a joint Ph.D. Program with Indian Institute of Technology, Mandi, and Indian Institute of Technology, Jammu. A draft agreement to be sign for the purpose between the two institutes is attached herewith. The draft agreement is reviewed by the respective institute. The MoU between SVNIT and these institutions is already signed for such academic collaboration. It was also resolved to create a shared pool of faculty resources between the two institutions. It is resolved to forward the proposal of the joint Ph.D. program for approval by the Senate starting from the year 2023-24. The MoU copies are attached in <b>Annexure 6.1 of 61<sup>st</sup> IAAC</b> .
<b>Item 4.7</b>	The head of the Chemical Department presented the view that the faculty involved in the first year has to do the duty of teaching on Saturday due to late start of the session of the first year. It is expected the beginning of the first-year session will be regular soon. If a situation arises again, it will be discussed with Dean (Faculty Welfare).
<b>Item 4.8</b>	To consider the application, UG Internship Programme (C-25-UIP) regarding CO, CO-PO Mapping for (a) CE-402 Industrial Internship (w.e.f. Academic Year 2023-24) (b) CE-405 Summer Training. CO-PO mapping is approved.
<b>Item 4.9</b>	To consider and adopt a resolution about increasing the allotted seats to Department of Civil Engineering from 116 to 176. Year-wise increase in intake at various levels (UG/PG/PhD) during 2023-24 to 2027-28 was prepared and submitted vide letter No: a/Cs/2022-23/867 dtd: 5/01/2023 <b>Annexure 8.2.1 of 61<sup>st</sup> IAAC</b> and for 2028-29 to 2032-33 <b>Annexure 8.2.2 of 61<sup>st</sup> IAAC</b> , increase in the intake vide no. Acad/577 dated 9/1/2023 in reference to the Ministry of Education Email Subject: Increasing students' intake in IITs/NITs/IIITs dated Jan 3, 2023. In this view, the additional increase in the intake of Civil Engineering from 116 to 176 is taken care of.
<b>Item 4.10</b>	To approve 'change' of a Supervisor. Dr. Tamizharasi G. Assistant Professor, Department of Civil Engineering, SVNIT, Surat would replace Dr. S. R. Suryanwanshi, Assistant Professor, Department of Civil Engineering, SVNIT, Surat for the Ph.D. thesis supervision of Student Mr. Ananda Mitra (DS20CE030). Approved as per Academic Regulation 10.3.1. (a).
<b>Item 4.11</b>	The requests of the following Students for the Ph.D. category conversion from the FIR to PEC.

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	Name of Student	Job Joining Date	Name of Supervisor / Co-supervisor
	Arpit A. Parikh (D17AM012)	-	Dr. A.K. Desai
	Shishir Dadhich (DS20CE020)	03/08/22	Dr. C.R. Patel & Dr. R.M. Tailor
	Gaurav Raj (D20CE003)	26/09/22	Dr. Rakesh Kumar
	Nandan H. Dawada (DS17CE010)	07/10/22	Dr. G.J. Joshi & Dr. S.S. Arkatkat
	Approved as per Academic Regulation 11.3 (d)		
<b>Item 4.12</b>	To consider and resolution regarding the name "B. Plan" as query raised by Reso.1 of 51 <sup>st</sup> IAAC meeting held on 12/07/2021 regarding revisit the Nomenclature of B.Plan. Keep the same name as Bachelor of Planning in line with the degrees offered by School of Planning & Architecture. , The proposal for starting B.Plan. is discussed and approved. It is resolved to forward it to the Senate for further approval. The B.Plan. program will be started by the Department of Civil Engineering.		
<b>Item 4.13</b>	To consider and approve the change in course name along with course code for subject having backlog students. The mapping of the subjects is done and it is approved.		
<b>Item 4.14</b>	To consider the recommendation of the DAAC for Dr. Ankesh Kumar as Co-supervisor of three research Scholars of the Department of Civil Engineering. Dr. Ankesh Kumar joining to IIT Palakkad in 1 <sup>st</sup> week of January 2023.		
	Students' Name	Reg. No.	Existing Supervisor(s)
	Ms. Kanchan S Patil (PEC)	D21CE021	Dr. Ankesh Kumar
	Ms. Geetanjali Lohar (FIR)	D20CE024	Dr. Ankesh Kumar Dr. Nishant Roy, BITS, Pilani
	Mr. Chappidi Srinivas (FIR)	D20CE023	Dr. Ankesh Kumar Dr. Jogender singh, DoCHE, SVNIT
			Proposed Supervisor(s)
			Dr. J.T. Chavda Dr. Ankesh Kumar
			HOD, DoCE (Administrative Supervisor) Dr. Ankesh Kumar Dr. Nishant Roy, BITS, Pilani
			HOD, DoCE (Administrative Supervisor) Dr. Ankesh Kumar Dr. Jogender Singh, DoCHE, SVNIT
	Approved as per Academic Regulation 10.4 (a).		
<b>Item 4.15</b>	A request of Mr. Suraj Bhosle (DS17AM010), working under the supervision of Dr. A.K. Desai, for the category conversion from the FIR to PEC. Approved as per Academic Regulation 11.3 (d).		
<b>Item 4.16</b>	To approve 'discontinuation' of a Co-supervisor, i.e Dr. Sumit Khare, Assistant Professor, Department of Mechanical Engineering, SVNIT, Surat for the Ph.D. thesis supervision of Mr. Rahul Chaudhary (D21CE005). Currently, the Ph.D. Student is being supervised by Dr. Vishisht Bhaiya Assistant Professor, Department of Civil Engineering, SVNIT, Surat and Dr. Sumit Khare. Approved as per Academic Regulation 10.3.1. (a).		
<b>Item 4.17</b>	To discuss and adopt resolutions about 'the proposed revised curricula and PEOs, Pos and PSOs of the 'Two' M. Tech. Programmes of the Department of Electrical Engineering. Head of the Department is advised to modify the PEOs, POs, and PSOs of the 'Two' M. Tech. Programmes of the Department of Electrical Engineering. The syllabus of these M.Tech. programs are approved. The head of the Department presented the PSOs of B.Tech. Electrical Engineering program is also approved. It is resolved to forward the same for senate approval. <b>Annexure 4.17</b>		
<b>Item 4.18</b>	A request of Mr. Pawar Rahul Baban (D18ME014), working under the supervision of Dr.		





	R.V. Rao, for the category conversion from the FIR to PEC. Approved as per Academic Regulation 11.3 (d).
<b>Item 4.19</b>	A request of Mr. Mayank Shah (DS17ME004), working under the supervision of Dr. R.D. Shah, for the category conversion from the FIR to PEC. Approved as per Academic Regulation 11.3 (d).
<b>Item 4.20</b>	To approve the 'addition' of Co-supervisor, i.e., Dr. R.D. Shah, Associate Professor, Department of Mechanical Engg., SVNIT, Surat for the Ph.D. thesis supervision of Student Sunil Jatoliya (D21ME014). Currently, the Ph.D. Student is being supervised by Dr. Nikhil A. Baraiya Assistant Professor, Department of Mechanical Engg., SVNIT, Surat. Approved as per Academic Regulation 10.3.1. (a).
<b>Item 4.21</b>	To discuss replacing the One credit course of "Seminar (ME307)" in the 5 <sup>th</sup> Semester of existing B.Tech. curriculum by a Two credits "Project Preliminary" in the 6 <sup>th</sup> Semester. This will allow a complete two semester project for the B.Tech. students and also reduce the imbalance of total credits between 5 <sup>th</sup> and 6 <sup>th</sup> semesters (both will be of total 25 credits henceforth). The revised curriculum is attached in Annexure 1 along with course code (ME308) for "Project Preliminary", implementation from July 2023. Approved as per DAAC recommendation.
<b>Item 4.22</b>	A request of Mr. Mithun Vasava (DS19EN0014), working under the supervision of Dr. Urvashi Kaushal, for the category conversion from the FIR to PEC. Approved as per Academic Regulation 11.3 (d).
<b>Item 4.23</b>	A request of Mr. Jaydip Chauhan (DS22MA002), working under the supervision of Dr. Ranjan Kumar Jana, for the category conversion from the FIR to FRS. Approved as per Academic Regulation 11.3 (d).
<b>Item 4.24</b>	To consider the recommendations of DAAC, Department of Chemistry regarding the request of Ms. Nilam Gamit (DS18CY005), working under the supervision of Dr. Bharat Dholakiya, for the category conversion from the FIR to PEC. Approved as per Academic Regulation 11.3 (d)
	<b><i>Any other Item by Chair</i></b>
<b>Item 4.25</b>	The curriculum structure of the first two years of B.Tech. Electronics and VLSI Engineering is presented by the HoD of the Department of Electronics Engineering as per the NEP curriculum structure format. It is approved for further approval by the Senate. Currently, the intake in B.Tech. Electronics and Communication Engineering is 180. The B.Tech. Electronics and VLSI Engineering program will be started without any additional intake, that is, from academic year 2023-24 the intake of B.Tech. Electronics and Communication Engineering will be 120 and the intake of B.Tech. Electronics and VLSI Engineering will be 60. The curriculum of B.Tech. Electronics and VLSI Engineering is attached in <b>Annexure 1.2 of 61<sup>st</sup> IAAC</b> .
<b>Item 4.26</b>	The head of the department is advised to explore the placement scenarios of the currently running five years integrated M.Sc. in Physics program which will help in starting the new program B.Tech. in Engineering Physics. It is resolved to consider the item for starting the program from the academic year 2024-25.
<b>Item 4.27</b>	The curriculum structure of B.Plan. is presented by the HoD of the Department of Civil Engineering as per the NEP curriculum structure format. It is approved for further approval by the Senate. The curriculum of B.Plan. is attached in <b>Annexure 1.2 of 61<sup>st</sup> IAAC</b> .
<b>Item 4.28</b>	Regarding the starting of Two Centres of Excellence: (i) Robotics and Cyber-Physical Systems and (ii) Computational and Linguistic Intelligence. The proposal is discussed for setting up the centre of excellence in the domain of emerging areas Robotics, Industry automation, the Internet of Things, Sensor Networks, Actuators, Process Automation, Security and Privacy, Cyber system, and their applications in different domains. The departments which are working in these domains will operate this centre and the executive

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	body of faculty members consisting of Two professors, Two Associate professors, and Four Assistant professors will be setup for the respective centre. Similarly, in the domain of Computational intelligence for exploring different algorithmic development using Artificial Intelligence and Machine Learning with applications in various domains of Physics, Chemistry, Chemical, Computer Science, and Humanities will be taken care by the centre of excellence in Computational and Linguistic Intelligence. Linguistic intelligence for natural language processing/understanding, machine translation specifically for Indian languages along with behaviour analysis, cognitive science, and social network analysis will be taken care by this centre.
<b>Item 4.29</b>	Year-wise increase in intake at various levels (UG/PG/PhD) during 2023-24 to 2027-28 was prepared and submitted vide letter No: a/Cs/2022-23/867 dtd: 5/01/2023 <b>Annexure 8.2.1 of 61<sup>st</sup> IAAC</b> and for 2028-29 to 2032-33 <b>Annexure 8.2.2 of 61<sup>st</sup> IAAC</b> , increase in the intake vide no. Acad/577 dated 9/1/2023 in reference to the Ministry of Education Email Subject: Increasing students' intake in IITs/NITs/IITs dated Jan 3, 2023. It is approved and forwarded to the Senate and BoG for approval and necessary notification.
<b>Res. 4</b>	<p>Item 4.1 of the 61<sup>st</sup> IAAC regarding the curriculum structure and Multiple Entry Multiple Exit (MEME) for implementing the National Education Policy (NEP) 2020 was discussed. It was approved by the Senate. It is decided that 5-10 students from NIT/IIT/IITs may be allowed as per the MEME policy. The MEME criteria were approved and depicted in <b>Annexure 1.1 of 61<sup>st</sup> IAAC</b>. Time being the implementation of NEP 2020 will be started from the academic year 2023-24 offering the specialization, later the offering of Minors and Honors degrees will be decided in ensuing Senate meetings. The curriculum template is attached in the <b>Annexure 1.1 of 61<sup>st</sup> IAAC</b>. Based on this template, the curriculum schemes designed by various departments for UG programs are approved and listed in <b>Annexure 1.2 of 61<sup>st</sup> IAAC</b> for implementing NEP 2020 from academic year 2023-24. The examination pattern of the subject will be the same as that of existing pattern. The rules and regulations for B.Tech./M.Tech. /Ph.D. will be finalized soon and will be published on the institute website.</p> <p>Item 4.2 regarding the action plan with starting of the program from the next academic year, faculty requirement, student strength, and infrastructure requirement with intake strength of student for each program are discussed and approved for further approval by the finance committee and the detail is attached in <b>Annexure 2.1 of 61<sup>st</sup> IAAC</b> and shall be forwarded for BoG notification of new programs for admissions through JoSAA and CCMT respectively. The programs considered for the next academic year, 2023-24 are as follows: (1) M.Tech. Computer Science and Engineering with Specialization in Information Security and Privacy (2) M.Tech. Computer Science and Engineering with Specialization in Data Science (3) M.Tech. Mechanical Engineering with Specialization in Machine Design (4) B.Tech. Artificial Intelligence and (5) Five years Dual Degree program in Master of Business Administration (B.Tech. + MBA) with an option for an exit after four years with B.Tech. (6) Two years program in Master of Business Administration in Business Analytics. (7) B.Plan. (8) B.Tech. Electronics and VLSI Engineering.</p> <p>Item 4.3 and 4.5 regarding the curriculum structure and syllabus of B.Tech. AI, Five years Dual Degree MBA (5 years) and MBA in Business Analytics (2 years) will be forwarded for further approval of the Finance Committee and BoG Notification.</p> <p>Item 4.4 regarding the curriculum and syllabus of the Dual Degree Programme: Bachelor of Technology and Master of Technology in Mathematics and Computing will be considered for starting from the academic year 2024-25.</p> <p>Item 4.6 regarding to consider a proposal to start a joint Ph.D. Program with Indian Institute of Technology, Mandi, and Indian Institute of Technology, Jammu approved by the Senate.</p>

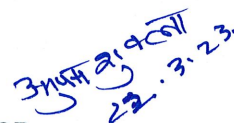
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	<p>Item 4.7 The head of the Chemical Department presented the view that the faculty involved in the first year has to do the duty of teaching on Saturday due to late start of the session of the first year. It is expected the beginning of the first-year session will be regular soon. If a situation arises again, it will be discussed with Dean (Faculty Welfare).</p> <p>Item 4.8 and Items 4.10 to 4.24, 4.26, 4.27 are approved by the senate as per 61<sup>st</sup> IAAC resolutions.</p> <p>Item 4.9 regarding to consider and adopt a resolution about increasing the allotted seats to Department of Civil Engineering from 116 to 176. Year-wise increase in intake at various levels (UG/PG/PhD) during 2023-24 to 2027-28 was already prepared and submitted vide letter No: a/Cs/2022-23/867 dtd: 5/01/2023 <b>Annexure 8.2.1 of 61<sup>st</sup> IAAC</b> and for 2028-29 to 2032-33 <b>Annexure 8.2.2 of 61<sup>st</sup> IAAC</b>. The request for the increase in the intake was taken care of. The item is approved for further approval of BoG.</p> <p>Item 4.25 regarding the B.Tech. Electronics and VLSI Engineering program will be started without any additional intake, that is, from academic year 2023-24 the intake of B.Tech. Electronics and Communication Engineering will be 120 and the intake of B.Tech. Electronics and VLSI Engineering will be 60. The curriculum of B.Tech. Electronics and VLSI Engineering is attached in <b>Annexure 1.2 of 61<sup>st</sup> IAAC</b>.</p> <p>Item 4.28 The starting of Two Centres of Excellence: (i) Robotics and Cyber-Physical Systems and (ii) Computational and Linguistic Intelligence was discussed and approved in principally by the Senate for further approval of BoG and it may be executed under CIDER.</p> <p>Item 4.29 in connection NEP implementation, the increase in the intake at various programs which was requested by the MoE for the duration 2023 to 2035 and submitted as per <b>Annexures 8.2.1 and 8.2.2 of 61<sup>st</sup> IAAC</b> was approved by the Senate.</p>
	<i>Item from the Chair</i>
<b>Item 5</b>	To consider and adopt resolutions about the 'recommendations' made in the 14th Standing Executive Committee (SEC) meeting of the senate held on March 5, 2023 regarding consideration of submission of 'XX' grade for the B.Tech. 1st year ODD semester 2022-23. Annexure
<b>Reso. 5</b>	In reference to the representation by the B.Tech. I year students regarding awarding of 'XX' grade which is affecting their career the meeting of SEC was held and the following was resolution. The students who not eligible for appearing in the end semester examination of the currently running ODD semester of B.Tech. I year, have to register for the respective subject in which 'XX' grade was awarded in the next even semester, and the students have to attend the classes in either with the regular classes of even semester if the same subject is also offered in the even semester. If subjects are not part of the regular even semester, the evening classes will be conducted. The students have to pay 20% of tuition fees as per Institute norms. The examination of regular subjects will be conducted with end semester exam and for the remaining subjects it will be conducted in the next week after the end semester. The honorarium will be paid to the faculty members for conducting the evening classes as per Institute norms. It is resolved only for B.Tech. 1st year. The senate approved the resolution of 14th SEC of Senate ( <b>Annexure 5</b> ).

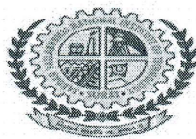
The meeting ended with the thanks to the Chair.

  
**REGISTRAR**  
 SECRETARY- SENATE

  
**DIRECTOR**  
 CHAIRMAN-SENATE



**Annexure 1**  
**of the 57th Senate Agenda Item**



**SARDAR VALLABHBHAI**  
**NATIONAL INSTITUTE OF TECHNOLOGY, SURAT**

Date: 02/01/2023

**The minutes of the 56<sup>th</sup> meeting of the Senate held on December 30, 2022**

The aforesaid meeting was conducted on December 30, 2022, 03:30 p.m. onwards in the hybrid mode. The following members were present in the meeting.

**The following members were present in the meeting.**

(1)	Dr. Anupam Shukla, Professor & Director, SVNIT, Surat	: Chairman
(2)	Dr. Shashi Bala Singh, Director, NIPER, Hyderabad	: External Member (Online)
(3)	Dr. Omkarprasad S. Vaidya, Professor, IIM Lucknow	: External Member (Online)
(4)	Dr. S. N. Sharma, Prof. & Dean (Academic), SVNIT, Surat	: Member
(5)	Dr. C. D. Modhera, Prof. & Dean, (Faculty Welfare), SVNIT, Surat	: Member
(6)	Dr. D. C. Jinwala, Prof. & Dean (R&C), SVNIT, Surat	: Member
(7)	Dr. V. L. Manekar, Prof. & Dean (P&D), SVNIT, Surat	: Member
(8)	Dr. A. K. Panchal, Prof. & Head, DoEE, SVNIT, Surat	: Member
(9)	Dr. Jyotirmay Banerjee, Prof. & Head, DoME, SVNIT, Surat	: Member
(10)	Dr. M. Mansoor Ahammed, Prof. & I/c. Head, DoCE, SVNIT, Surat	: Member
(11)	Dr. P. L. Patel, Professor, DoCE, SVNIT, Surat	: Member
(12)	Dr. S. M. Yadav, Professor, DoCE, SVNIT, Surat	: Member
(13)	Dr. P. G. Agnihotri, Professor, DoCE, SVNIT, Surat	: Member
(14)	Dr. Rakesh Kumar, Professor, DoCE, SVNIT, Surat	: Member
(15)	Dr. Z. V. P. Murthy, Professor, DoChE, SVNIT, Surat	: Member
(16)	Dr. P. A. Parikh, Professor, DoChE, SVNIT, Surat	: Member
(17)	Dr. Jigisha K. Parikh, Professor, DoChE, SVNIT, Surat	: Member
(18)	Dr. M. A. Zaveri, Professor, DoCSE, SVNIT, Surat	: Member
(19)	Dr. Anandita Chowdhury, Professor, DoEE, SVNIT, Surat	: Member
(20)	Dr. R. Chudamani, Professor, DoEE, SVNIT, Surat	: Member
(21)	Dr. R. Venkata Rao, Professor, DoME, SVNIT, Surat	: Member
(22)	Dr. H. K. Raval, Professor, DoME, SVNIT, Surat	: Member
(23)	Dr. K. P. Desai, Professor, DoME, SVNIT, Surat	: Member
(24)	Dr. Shailendra Kumar, Professor, DoME, SVNIT, Surat	: Member
(25)	Dr. A. K. Shukla, Professor, DoMH, SVNIT, Surat	: Member
(26)	Dr. V. H. Pradhan, Professor, DoMH, SVNIT, Surat	: Member
(27)	Dr. Neeru Adlakha, Professor, DoMH, SVNIT, Surat	: Member
(28)	Dr. Smita Jauhari, Professor, DoC, SVNIT, Surat	: Member
(29)	Dr. M. A. Desai, Asso. Prof. & Head, DoChE, SVNIT, Surat	: Invitee
(30)	Dr. Rupa G. Mehta, Asso. Prof. & Head, DoCSE, SVNIT, Surat	: Invitee

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(31)	Dr. P. N. Patel, Asso. Prof. & Head, DoECE, SVNIT, Surat	: Invitee
(32)	Dr. J. M. Dhodiya, Asso. Prof. & Head, DoMH, SVNIT, Surat	: Invitee
(33)	Dr. S. K. Sahoo, Asso. Prof. & I/c. Head, DoC, SVNIT, Surat	: Invitee
(34)	Dr. Dimple V. Shah, Asso. Prof. & Head, DoP, SVNIT, Surat	: Invitee
(35)	Dr. Ravi Kant, Dean (SW)-I/c. Registrar, SVNIT, Surat	: Secretary

The leave of absence of the following members was noted.

(1)	Dr. R. P. Tewari, Professor, DoAM, MNNIT Allahabad	: External Member
(2)	Dr. Upena D. Dalal, Professor & Dean (A&RG), SVNIT, Surat	: Member
(3)	Dr. J. N. Patel, Professor, DoCE, SVNIT, Surat	: Member
(4)	Dr. A. K. Desai, Professor, DoCE, SVNIT, Surat	: Member
(5)	Dr. C. H. Solanki, Professor, DoCE, SVNIT, Surat	: Member
(6)	Dr. R. A. Christian, Professor DoCE, SVNIT, Surat	: Member
(7)	Dr. S. A. Vasanwala, Professor, DoCE, SVNIT, Surat	: Member
(8)	Dr. K. A. Chauhan, Professor, DoCE, SVNIT, Surat	: Member
(9)	Dr. D. R. Patel, Professor, DoCSE, SVNIT, Surat	: Member
(10)	Dr. Mousumi Chakraborty, Professor, DoChE, SVNIT, Surat	: Member
(11)	Dr. Varsha A. Shah, Professor, DoEE, SVNIT, Surat	: Member
(12)	Dr. J. N. Sarvaiya, Professor, DoECE, SVNIT, Surat	: Member
(13)	Dr. D. P. Vakharia, Professor, DoME, SVNIT, Surat	: Member
(14)	Dr. A. A. Shaikh, Professor, DoME, SVNIT, Surat	: Member
(15)	Dr. T. N. Desai, Professor, DoME, SVNIT, Surat	: Member
(16)	Dr. K. N. Pathak, Professor, DoP, SVNIT, Surat	: Member
(17)	Mr. Raghav Khandelwal, Student General Secretary (SGS)	: Invitee
(18)	Mr. Sarvesh Kumar, Academic Affairs Secretary (AAS)	: Invitee
(19)	Ms. Janavi Popat, Research & Innovation Affairs Secretary (RIAS)	: Invitee

### **INTRODUCTION BY THE CHAIRMAN**

At the outset, the Chairman Senate warmly welcomed the Members of the Senate, including the external Members for the Senate meeting. Then, the Chairman briefed comprehensively the agenda items of the 56<sup>th</sup> meeting of the Senate. Thereafter, the Dean (Academic) was requested to proceed with the agenda items.

#### ***Items and resolutions:***

Item1	To confirm the minutes of the 55 <sup>th</sup> meeting of the Senate held on September 20, 2022. <i>Annexure 1</i>
Res. 1	Confirmed.
Item2	To note and approve the actions taken on the resolutions adopted in the 55 <sup>th</sup> meeting of the Senate held on September 20, 2022. <i>Annexure 2</i>
Res. 2	Noted and approved.
Item 3	To ratify the 'recommendations' made in the 12 <sup>th</sup> meeting of the Standing Executive Committee (SEC) of the Senate, which was held on June 25, 2022.

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	The Standing Executive Committee (SEC) of the Senate recommended that Uttam Kumar (D14AM008) would complete semester registration requirement first (Even Semester of the AY 2021-22), including the Semester fee with fine on or before July 1, 2022. It was recommended that the Research Scholar be permitted to complete the thesis submission on or before July 1, 2022 as well.				
<b>Res. 3</b>	Ratified.				
<b>Item 4</b>	<p><b>To ratify the two recommendations of the 13<sup>th</sup> meeting of the Standing Executive Committee (SEC) of the Senate, which was held on August 08, 2022, 4:00 pm onwards.</b></p> <p><b>Link:</b>  <a href="https://www.svnit.ac.in/Data/minutes/sec/Minutes%20of%2013th%20SEC%20Meeting.pdf">https://www.svnit.ac.in/Data/minutes/sec/Minutes%20of%2013th%20SEC%20Meeting.pdf</a></p> <table border="1"> <tr> <td>(1)</td><td> <p>To ratify the revised curricula of the M. Tech. Programmes of the two Departments.</p> <p>The Standing Executive Committee (SEC) resolved to adopt the revised curricula of the M. Tech. Programmes of the two Departments (Department of Civil Engineering and Department of Mechanical Engineering) since the Autumn Semester of the Academic Year 2022-23.</p> <p>The IAAC also recommended the revised curricula (the 'resolutions 1 and 4' of the minutes of the 57<sup>th</sup> meeting of the IAAC and 'annexures 1 and 2' of the concerning IAAC).</p> </td></tr> <tr> <td>(2)</td><td> <p>About the Institute Spot Round (ISR) admission following the vacancy arising from the CCMT regular and special rounds.</p> <p>The Standing Executive Committee (SEC) resolved to conduct the Institute Spot Round. The Institute Spot Round was conducted on August 22 and August 23, 2022. That was also recommended in the IAAC (resolution 1 of the 58<sup>th</sup> meeting of the IAAC).</p> </td></tr> </table>	(1)	<p>To ratify the revised curricula of the M. Tech. Programmes of the two Departments.</p> <p>The Standing Executive Committee (SEC) resolved to adopt the revised curricula of the M. Tech. Programmes of the two Departments (Department of Civil Engineering and Department of Mechanical Engineering) since the Autumn Semester of the Academic Year 2022-23.</p> <p>The IAAC also recommended the revised curricula (the 'resolutions 1 and 4' of the minutes of the 57<sup>th</sup> meeting of the IAAC and 'annexures 1 and 2' of the concerning IAAC).</p>	(2)	<p>About the Institute Spot Round (ISR) admission following the vacancy arising from the CCMT regular and special rounds.</p> <p>The Standing Executive Committee (SEC) resolved to conduct the Institute Spot Round. The Institute Spot Round was conducted on August 22 and August 23, 2022. That was also recommended in the IAAC (resolution 1 of the 58<sup>th</sup> meeting of the IAAC).</p>
(1)	<p>To ratify the revised curricula of the M. Tech. Programmes of the two Departments.</p> <p>The Standing Executive Committee (SEC) resolved to adopt the revised curricula of the M. Tech. Programmes of the two Departments (Department of Civil Engineering and Department of Mechanical Engineering) since the Autumn Semester of the Academic Year 2022-23.</p> <p>The IAAC also recommended the revised curricula (the 'resolutions 1 and 4' of the minutes of the 57<sup>th</sup> meeting of the IAAC and 'annexures 1 and 2' of the concerning IAAC).</p>				
(2)	<p>About the Institute Spot Round (ISR) admission following the vacancy arising from the CCMT regular and special rounds.</p> <p>The Standing Executive Committee (SEC) resolved to conduct the Institute Spot Round. The Institute Spot Round was conducted on August 22 and August 23, 2022. That was also recommended in the IAAC (resolution 1 of the 58<sup>th</sup> meeting of the IAAC).</p>				
<b>Res. 4</b>	Both the subitems were ratified.				
<b>Item 5</b>	<p><b>To consider and adopt resolutions about the 'recommendations' made in the 57<sup>th</sup> meeting of the Institute Academic Advisory Committee (IAAC) held on July 22, 2022.</b></p> <p><b>Link:</b>  <a href="http://www.svnit.ac.in/Data/minutes/iaac/The%20minutes%20of%2057th%20meeting%20of%20the%20IAAC%20(05-08-2022).pdf">www.svnit.ac.in/Data/minutes/iaac/The%20minutes%20of%2057th%20meeting%20of%20the%20IAAC%20(05-08-2022).pdf</a></p> <table border="1"> <tr> <td>(1)</td><td> <p>To consider an extension of the study period of one semester beyond the seven-and half-year duration to Research Scholar Agarkar Vrunda Hemant (DS14AM007). The Scholar is enrolled in the PEC category and working under the supervision of Dr. A. K. Desai (Professor, Department of Civil Engineering).</p> <p>The IAAC recommended a one-Semester extension with the following requirements. (i) Two Journal publications (resolution 18 of the minutes of the 32<sup>nd</sup> meeting of the Senate held on 15th February 2014). (ii) The completion of RPS, pre-synopsis seminar and 'synopsis and thesis submissions' on or before January 02, 2023. 'The IAAC resolution and recommendation' is under a special case consideration.</p> </td></tr> <tr> <td>(2)</td><td>To consider an extension of the study period of one semester beyond the seven-</td></tr> </table>	(1)	<p>To consider an extension of the study period of one semester beyond the seven-and half-year duration to Research Scholar Agarkar Vrunda Hemant (DS14AM007). The Scholar is enrolled in the PEC category and working under the supervision of Dr. A. K. Desai (Professor, Department of Civil Engineering).</p> <p>The IAAC recommended a one-Semester extension with the following requirements. (i) Two Journal publications (resolution 18 of the minutes of the 32<sup>nd</sup> meeting of the Senate held on 15th February 2014). (ii) The completion of RPS, pre-synopsis seminar and 'synopsis and thesis submissions' on or before January 02, 2023. 'The IAAC resolution and recommendation' is under a special case consideration.</p>	(2)	To consider an extension of the study period of one semester beyond the seven-
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	<p>and half-year duration to Research Scholar Vaghela Ajaysinh Ranjitsinh (DS14AM006). The Research Scholar is enrolled in the PEC category and working under the supervision of Dr. G. R. Vesmawala (Associate Professor, Department of Civil Engineering).</p> <p>The IAAC recommended a one-Semester extension with the following requirements. (i) Two Journal publications (resolution 18 of the minutes of the 32<sup>nd</sup> meeting of the Senate held on 15th February 2014). (ii) The completion of RPS, pre-synopsis seminar and 'synopsis and thesis submissions' on or before January 02, 2023. 'The IAAC resolution and recommendation' is under a special case consideration.</p>						
(3)	<p>To consider an extension of the study period of one semester beyond the seven-and half-year duration to Research Scholar Shah Maitrik Kaushikbhai (DS14ME001). The Research Scholar is enrolled in the PEC category and working under the supervision of Dr. Beena D. Baloni (Associate Professor, Department of Mechanical Engineering) and Professor S. A. Channiwal.</p> <p>The IAAC recommended a one-Semester extension with the following requirements. (i) Two Journal publications (resolution 18 of the minutes of the 32<sup>nd</sup> meeting of the Senate held on 15th February 2014). (ii) The completion of RPS, pre-synopsis seminar and 'synopsis and thesis submissions' on or before January 02, 2023. 'The IAAC resolution and recommendation' is under a special case consideration.</p>						
(4)	<p>To consider and approve the revised arrangement of appointing the Chairman of the RPS committee formed by the DAAC Chairman of the respective Department (Reference 11.2(b) (iv) of the Academic Regulations for Doctoral Programmes, July 2019 onwards).</p> <p>The IAAC resolved to appoint the Chairman of the RPS from other Departments at the level of Associate Professor and beyond.</p>						
(5)	<p>To consider and approve relaxing the 25% ceiling cap, i.e. the limit for the Students' deputation for the Industry Internship in the 2nd year of the M.Tech. Programme.</p> <p>The IAAC resolved and recommended to relax the ceiling cap of 25% 'mentioned in the resolution 21 of the 34th meeting of the IAAC with the objective of imparting encouragements to Students to take up the aforesaid Industry internship.</p>						
<b>Res. 5</b>	Subitems (1)-(5) of item (5) were ratified.						
<b>Item 6</b>	<p><b>To consider and adopt resolutions about the 'recommendations' made in the 59<sup>th</sup> meeting of the Institute Academic Advisory Committee (IAAC) held on November 16, 2022.</b></p> <p>Link: <a href="https://svnit.ac.in/Data/minutes/iaac/59th%20IAAC%20Minutes.pdf">https://svnit.ac.in/Data/minutes/iaac/59th%20IAAC%20Minutes.pdf</a></p> <table border="1"> <tr> <td>(1)</td><td>To approve the Ph.D. category conversion of Ms Daxa Sharma (D17CH005) of Chemical Engineering from the FIR to the PEC.</td></tr> <tr> <td>(2)</td><td>To approve the Ph.D. category conversion of the two Students of Department of Civil Engineering, i.e. Omkar S. Bidkar (DS19CE001) and Jerin Joseph (D17AM013) from the FIR to the PEC.</td></tr> <tr> <td>(3)</td><td>To approve 'discontinuation' of a Co-supervisor, i.e Dr. Vaishali Dhingra (Assistant Professor, Department of Mathematics and Humanities, SVNIT,</td></tr> </table>	(1)	To approve the Ph.D. category conversion of Ms Daxa Sharma (D17CH005) of Chemical Engineering from the FIR to the PEC.	(2)	To approve the Ph.D. category conversion of the two Students of Department of Civil Engineering, i.e. Omkar S. Bidkar (DS19CE001) and Jerin Joseph (D17AM013) from the FIR to the PEC.	(3)	To approve 'discontinuation' of a Co-supervisor, i.e Dr. Vaishali Dhingra (Assistant Professor, Department of Mathematics and Humanities, SVNIT,
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		Surat) for the Ph.D. thesis supervision of IshaanTakhur (D21CE019). Currently, the Ph.D. Student is being supervised by Dr. Dilip Patel (Associate Professor, Department of Civil Engineering) and Dr. Vaishali Dhingra.
(4)		To approve 'change' of a Supervisor. Dr. Anant Parghi would replace Dr. S. R. Suryanwanshi for the Ph.D. thesis supervision of Student Alka Tomar (DS20CE007).
(5)		To approve 'discontinuation' of a Supervisor. The IAAC recommended Dr. Chiramjoy Chattopadhyay (Assistant Professor, Department of Computer Science and Engineering, IIT, Jodhpur) would replace Dr. Rupa G. Mehta for the Ph.D. thesis supervision of Student Ms. Manali Patel (D21CO004). Currently, the Ph.D. Student is being supervised by Dr. Rupa G. Mehta and Dr. K.N. Jariwala (Department of Computer Science and Engineering, SVNIT, Surat).
(6)		To approve the Ph.D. category conversion of Ph.D. Student Ms Rasika G. Khade (DS17CO004) of Department of Computer Science & Engineering from the FIR to the PEC.
(7)		To approve the Ph.D. category conversion of Ph.D. Student Ms. Hiral S. Trivedi (DS17CO002) of Department of Computer Science & Engineering from the FIR to the PEC.
(8)		To approve the Ph.D. category conversion of Ph.D. Student Abid Emtiyaz Mansuri (DS20EL001) of Department of Electrical Engineering from the FSF to the PEC.
(9)		To approve the Ph.D. category conversion of Sagar Paresh (D18EC002) of Department of Electronics Engineering from the FIR to the PEC.
(10)		To approve a request of Chitturi Sai Krishna (D16ME001) for an extension to the last date of the thesis submission. The Research Scholar is working under the supervision of Dr. A. A. Shaikh.
(11)		To approve the Ph.D. category conversion of Chintan Morasiya (DS20ME001) of Department of Mechanical Engineering from the FIR to the PEC.
(12)		To approve the Ph.D. category conversion of Radharaman Roy (DS16MA001) of Department of Mathematics and Humanities from the FIR to the PEC.
(13)		To approve the Ph.D. category conversion of Hareshkumar Prakashbhai Jani (D19MA007) of Department of Mathematics and Humanities from the FIR to the PEC.
(14)		To approve the 'addition' of an external Supervisor, i.e. Dr. Pankaj Dutta (Professor, Indian Institute of Technology, Bombay), for the Ph.D. thesis supervision of Student Ms. Kanchan Kushwaha (D21MA008). Currently, the Ph.D. Student is being supervised by Dr. R. K. Jana (Assistant Professor, Department of Mathematics and Humanities, SVNIT, Surat).
(15)		To approve the Ph.D. category conversion of Ishani Pandya (D21CY007) and Mahadev Ray (D21CY009) of Department of Chemistry from the FIR to the FRS. The IAAC recommended the category conversion by giving considerations to 'funding received from an external sponsoring agency'.
(16)		To approve 'discontinuation' of a Co-supervisor, i.e. Dr. Raghavendra Sai V.V. (Professor, IIT, Madras), for the Ph.D. thesis supervision of Student Meenakshi Brijlal Prasad (D18CY005). Currently, the Ph.D. Student is being supervised by Dr. B.Z. Dholakiya (Associate Professor, Department of

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	Chemistry) and Dr. Raghavendra Sai V.V.
(17)	To approve the Ph.D. category conversion of Ms. Pardiwala Ankita (DS20CY013) of Department of Chemistry from the FSF to the FPS.
(18)	To approve the proposed syllabus of a Physics course offered by the Department of Physics for the 1 <sup>st</sup> year B.Tech. in Computer Science and Engineering programme. The IAAC recommended to apply the proposed syllabus from the Autumn Semester of AY 2022-23 (annexure 1 of the minutes of the 59 <sup>th</sup> meeting of the IAAC).
(19)	To approve the Ph.D. category conversion of Ms. Priyanka Thorat (D20PH004) of Department of Physics from the FRS to the PEC.
(20)	<p>To approve the internal arrangement for the assessment of M. Tech. Dissertations and M. Sc. Dissertations. For the aforesaid 'internal assessment' of the concerning Dissertations, the IAAC recommended the following composition.</p> <p>(i) Chairman (other than the parent Department)</p> <p>(ii) A Faculty member as an examiner conversant with Dissertation topic to be nominated by the Supervisor(s) in consultation with the HoD (Chairman of the DAAC)</p> <p>(iii) Concerned Supervisor (s).</p> <p>The internal arrangement is effective from AY 2022-23.</p>
(21)	To approve the 'Academic Calendar' and the Saturday teaching schedule for B. Tech.-I <sup>st</sup> and M.Sc.-I <sup>st</sup> Year programmes of the Academic Year 2022-23. The IAAC recommended the Academic Calendar of B. Tech.-I <sup>st</sup> and M.Sc.-I <sup>st</sup> year programmes as well as their Saturday teaching schedule ( <b>Annexure 3</b> ).
(22)	To approve the recommendation of the IAAC concerning the 'Academic Calendar' for the M. Tech. I <sup>st</sup> Semester of the Academic Year 2022-23 and the associated Ph.D. first year, including the Saturday teaching schedule ( <b>Annexure 4</b> ).
(23)	<p>To approve corrections in the Academic Calendar of the Academic Year 2022-23 for 'the B. Tech. second year and the M.Sc. second year onwards' (<b>Annexure 5</b>).</p> <p>The corrections are attributed to accommodate the requirements of 'the General Election 2022' of the Gujarat State Assembly to be met by the SVNIT.</p>
(24)	<p>Regarding the applicability of the minimum twenty-five credit requirement, one of the requirements to be met by the Students in the first-year academic programme to continue their study.</p> <p>The IAAC recommended the Senate for allowing the B. Tech. first year and M.Sc. first year Students to re-register 'the Courses of the respective first year programme' only once. The re-registration would be in the next Academic Year w.r.t. their Admitted Year to meet 'the requirement of minimum twenty-five credits' to continue their study.</p> <p>Besides this, remaining B. Tech. and M.Sc. programmes' requirements mentioned in the Academic Regulations are applicable.</p>
(25)	To approve the 'addition' of Dr. U.P. Rao as Co-supervisors for the Ph.D. theses supervision of the following Students of Department of Computer Science and Engineering. This is due to selection of Dr. U. P. Rao at NIT Patna (resolution 1 of the DAAC meeting of date 13.10.2022).

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	Students' Name	Reg. No.	Existing Supervisor(s)	Proposed Supervisor(s)
	Dilay A. Parmar (PIS)	DS17CO001	Dr. U.P. Rao	Dr. U.P. Rao Dr. Balu L. Parne (Administrative)
	Chandan Trivedi (PEC)	D19CO001	Dr. U.P. Rao	Dr. Keyur Parmar Dr. U.P. Rao
	Akhil Chaurasia (FIR)	D19CO002	Dr. U.P. Rao	Dr. Alok Kumar Dr. U.P. Rao
	Nidhi Joraviya (FIR)	D20CO002	Dr. U.P. Rao Dr. B.N. Gohil	Dr. B.N. Gohil Dr. U.P. Rao
	Ashish Chaudhari (FIR)	DS19CO003	Dr. B.N. Gohil Dr. U.P. Rao	Dr. B.N. Gohil Dr. U.P. Rao
	Sujoy (FSF)	D21CO003	Dr. U.P. Rao Dr. Alok Kumar	Dr. Alok Kumar Dr. U.P. Rao
	Rajiv Kumar (FIR)	D22CS001	Dr. U.P. Rao	Dr. Alok Kumar Dr. U.P. Rao
(26)	To consider and approve the revised FIR supervision strength, 'three' in lieu of the 'two' at every point of time in the non-sharing mode for the theses supervision by Assistant Professors recruited after July 2019. (Ref.: 'Resolution 3, subitem 2 of item 3' of the 51 <sup>st</sup> meeting of the Senate).			
(27)	Regarding implementations of the National Education Policy (NEP). It was decided in the IAAC that the 'Resolutions' of the DAACs on the NEP would be made available to the Institute-level NEP Committee for the preparation of 'a unified and a comprehensive committee report'. The Committee report would be placed in the Senate. It was decided that the Institute-level NEP Committee would submit the 'unified and the comprehensive report' on or before November 30, 2022.			
(28)	To ratify the revised curriculum of the M. Tech. Programme of the Department of Chemical Engineering. The IAAC recommended the Senate the revised curriculum for its adoption (Annexure 7 of the minutes of the 59 <sup>th</sup> meeting of the IAAC).			
<b>Res. 6</b>	<p>Subitems of the item 6 pertaining to the PhD category conversions and rearrangements in the PhD theses Supervisors, i.e. additions, discontinuation and replacements, were approved.</p> <p>Subitem (20), which is about the composition of the 'internal assessment' of Dissertations, was approved. Concerning in-Channel procedure for the finalization of the panel of 'the internal assessment' would be enroute via the Supervisor(s) and Chairman (DAAC) for the onward consideration of the Dean (Academic) and its finalization by the Senate Chairman.</p> <p>Subitems (21)-(26) were approved. Subitem (18) and subitems (27)-(28) were approved as well, where the former is the introduction of a Physics Course and the latter two are about the National Education Policy and the revision in the Curriculum.</p>			

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<b>Item 7</b>	<b>To note and approve revised admission application fees for M. Tech. (Research) and Ph. D. programmes of the Institute.</b> The revised admission application fee structures for M. Tech. (Research) and Ph.D. programmes of the Institute are with <b>Annexure 6</b> .
<b>Res. 7</b>	Noted and approved.

The meeting ended with the thanks to the Chair.

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**I/C REGISTRAR**  
 SECRETARY- SENATE  
 02.01.2023

*31/12/22 21/1/23*  
**DIRECTOR**  
 CHAIRMAN-SENATE





*Annexure 2 of the 57<sup>th</sup> Senate  
agenda items*

**SARDAR VALLABHBHAI NATIONAL INSTITUTE OF TECHNOLOGY, SURAT**

The Actions Taken Report on the minutes of the 56<sup>th</sup> meeting of the Senate of the Sardar Vallabhbhai National Institute of Technology, Surat held on **Friday, December 30, 2022, 03:30 p.m.** onwards is appended below.

No.	Resolutions	Actions Taken
Res. 1	Resolved that the minutes of the 56 <sup>th</sup> meeting of the Senate held on 30 <sup>th</sup> December, 2022 be confirmed.	Noted.
Res. 2	The “Actions Taken Report” was presented by Dean (Academic). The House noted and approved the actions taken on the 56 <sup>th</sup> meeting of the Senate held on 30 <sup>th</sup> December, 2022.	Noted and the actions initiated.
Res. 3	<b>To ratify the ‘recommendations’ made in the 12<sup>th</sup> meeting of the Standing Executive Committee (SEC) of the Senate, which was held on June 25, 2022.</b> The Standing Executive Committee (SEC) of the Senate recommended that Uttam Kumar (D14AM008) would complete semester registration requirement first (Even Semester of the AY 2021-22), including the Semester fee with fine on or before July 1, 2022. It was recommended that the Research Scholar be permitted to complete the thesis submission on or before July 1, 2022 as well.	Ratified
Res. 4	<b>To ratify the two recommendations of the 13<sup>th</sup> meeting of the Standing Executive Committee (SEC) of the Senate, which was held on August 08, 2022, 4:00 pm onwards.</b> (1) To ratify the revised curricula of the M. Tech. Programmes of the two Departments. The Standing Executive Committee (SEC) resolved to adopt the revised curricula of the M. Tech. Programmes of the two Departments (Department of Civil Engineering and Department of Mechanical Engineering) since the Autumn Semester of the Academic Year 2022-23. The IAAC also recommended the revised curricula (the ‘resolutions 1 and 4’ of the minutes of the 57 <sup>th</sup> meeting of the IAAC and ‘annexures 1 and 2’ of the concerning IAAC). (2) About the Institute Spot Round (ISR) admission following the vacancy arising from the CCMT regular and special rounds. The Standing Executive Committee (SEC) resolved to conduct the Institute Spot Round. The Institute Spot Round was conducted on August 22 and August 23, 2022. That was also recommended in the IAAC (resolution 1 of the	Both the sub-items were ratified



	58 <sup>th</sup> meeting of the IAAC).	
Res. 5	<p><b>To consider and adopt resolutions about the ‘recommendations’ made in the 57<sup>th</sup> meeting of the Institute Academic Advisory Committee (IAAC) held on July 22, 2022.</b></p> <p>(1) To consider an extension of the study period of one semester beyond the seven-and half-year duration to Research Scholar Agarkar Vrunda Hemant (DS14AM007). The Scholar is enrolled in the PEC category and working under the supervision of Dr. A. K. Desai (Professor, Department of Civil Engineering).</p> <p>The IAAC recommended a one-Semester extension with the following requirements. (i) Two Journal publications (resolution 18 of the minutes of the 32<sup>nd</sup> meeting of the Senate held on 15th February 2014). (ii) The completion of RPS, pre-synopsis seminar and ‘synopsis and thesis submissions’ on or before January 02, 2023. ‘The IAAC resolution and recommendation’ is under special case consideration.</p> <p>To consider an extension of the study period of one semester beyond the seven-and half-year duration to Research Scholar Vaghela Ajaysinh Ranjitsinh (DS14AM006). The Research Scholar is enrolled in the PEC category and working under the supervision of Dr. G. R. Vesmawala (Associate Professor, Department of Civil Engineering).</p> <p>(2) The IAAC recommended a one-Semester extension with the following requirements. (i) Two Journal publications (resolution 18 of the minutes of the 32<sup>nd</sup> meeting of the Senate held on 15th February 2014). (ii) The completion of RPS, pre-synopsis seminar and ‘synopsis and thesis submissions’ on or before January 02, 2023. ‘The IAAC resolution and recommendation’ is under a special case consideration.</p> <p>(3) To consider an extension of the study period of one semester beyond the seven-and half-year duration to Research Scholar Shah Maitrik Kaushikbhai (DS14ME001). The Research Scholar is enrolled in the PEC category and working under the supervision of Dr. Beena D. Baloni (Associate Professor, Department of Mechanical Engineering) and Professor S. A. Channiwala.</p> <p>The IAAC recommended a one-Semester extension with the following requirements. (i) Two Journal publications (resolution 18 of the minutes of the 32<sup>nd</sup> meeting of the Senate held on 15th February 2014). (ii) The completion of RPS, pre-synopsis seminar and ‘synopsis and thesis submissions’ on or before January 02, 2023. ‘The IAAC resolution and recommendation’ is under a special case consideration.</p> <p>(4) To consider and approve the revised arrangement of</p>	Sub-items (1)-(5) of item (5) were ratified.



	<p>appointing the Chairman of the RPS committee formed by the DAAC Chairman of the respective Department (Reference 11.2(b) (iv) of the Academic Regulations for Doctoral Programmes, July 2019 onwards).</p> <p>The IAAC resolved to appoint the Chairman of the RPS from other Departments at the level of Associate Professor and beyond.</p> <p>(5) To consider and approve relaxing the 25% ceiling cap, i.e. the limit for the Students' deputation for the Industry Internship in the 2nd year of the M.Tech. Programme.</p> <p>The IAAC resolved and recommended to relax the ceiling cap of 25% 'mentioned in the resolution 21 of the 34th meeting of the IAAC with the objective of imparting encouragements to Students to take up the aforesaid Industry internship.</p>	
Res. 6	<b>To consider and adopt resolutions about the 'recommendations' made in the 59<sup>th</sup> meeting of the Institute Academic Advisory Committee (IAAC) held on November 16, 2022.</b>	
	(a) Subitems of the item 6 pertaining to the PhD category conversions and rearrangements in the PhD theses Supervisors, i.e. additions, discontinuation and replacements, were approved.	Noted and approved
	(b) Subitem (20), which is about the composition of the 'internal assessment' of Dissertations, was approved. Concerning in-Channel procedure for the finalization of the panel of 'the internal assessment' would be enrounted via the Supervisor(s) and Chairman (DAAC) for the onward consideration of the Dean (Academic) and its finalization by the Senate Chairman.	
	(C) Subitems (21)-(26) were approved. Subitem (18) and subitems (27)-(28) were approved as well, where the former is the introduction of a Physics Course and the latter two are about the National Education Policy and the revision in the Curriculum.	
Res.7	<p><b>To note and approve revised admission application fees for M. Tech. (Research) and Ph. D. programmes of the Institute.</b></p> <p>The revised admission application fee structures for M. Tech. (Research) and Ph.D. programmes of the Institute are with <b>Annexure 6.</b></p>	Noted and approved



Detailing for implementation from the department

1. Accepting as per NCrF – National Credit Framework, the defined Program Levels, Credit at each Program Level, and Credit Points earned at each Program Level as mentioned in Table 1. The Credit points earned is equal to Program Level \* Credit earned in one year.

**Table 1: Program Level, Credit points, Exit – Equivalence and Entry – Requirement**

UG / PG / PhD	Program Level	Minimum Credit earned	Credit Points earned	Exit - Equivalence for awarding	Entry – Requirement (UG 7 years, PG 4 years – Credit Expiry)
UG 1 <sup>st</sup> year	4.5	40	180 (4.5 x 40)	UG-Certificate	1. 12 <sup>th</sup> and JEE
UG 2 <sup>nd</sup> year	5.0	40	200 (+ credit points through experience)	UG-Diploma	1. 12 <sup>th</sup> 2. UG-Certificate and 1 year of Vocational or Professional experience 3. Screening based on Branch Specific Prerequisite (written test)
UG 3 <sup>rd</sup> year	5.5	40	220 (+ credit points through experience)	B.Voc. / B.Sc.	1. 12 <sup>th</sup> 2. UG-Certificate and 2 years of Vocational or Professional experience <b>or</b> 2. UG-Diploma and 1 year of Vocational or Professional experience 3. Screening based on Branch Specific Prerequisite (written test)
UG 4 <sup>th</sup> year	6.0	40	240 (+ credit points through experience)	B.Tech. / B.E.	1. 12 <sup>th</sup> 2. UG-Diploma and 2 years of Vocational or Professional experience <b>or</b> 2. B.Voc. and 1 year of Vocational or Professional experience 3. Screening based on Branch Specific Prerequisite (written test)
PG 1 <sup>st</sup> year	6.5	40	260 (+ credit points through experience)	M.Voc.	1. B.Tech. and GATE, CCMT 2. B.Tech. and 1 year of Vocational or Professional experience <b>or</b> 2. B.Voc. and 2 years of Vocational or Professional experience
PG 2 <sup>nd</sup> year	7.0	40	280 (+ credit points through experience)	M.Tech.	1. M.Voc. and 1 year of Vocational or Professional experience 2. Screening based on Branch Specific Prerequisite (written test)

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PhD	8.0	40	320 (+ credit points through experience)	PhD	B.Tech. and GATE (direct admission) <b>or</b> B.Tech. and 1 year of Vocational or Professional experience <b>or</b> B.Voc. and 2 years of Vocational or Professional experience M.Tech. <b>or</b> M.Voc. and 2 years of Vocational or Professional experience
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2. Validity and Expiry of the Credit earned for UG program B.Tech. is 7 years, that is, the duration for total credits earned from entry at Program level 4.5 and exit at Program level 6.0 is 7 years. The B.Tech. degree should be earned in a span of 7 years.
3. Validity and Expiry of the Credit earned for PG Program M.Tech. is 3 years, that is, the duration for total credits earned from entry at Program level at 6.5 and exit at Program level 7.0 is 3 years. The M.Tech. degree should be earned in a span of 3 years.
4. Accepting the inclusion of Vocational Training, Field Experience, or Experiential Learning along with our General Education system as part of the Curriculum structure. The credit points earned through Vocational Training and Field Experience or Experiential Learning will be part of will be included in the CGPA / SGPA. The credit point calculation for Vocational and Experiential learning is mentioned in Table 2.

**Table 2: Criticization of Vocational training / Professional level Experience**

Type of experience	No. of experience	Weightage factor	Credit points earned
Training	< 1 year	1	180
Proficient	1 to 4 years	1.33	239.4 ≈ 240
Expert	4 to 7 years	1.67	300.6 ≈ 300
Master	> 7 years	2	360

5. Each department will provide the Exit -Equivalence for awarding a degree at the end of each Program Level. That is, the name for UG-Certificate, UG-Diploma, B.Voc./B.Sc., B.Tech., M.Voc., M.Tech., and PhD. For example, for Department of Computer Science and Engineering
  - a. UG-Certificate – Computer Operator or Computer Programmer
  - b. UG-Diploma – Diploma in Computer Technology or Diploma in Computer Science and Engineering
  - c. B.Voc./B.Sc. – B.Voc. in Computer Science and Engineering
  - d. B.Tech. – Computer Science and Engineering
6. Branch-specific prerequisite is an additional screening criterion helping in preparing the merit list for next year's admission through a written test.
7. Entry -Requirement as suggested in the following table for Multiple Entry and Multiple Exit (MEME) allowing lifelong learning and holistic development.

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8. For NEP supernumerary seats of 30 which is to be considered as lateral entry from the second year of B.Tech. UG program. This is additional seats on every 100 seats of regular students admitted as per the intake through JoSAA.
9. The advertisement in the month of July 1<sup>st</sup> week of the academic year may be announced for the lateral admission under NEP 2020 for the available supernumerary seats through the merit based on a written test as per Branch-specific prerequisite subjects and Entry-Requirements criteria's mentioned in the Table 1.
10. As per National Credit Framework, the credit assignment and evaluation will be decided by the regulatory education organization. The guidelines for the credit assignment as mentioned NCrF:
  - 1200 Notional learning hours and 40 Credits can be earned in a year, through two semesters.
  - Each semester consists of 600 Notional learning hours and 20 Credits through five subjects and each subject is of 4 credits.
  - NCrF specifies:
    - 1 Credit equivalent to 14-15 hours of theory / tutorial
    - 1 Credit equivalent to 28-30 hours of workshop / lab work
    - 1 Credit equivalent to 40-45 hours of vocational training or professional-level learning (experiential learning)
  - For implementing the above credit assignment
    - Subject with L-T-P (15 weeks of academic teaching + 2 weeks for examination)
      - 3-0-2: 15 x 3 = 45 Theory, 15 x 2 = 30 Lab hours: 75 academic teaching hours
      - 3-1-0: 15 x 4 = 60 Theory / Tutorial hours: 60 academic teaching hours
      - 3-1-2: 15 x 4 = 60 Theory / Tutorial hours, 15 x 2 = 30 Lab hours: 90 academic teaching hours
      - 10 Notional hours for examination: Mid Semester Examination: 2 hours, Two-unit tests: 2 hours, Practical / Tutorial Exam: 3 hours, End Semester Examination: 3 hours
    - On average 80 notional hours of learning per subject
      - Five subjects per semester result in 400 notional hours of learning
    - Additional 200 hours of learning through one vocational training or professional level (experiential learning) – skilling results in earning of 4-5 Credits
    - **It results in a total 600 Notional learning hours per semester with 24-25 Credits.**
11. The existing curriculum structure should be revised for implementing NEP 2020. One of the major themes is the seamless student movement among higher educational institutes.

A possible curriculum structure is described in Table 3, maintaining the percentage contribution of subjects from all disciplines.

- a. The subjects can be categorized into
  1. Core Subjects (Mandatory)

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2. Core Subjects (Optional)
  3. Other Discipline Subjects (Science, Humanities, Other Engineering disciplines)
  4. Elective Subjects, Specialization Subjects for Minor and Honors
    - There will be a minimum of five subjects from 1 to 4 categories in each semester.
    - Each subject will be scheduled in the existing time slots that are followed by the institute.
- b. Inclusion of Vocational training and Professional level experience (internship, relevant experience) of 160-200 Hours which is 8 hours/week in six months of duration, half-yearly results into earning 4-5 credits in a particular semester.
- c. 8<sup>th</sup> Semester – 4<sup>th</sup> year of UG program – Vocational or Professional experience in the form of an internship is mandatory of for 16 weeks, that is,  $16 \times 5 \times 8 = 640$  notional learning hours equivalent to 16 credits (640 hours / 40 hours per credit).
- d. The total number of credits for a UG program: 7 semesters x minimum 5 subjects x minimum 4 credits results into 140 credits plus 16 credits in 8<sup>th</sup> semester, that is, total 156 credits.
- e. So additionally, **three Vocational or Professional training each of 4-5 credits in 1<sup>st</sup>, 2<sup>nd</sup>, and 3<sup>rd</sup> year of UG program** which results into 12-15 credits. It will allow fulfilling a minimum requirement of 160-180 credits for a UG program degree.
- f. At present, Six numbers of Vocational or Professional training are proposed from the First year to the Third year of UG.

Table 3: Template for Curriculum Structure Semester-wise

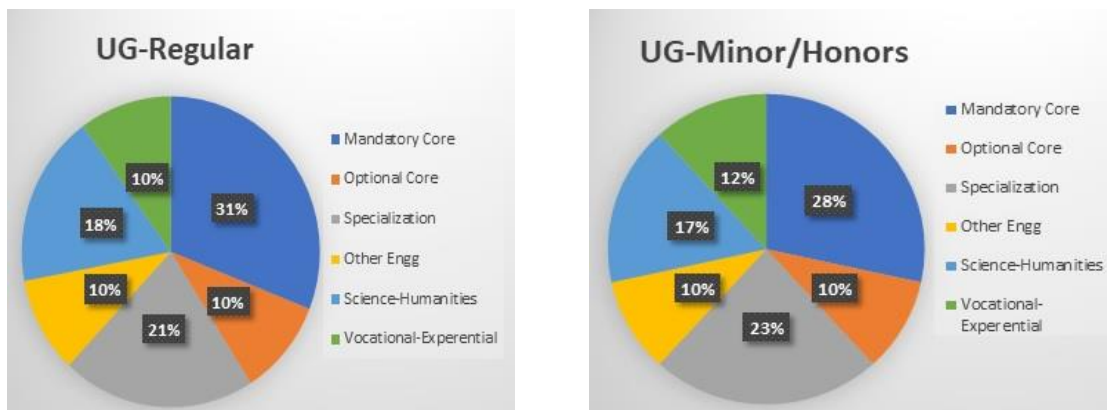
Sem	Mandatory Core Subjects (#)	Optional Core Subjects	Elective – Specialization	Other Engineering	Science	Mathematics	Humanities Art Management	Vocational / Professional
1	1			1	1	1	1	1
2	1			2		1	1	1
3	2	1	1	1				
4	2	1	1				1	1
5	2 (3)	1	2					
6	2 (3)	1	2					1
7	2 (0)		2 (4)				1	1

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8								1*
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(#) for minor / honors

12. The curriculum structure depicted in Table 3 ensures the credit distribution as per the standard norms which is shown in the following charts which may be considered as reference.



13. The above curriculum structure provides Choice Based Credit System (CBCS), Other than Mandatory subjects, the student has a choice of subjects that can be selected from the different Categories of Subjects, that is, Optional Core, Elective / Specialization, Other Engineering Discipline, Humanities and Management, Science and Mathematics.
14. Each department is requested to revise the curriculum structure as per following table which may be considered as a template.

Year	Subjects	Code	Schemes	Credits	Notional hours	Exit-Equivalence for awarding a degree	Entry-Requirement
1 <sup>st</sup> of UG	Mandatory Core					<b>UG-Certificate</b> – Computer Operator or Computer Programmer	1. 12 <sup>th</sup> and JEE
	Other Engineering						
	Science						
	Mathematics						
	Humanities						
	Vocational	VSXXX	0-0-8	4	160 (20 x 8)		
				20	600		
	Mandatory Core						
	Other Engineering						
	Other Engineering						

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	Mathematics						
	Humanities						
	Vocational	VSXXX	0-0-8	4	160 (20 x 8)		
				20	600		
				<b>40</b>	<b>1200</b>		
2 <sup>nd</sup> of UG	Mandatory Core					<b>UG-Diploma</b> - Diploma in Computer Technology or Diploma in Computer Science and Engineering	1. 12th 2. UG-Certificate and 1 year of Vocational or Professional experience 3. Screening based on Branch Specific Prerequisite (written test)
	Mandatory Core						
	Optional Core						
	Elective						
	Other Engineering						
				20	600		
	Mandatory Core						
	Mandatory Core						
	Optional Core						
	Elective						
	Humanities						
	Vocational	VSXXX	0-0-8	4	160 (20 x 8)		
				20	600		
				<b>40</b>	<b>1200</b>		
3 <sup>rd</sup> of UG	Mandatory Core					<b>B.Voc. / B.Sc.</b> – B.Voc. in Computer Science and Engineering	1. 12th 2. UG-Certificate and 2 years of Vocational or Professional experience or 2. UG-Diploma and 1 year of Vocational or Professional experience 3. Screening based on Branch Specific Prerequisite (written test)
	Mandatory Core						
	Optional Core						
	Elective						
	Elective (Specialization for Minor / Honor)						
				20	600		
	Mandatory Core						
	Mandatory Core						
	Optional Core						
	Elective						
	Elective (Specialization for Minor / Honor)						
	Vocational	VSXXX	0-0-8	4	160 (20 x 8)		

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				20	600		
				<b>40</b>	<b>1200</b>		
4 <sup>th</sup> of UG	Elective					<b>B.Tech.</b>	1. 12th 2. UG-Diploma and 2 years of Vocational or Professional experience or 2. B.Voc. and 1 year of Vocational or Professional experience 3. Screening based on Branch Specific Prerequisite (written test)
	Elective						
	Elective (Specialization – Minor/Honor)						
	Elective (Specialization – Minor/Honor)						
	Humanities						
				20	600		
	Vocational / Professional	VSXXX / PSXXX	0-0-40	20	800 (20 x 40)		
				20	800		
				<b>40</b>	<b>1200</b>		

For example, MEME for UG Program Computer Science and Engineering

15 Teaching weeks + 2 Examination weeks (10 Hours)

**Observation:**

1. Need revision of curriculum structure for 1<sup>st</sup> year, 2<sup>nd</sup> year, 3<sup>rd</sup> year, and 4<sup>th</sup> year as per Table mentioned in previous point.
2. Include Vocational and Professional Experience in the first year for UG-Certificate at present 0 Credits and number of hours not specified
3. Need to define the track for specialization for offering Minor and Honors

Year	Subjects	Code	Schemes	Credits	Notional hours	Exit-Equivalence for awarding a degree	Entry-Requirement
1 <sup>st</sup> of UG	<b>Mandatory Core</b> Introduction to Computer Science	CS101	3-0-0	3	65	<b>UG-Certificate</b> – Computer Operator or Computer Programmer	2. 12 <sup>th</sup> and JEE
	<b>Mandatory Core</b> Introduction to Programming	CS103	3-0-2	4	85		
	<b>Other Engineering</b> Digital Electronics &	EC103	3-0-2	4	85		

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	Logic Design						
	<b>Other Engineering</b> Basics of Electrical Engineering	EE105	3-0-2	4	85		
	<b>Other Engineering</b> Digital Communication	EC105	3-0-2	4	85		
	<b>Mathematics</b> Mathematics-I	MA115	3-1-0	4	70		
	<b>Humanities</b> Holistic Empowerment & Human Values	HU107	0-0-1	0	15		
				23	490		
	<b>Mandatory Core</b> Data Structures	CS102	3-1-2	5	100		
	<b>Mandatory Core</b> Web Programming and Python	CS104	3-0-2	4	85		
	<b>Other Engineering</b> Energy & Environmental Engineering	CIME 106	3-0-2	4	85		
	<b>Science</b> Physics	PH104	3-0-0	3	65		
	<b>Mathematics</b> Mathematics-II	MA116	3-1-0	4	70		
	<b>Humanities</b> English & Professional Communication	HU110	3-0-0	3	65		
	<b>Professional Experience</b> Community Project	CS106	0-0-8	4	160 (20 x 8)		
				27	630		
				<b>50</b>	<b>1120</b>		
2 <sup>nd</sup> of UG	<b>Mandatory Core</b> Computer Organization	CS203	3-1-0	4	70	<b>UG-Diploma</b> - Diploma in Computer Technology or Diploma in Computer Science and	1. 12th 2. UG-Certificate and 1 year of Vocational or Professional experience 3. Screening
	<b>Mandatory Core</b> Database Management Systems	CS205	3-1-2	5	100		
	<b>Mandatory Core</b> Design and Analysis of	CS207	3-1-2	5	100		

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	Algorithms					Engineering	based on Branch Specific Prerequisite (written test based on following subjects) Computer Programming, Computer System, Computer Networking, Vocational Training at Programming level
	<b>Optional Core</b>	CS209	3-0-2	4	85		
	Object Oriented Programming						
	<b>Mathematics</b>	CS201	3-1-0	4	70		
	Discrete Mathematics						
				22	425		
	<b>Mandatory Core</b>	CS202	3-1-2	5	100		
	Microprocessor and Interfacing Techniques						
	<b>Mandatory Core</b>	CS204	3-1-2	5	100		
	Operating Systems						
3 <sup>rd</sup> of UG	<b>Mandatory Core</b>	CS206	3-0-2	4	85	B.Voc. / B.Sc. – B.Voc. in Computer Science and Engineering	1. 12th 2. UG-Certificate and 2 years of Vocational or Professional experience or 2. UG-Diploma and 1 year of Vocational or Professional experience 3. Screening based on Branch Specific Prerequisite (written test based on following subjects) Data Structure Algorithm, DBMS,
	Computer Networks						
	<b>Mandatory Core</b>	CS208	3-1-0	4	70		
	Automata and Formal Languages						
	<b>Optional Core</b>	CS210	3-0-2	4	85		
	Artificial Intelligence						
				22	440		
				<b>44</b>	<b>865</b>		
	<b>Mandatory Core</b>	CS301	3-1-2	5	100	B.Voc. / B.Sc. – B.Voc. in Computer Science and Engineering	1. 12th 2. UG-Certificate and 2 years of Vocational or Professional experience or 2. UG-Diploma and 1 year of Vocational or Professional experience 3. Screening based on Branch Specific Prerequisite (written test based on following subjects) Data Structure Algorithm, DBMS,
	System Software						
	<b>Optional Core</b>	CS303	3-0-2	4	85		
	Machine Learning						
	<b>Management</b>	HU301	3-0-0	3	65		
	Professional Ethics, Economics and Business Management						
	<b>Elective</b>	CS3AA	3-0-2	4	85		
	<b>Elective (Specialization – Minor/Honor)</b>	CS3XX	3-0-0	3	65		
	<b>Vocational</b>	CS305	<b>0-0-8</b>	<b>4</b>	<b>160 (20 x 8)</b>		
	CI/CD Tools						
				23	560		
	<b>Optional Core</b>	CS302	3-1-2	5	100		
	Information Security and Cryptography						
	<b>Elective</b>	CS304	3-1-2	5	100		

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	Cloud Computing						Computer Architecture / Organization
	<b>Elective</b>	CS3BB	3-0-2	4	85		
	<b>Elective (Specialization – Minor/Honor)</b>	CS3CC	3-0-2	4	85		
	<b>Elective (Specialization – Minor/Honor)</b>	CS3YY	3-0-0	3	65		
				21	435		
				<b>44</b>	<b>995</b>		
4 <sup>th</sup> of UG	<b>Optional Core</b> Distributed Systems	CS401	3-0-2	4	85	<b>B.Tech.</b>	1. 12th 2. UG-Diploma and 2 years of Vocational or Professional experience or 2. B.Voc. and 1 year of Vocational or Professional experience 3. Screening based on Branch Specific Prerequisite (written test based on following subjects) Automata Operating System, Computer Network, System Software
	<b>Elective</b>	CS4AA	3-0-2	4	85		
	<b>Elective (Specialization – Minor/Honor)</b>	CS4BB	3-0-2	4	85		
	<b>Elective</b>	CS4CC	3-0-0	3	65		
	<b>Management</b> Innovation, Incubation and Entrepreneurship	HUXXX	3-0-0	3	65		
	<b>Professional</b> Mini Project	CS403	0-0-8	4	160 (20 x 8)		
				22	545		
	<b>Professional</b>	CS402	0-0-40	20	800 (20 x 40)		
				20	800		
				<b>42</b>	<b>1345</b>		

15. Define the specialization tracks for Minor, Honors – allowing interdisciplinary specialization as per the CIDER (Centre for Interdisciplinary Education and Research) proposal. The specialization track is achieved through the set of elective subjects for Minor (in another discipline) and Honor (in its own discipline). These specialization subjects can be distributed from 5<sup>th</sup>, 6<sup>th</sup>, and 7<sup>th</sup> semesters.

For example,

○ B.Tech. Mech Minor in Data Science	○ B.Tech. CSE Honors in Data Science
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<ul style="list-style-type: none"> <li>• Data Structure and Algorithm</li> <li>• Database Management System</li> <li>• Fundamental of Data Science</li> <li>• Machine Learning</li> </ul>	<ul style="list-style-type: none"> <li>• Fundamental of Data Science</li> <li>• Information Retrieval</li> <li>• Deep Learning</li> <li>• Big Data Analytics</li> </ul>
<ul style="list-style-type: none"> <li>○ <b>B.Tech. Civil Minor in Block Chain</b> <ul style="list-style-type: none"> <li>• Data Structure and Algorithm</li> <li>• Information Security</li> <li>• Basics of Cryptography</li> <li>• Block Chain Technology</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>○ <b>B.Tech. CSE Honors in System Security</b> <ul style="list-style-type: none"> <li>• Information Security</li> <li>• Advanced Cryptography</li> <li>• Network Security</li> <li>• Security for IoT</li> </ul> </li> </ul>

16. Each department will provide a pool of Mandatory Core, Optional Core and Elective Subjects. The department will also provide Vocational training, it may be Institute based or Industry based. The department will also provide a valid list of Professional experience (Experiential learning) or Field work for earning the credits. For Vocational training and Professional experience, the student will be evaluated through an assessment mechanism devised by the department.

For example, UG-Computer Science and Engineering program – pool of subjects

<ul style="list-style-type: none"> <li>○ <b>Core Subjects Discipline-wise (Mandatory)</b> <ul style="list-style-type: none"> <li>• Introduction of Computer Programming (CS103)</li> <li>• Introduction to Computer System and Networking (CS101)</li> <li>• Data Structure (CS102)</li> <li>• Discrete Mathematics (CS201)</li> <li>• Algorithm Design and Analysis (CS207)</li> <li>• Computer Architecture and Organization (CS203)</li> <li>• Microprocessor and Interfacing (CS202)</li> <li>• Automata and Formal Language (CS208)</li> <li>• Database Management System (CS205)</li> <li>• Operating System (CS204)</li> <li>• Computer Network (CS206)</li> <li>• System Software (CS301)</li> <li>• Principles of Programming Languages</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>○ <b>Core Subjects Discipline-wise (Optional)</b> <ul style="list-style-type: none"> <li>• Object Oriented Technology (CS209)</li> <li>• Software Engineering</li> <li>• Embedded Systems</li> <li>• Parallel Architecture</li> <li>• Information Security (CS302)</li> <li>• Artificial Intelligence (CS210)</li> <li>• Distributed Computing</li> <li>• Game Theory</li> <li>• Graph Theory</li> </ul> </li> </ul>
<ul style="list-style-type: none"> <li>○ <b>Other Engineering Subjects</b> <ul style="list-style-type: none"> <li>• Signal and Systems</li> <li>• Network Analysis (EE105)</li> <li>• Digital Logic Circuits (EC103)</li> <li>• Communication Theory (EC105)</li> <li>• Environmental Engineering (CIME106)</li> <li>• Engineering Mechanics</li> <li>• Thermal Engineering</li> <li>• Engineering Graphics</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>○ <b>Vocational training</b> <ul style="list-style-type: none"> <li>• <b>Institute based</b> <ul style="list-style-type: none"> <li>○ Python Programming</li> <li>○ C/C++ Programming</li> <li>○ Java Programming</li> <li>○ R Programming</li> <li>○ Power BI</li> </ul> </li> <li>• <b>Industry based</b> <ul style="list-style-type: none"> <li>○ R Programming</li> </ul> </li> </ul> </li> </ul>

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<ul style="list-style-type: none"> <li>• Engineering Mechanics</li> <li>• Adaptive Signal Processing</li> <li>• VLSI Design</li> <li>• Satellite Communication</li> </ul>	<ul style="list-style-type: none"> <li>○ AWS Microsoft certification</li> <li>○ CISCO certification</li> </ul>
<ul style="list-style-type: none"> <li>○ <b>Science</b> <ul style="list-style-type: none"> <li>• Physics</li> <li>• Chemistry</li> <li>• Quantum Physics</li> <li>• Nano technology</li> </ul> </li> <li>○ <b>Mathematics</b> <ul style="list-style-type: none"> <li>• Engineering Mathematics (MA115)</li> <li>• Linear Algebra and Probability (MA116)</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>○ <b>Professional (Experiential learning)</b> <ul style="list-style-type: none"> <li>• <b>Institute based</b> <ul style="list-style-type: none"> <li>○ Mini project / Sponsored project</li> </ul> </li> <li>• <b>Industry based</b> <ul style="list-style-type: none"> <li>○ Developer, Programmer</li> <li>○ Network / System Administrator</li> </ul> </li> </ul> </li> </ul>
<ul style="list-style-type: none"> <li>○ <b>Art and Humanities</b> <ul style="list-style-type: none"> <li>• Communication Skill</li> <li>• Foreign Language</li> <li>• Writing Skill</li> <li>• Critical Thinking</li> <li>• Communication Design</li> <li>• Visual Communication</li> </ul> </li> <li>○ <b>Management</b> <ul style="list-style-type: none"> <li>• Business Analytics</li> <li>• Marketing and Innovation</li> <li>• Design Thinking</li> <li>• Banking Technology</li> <li>• Finance and Project Management</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>○ <b>Elective – Specialization Subjects</b> <ul style="list-style-type: none"> <li>• High Performance Computing (CS326)</li> <li>• Cloud Computing (CS304)</li> <li>• Cyber Security</li> <li>• Forensic Analysis</li> <li>• Deep Learning (CS433)</li> <li>• Machine Learning (CS303)</li> <li>• Multimedia Communication and Protocol</li> <li>• Cellular Network</li> <li>• Mobile Computing</li> <li>• Cyber Physical System (CS362)</li> <li>• Wireless Network</li> <li>• Soft Computing</li> <li>• Cryptography</li> <li>• Block Chain (CS439)</li> <li>• Ethical Hacking (CS364)</li> <li>• Web Engineering</li> <li>• Big Data</li> <li>• Computer Vision</li> <li>• Image Processing</li> <li>• Robot Vision</li> <li>• Internet of Things</li> </ul> </li> </ul>

ANNEXURE 1

Following are the recommendations regarding PhD program and admission in PhD program at SVNIT.

1. The compulsory requirement of GATE qualification for Engineering discipline should be removed for students having M.Tech /M. E. with required CGPA (as per the existing norms), for FIR category with stipend.

**Justification:** Following are some of the Institutes that are offering PhD admission to the students without compulsion of GATE score with scholarship:

- a. IIT Kanpur
  - b. IIT Delhi
  - c. IIT Ropar
  - d. IIT Mandi
  - e. MNIT Jaipur
2. The number of applications that we receive is exceptionally less compared to the actual vacancies available with the department. (e.g. from last 3-4 semesters, DoChE received around 4-5 applications against the vacancy (more than 30). The written test is ideally taken only when excessive number of applications are received by the department. So, written test should be conducted at the discretion of the department.
  3. Nowadays, interdisciplinary research is promoted by the Ministry as well as the Institute. Hence, it is proposed to consider/allow the candidates from other disciplines to directly enrol in the department of interest where he/she wants to conduct the research. PhD degree certificate can be suitably modified, in which the PhD title should be mentioned with name of the Institute, but not the specific discipline.
  4. The selection of candidates based on 35 percentile criteria should be waived off for promoting research-based environment and increase participation in admission. The number of students to be rejected should be at the discretion of the department.
  5. The comprehensive assessment should be waived off.
  6. The format of Sponsorship Letter to be submitted for the PEC candidates should be reframed as No Objection Certificate and is suggested in Annexure 2.
  7. There is a need of at least 2 (two) research papers from the candidate to apply for pre-synopsis as of now. In this, the process/product patents granted to the candidate should also be considered along with research papers (e.g. candidate with 1 research paper and 1 process patent or candidate with 2 process patents should also be allowed to apply for pre-synopsis). The patents must be the part of the thesis work. Registration of design is not allowed.

*Santa Gupta*

*Devi M.A.*



## **Annexure 2.2 of 60<sup>th</sup> IAAC**

### **No Objection Certificate**

**(This should be typed on Letter Head of the Sponsoring Organization)**

To,  
The Director,  
Sardar Vallabhbhai National Institute of Technology,  
Surat 395 007

**Sub.: No objection Certificate to pursue Ph.D. Programme in Part Time External (PEC) Category**

Dear Sir,

We hereby have no objection to the candidature of Mr./Ms. \_\_\_\_\_,

Who is an employee in our Organization, for joining Ph.D. programme in \_\_\_\_\_ at your institute as a PART-TIME External Candidate.

We grant him/her permission to attend the classes during the first year of Ph.D. programme to complete the course work requirements.

**Signature of Head of Organization  
With seal and Date**

## PhD Program Admission Suggested modifications

Following are the recommendations regarding PhD program and admission in PhD program at SVNIT:

1. For all Engineering Departments, GATE will not be compulsory for admission and getting Institute fellowship for FIR student. Candidate with Master's degree in science must have qualified in GATE/NET for fellowship.

The compulsory requirement of GATE qualification should be removed for students having M.Tech./M.E., with required CGPA (as per the existing norms), for FIR category with stipend. Preference will be given to GATE/NET qualified candidates.

2. The number of applications that we receive is exceptionally less compared to the actual vacancies available with each department. Hence, the written test is ideally taken only when excessive number of applications is received by the department. So, the written test should be conducted at the discretion of the department.

3. The selection of candidates based on 35 percentile criteria should be waived off for promoting research based environment and increase participation in admission. The number of students to be rejected should be at the discretion of the department. \*

4. Nowadays, interdisciplinary research is promoted by the Ministry as well as the Institute. Hence, it is proposed to consider/allow the candidates from other disciplines (Sciences) to directly enrol in the department of interest where he/she wants to conduct the research. PhD degree certificate can be suitably modified, in which the PhD title should be mentioned with name of the Institute, but not the specific discipline/department.

5. As per the present rules, there is a requirement to complete 16 credits course work, which includes a compulsory subject "Research Methodology". It is suggested to reduce the credit requirement to 12 credits and "Research Methodology" should not be made compulsory, as research methodology changes with respect to branch, and it should be left to the Supervisor whether to allow the Ph.D. student to register for "Research Methodology" or not.

6. As per the present rules, there is a need of at least 2 (two) research papers published from the candidate to apply for pre-synopsis. In this, the process/product patents granted to the candidate should also be considered along with research papers (eg. candidate with one research paper and one process/product patent or candidate with 2 process patents should also be allowed to apply for pre-synopsis). The patents must be the part of the thesis work. Certificate of design is not allowed.

7. The NOC format, for Part-Time Ph.D. candidates, should be reframed in order to make it possible for the candidates to get it from their parent organizations). Instead of sponsorship requirement, the requirement of merely "No Objection for relieving from duties to complete the coursework" should be included in the No Objection Certificate. Relaxation can also be given in relieving for compulsorily stay in campus for one semester. Accordingly, the format of the same is redrafted and attached as Annexure 1.

8. The comprehensive assessment should be waived off.

9. The paper advertisement for admission to Ph.D. program should also be published at national level newspapers for wide publicity. Also, the advertisement may be sent to some select Institutes/Universities by E-mail.

Z.V.P. MURTHY  
06/01/2023

Devesh R. Roy  
06.01.23

K. Suresh Kumar  
06/01/2023  
(DR. K. SURESH KUMAR)

Dr. Suban K. Sahoo  
06/01/2023  
(Dr. Suban K. Sahoo)

To,  
Dr. V.P. MURTHY  
for IAAC agenda  
16/11/23

S.R. Arora  
06/01/23

Manish K. Rathod  
(Manish K Rathod)





**NATIONAL INSTITUTE OF TECHNOLOGY PATNA**  
(An Institute under Ministry of Education, Govt. of India)

## **NOTICE FOR Ph.D. ADMISSION**

Applications are invited from Indian nationals for **ADMISSION** to Ph.D. Programme -Odd Semester (Jul 2021) of session 2021-22 under Full Time / Part-Time / Sponsored Scheme and Selection for JRF / SRF positions for the sponsored research projects at NIT Patna. Last date for online application is 22<sup>nd</sup> Jul 2021, up to 11:00 AM.

For detailed information, please visit Institute website [www.nitp.ac.in](http://www.nitp.ac.in)

Advt No NITP/2021-22/04

Registrar

NITP Institute Order No. 1447

Applications are invited ONLINE for admission to the M.Tech, M.Tech. + Ph.D. (Dual Degree), M.Phil, M.Sc.-Ph.D. (Dual Degree) in Energy Programmes, Master in Public Policy (MPP), M.S. by Research in the Department of Computer Science and Engineering, Dual Degree MA+Ph.D. Programme in Philosophy and Ph.D. for the Academic Year 2021-22 starting from July 2021. Please visit the Institute website <http://www.iitb.ac.in/newacadhome/toadmission.jsp> for Online application forms, Information Brochure, schedule and other details.

Enquiries may be addressed to: (for PG) - [pgadm@iitb.ac.in](mailto:pgadm@iitb.ac.in) / (for Ph.D) [phd\\_unit5@iitb.ac.in](mailto:phd_unit5@iitb.ac.in)

Note - From AY 2022-23, the admission notice will be displayed / published on Institute's (IIT Bombay) website only.

## Annexure 14.1 of 60<sup>th</sup> IAAC

### Sardar Vallabhbhai National Institute of Technology (SVNIT) – Surat

#### Academic Calendar - Year 2023-24

No.	Activity	Autumn Semester		Winter Semester	
		Week number	Month and Date	Week number	Month and Date
	<b>Preliminary Activities</b>				
1	Registration and Payment of fee	1 (June)	1-21 June 2023	2 (Dec)	4-24 Dec 2023
2	PhD Research Progress Seminar	-	Till 21 July 2023	-	Till 29 Dec 2023
3	Late Registration and Payment of Fee with fine	4 (June)	22-30 June 2023	4 (Dec)	25-31 Dec 2023
4	Supplementary Examinations (ODD and EVEN)	2 (July)	10-21 July 2023	2 (Feb)	12 – 24 Feb 2024
	<b>Curriculum Activities</b>				
5	Commencement of Teaching	4 (July)	24 July 2023	1 (Jan)	1 Jan 2024
6	Mid Semester Examination	4 (Sep)	25-29 Sep 2023	4 (Feb)	26 Feb–1 Mar 2024
6*	Mid - Minor and Regular Common Subjects	-	2 - 4 Oct 2023	-	4 – 6 Mar 2024
7	Make up tests and Practical Examination	3 (Nov)	20-24 Nov 2023	3 (Apr)	22-26 Apr 2024
8	XX Grade Submission	3 (Nov)	18 Nov 2023	3 (Apr)	19 Apr 2024
8	Last Day of Teaching	3 (Nov)	24 Nov 2023	3 (Apr)	26 Apr 2024
9	End Semester Examination	4 (Nov)	27 Nov – 1 Dec 2023	4 (Apr)	29 Apr – 3 May 2024
9*	End – Minor and Regular Common Subjects	-	4 – 6 Dec 2023	-	6 - 8 May 2024
10	Project / Dissertation Preliminaries (UG/PG)	1 (Dec)	4 – 8 Dec 2023	-	-
11	Project (UG)	-	-	2 (May)	6–10 May 2024
12	Dissertation (PG) Thesis Submission	-	-		Till 30 <sup>th</sup> June
12*	Dissertation (PG) Viva Voce Examination	-	-	1 (July)	1-26 July 2024
13*	Displaying Marks / Verification Answer books	2 (Dec)	Till 8 Dec 2023	2 (May)	18 May 2024
13	Declaration of Results	3 (Dec)	11-15 Dec 2023	3 (May)	20-25 May 2024
	<b>Extra Curriculum Activities and Vacation</b>				
14	Autumn Technical and Cultural Activities	2 (Oct)	13-15 Oct 2023	-	-
15	Winter Technical and Cultural Activities	-	-	2 (Feb)	16-18 Feb 2024
16	Diwali Break for Faculty and Students	3 (Nov)	13 -17 Nov 2023	-	-
17	Semester Break (Vacation) for UG Students	3 (Dec)	11–29 Dec 2023	3 (Ma)	9 May-12 Jul 2024
18	Semester Break (Vacation) for Faculty	4 (Dec)	25-29 Dec 2023	4 (May)	27 May-12 Jul 2024
	Calendar days of Semester (Excluded Sat, Sun)	-	100	-	95
1	Registration and Payment of fee	1 (June)	1-21 June 2024		
2	PhD Research Progress Seminar	-	Till 19 July 2024		
3	Late Registration and Payment of Fee with fine	4 (June)	22-30 June 2024		
4	Supplementary Examinations (ODD and EVEN)	2 (July)	8-19 July 2024		
<b>Academic Year 2024-25</b>					
5	Commencement of Teaching	4 (July)	29 July 2024		

\*First-year academic calendar may be announced separately in case of a delay in the admission process.



**Multiple Entry and Multiple Exit Criteria****Multiple Entry -**

- (a) for the students who are admitted in the first year of program in SVNIT (own students) based on the entry requirement criteria 1 and 2
- (b) for the students – Inter NIT - maximum # students at any year and Screening test as suggested in entry criteria 3 (# 5 – 10 students)

Exit-Equivalence for awarding a degree	Entry-Requirement
UG-Certificate in Program Name (or name suggested by the department)	1. 12 <sup>th</sup> and JEE
UG-Diploma in Program Name (or name suggested by the department)	1. 12th + JEE 2. 1st year of UG or 2. UG-Certificate and 1 year of Vocational or Professional experience 3. Screening based on Branch Specific Prerequisite (written test)
B.Voc. / B.Sc. in Program Name (or name suggested by the department)	1. 12th + JEE 2. 2 <sup>nd</sup> year of UG or 2. UG-Diploma and 1 year of Vocational or Professional experience 3. Screening based on Branch Specific Prerequisite (written test)
B.Tech. in Program Name	1. 12th + JEE 2. 3 <sup>rd</sup> year of UG or 2. B.Voc. and 1 year of Vocational or Professional experience 3. Screening based on Branch Specific Prerequisite (written test)
M.Voc. in Program Name (or name suggested by the department)	1. CCMT
M.Tech. in Program Name	1. CCMT 2. 1 <sup>st</sup> year of M.Tech. or 2. M.Voc. and 1 year of Vocational or Professional experience

**Curriculum Structure**

Subject code ##nXX: ## - identifies Department, n UG year, XX – sequence number

Vocational Training / Experiential Learning: End Semester (100%) – (Written / Practical mode will be decided by the department depending upon the type of training or learning)

Year	Subjects	Proposed / Recommended subject	Code	Scheme L-T-P	Credits (Min.)	Notional hours (Approx.)
1 <sup>st</sup> of UG (I and II Semesters)	First Semester					
	CBCS-1	Mandatory Core	##nXX	3-0-2 / 3-1-0	4	85 / 70
	CBCS-2	Other Engineering	##nXX	3-0-2 / 3-1-0	4	
	CBCS-3	Science	##nXX	3-0-2 / 3-1-0	4	
	CBCS-4	Mathematics	##nXX	3-0-2 / 3-1-0	4	
	CBCS-5	Humanities	##nXX	3-0-2 / 3-1-0	4	

**Annexure 1.1 of 61<sup>st</sup> IAAC**

	Vocational / Professional	(Optional) (Mandatory for Exit)	VSXXX	0-0-8	4	160 (20 x 8)
				Total		
		Minimum Credit Requirement			20	600
	Second Semester					
	CBCS-1	Mandatory Core	##nXX	3-0-2 / 3-1-0	4	
	CBCS-2	Other Engineering	##nXX	3-0-2 / 3-1-0	4	
	CBCS-3	Other Engineering/ Science	##nXX	3-0-2 / 3-1-0	4	
	CBCS-4	Mathematics	##nXX	3-0-2 / 3-1-0	4	
	CBCS-5	Humanities	##nXX	3-0-2 / 3-1-0	4	
	Vocational / Professional	(Optional) (Mandatory for Exit)	VSXXX	0-0-8	4	160 (20 x 8)
			Total			
	Minimum Credit Requirement			20	600	
					<b>40</b>	<b>1200</b>
2 <sup>nd</sup> of UG (III and IV Semesters)	Third Semester					
	CBCS-1	Mandatory Core	##nXX	3-0-2 / 3-1-0	4	
	CBCS-2	Mandatory Core	##nXX	3-0-2 / 3-1-0	4	
	CBCS-3	Optional Core	##nXX	3-0-2 / 3-1-0	4	
	CBCS-4	Elective	##nXX	3-0-2 / 3-1-0	4	
	CBCS-5	Other Engineering / Mathematics / Humanities	##nXX	3-0-2 / 3-1-0	4	
				Total		
		Minimum Credit Requirement			20	600
	Fourth Semester					
	CBCS-1	Mandatory Core	##nXX	3-0-2 / 3-1-0	4	
	CBCS-2	Mandatory Core	##nXX	3-0-2 / 3-1-0	4	
	CBCS-3	Optional Core	##nXX	3-0-2 / 3-1-0	4	
	CBCS-4	Elective	##nXX	3-0-2 / 3-1-0	4	
	CBCS-5	Other Engineering/ Humanities	##nXX	3-0-2 / 3-1-0	4	
	Vocational / Professional	(Optional) (Mandatory for Exit)	VSXXX	0-0-8	4	160 (20 x 8)
			Total			
	Minimum Credit Requirement			20	600	
					<b>40</b>	<b>1200</b>
3 <sup>rd</sup> of UG (V and VI Semesters)	Fifth Semester					
	CBCS-1	Mandatory Core	##nXX	3-0-2 / 3-1-0	4	
	CBCS-2	Mandatory Core	##nXX	3-0-2 / 3-1-0	4	
	CBCS-3	Optional Core	##nXX	3-0-2 / 3-1-0	4	
	CBCS-4	Elective	##nXX	3-0-2 / 3-1-0	4	
	CBCS-5	Elective (Specialization - Minor / Honor)	##nXX	3-0-2 / 3-1-0	4	
				Total		
		Minimum Credit Requirement			20	600
	Sixth Semester					



**Annexure 1.1 of 61<sup>st</sup> IAAC**

	CBCS-1	Mandatory Core	##nXX	3-0-2 / 3-1-0	4	
	CBCS-2	Mandatory Core	##nXX	3-0-2 / 3-1-0	4	
	CBCS-3	Optional Core	##nXX	3-0-2 / 3-1-0	4	
	CBCS-4	Elective	##nXX	3-0-2 / 3-1-0	4	
	CBCS-5	Elective (Specialization - Minor / Honor)	##nXX	3-0-2 / 3-1-0	4	
	Vocational / Professional	(Optional) (Mandatory for Exit)	VSXXX	0-0-8	4	160 (20 x 8)
				Total		
		Minimum Credit Requirement			20	600
					<b>40</b>	<b>1200</b>
4 <sup>th</sup> of UG (VII and VIII Semesters)	Seventh Semester					
	CBCS-1	Mandatory Core	##nXX	3-0-2 / 3-1-0	4	
	CBCS-2	Elective	##nXX	3-0-2 / 3-1-0	4	
	CBCS-3	Elective	##nXX	3-0-2 / 3-1-0	4	
	CBCS-4	Elective (Specialization – Minor/ Honor)	##nXX	3-0-2 / 3-1-0	4	
	CBCS-5	Elective (Specialization – Minor / Honor)	##nXX	3-0-2 / 3-1-0	4	
				Total		
		Minimum Credit Requirement			20	600
	Eighth Semester					
	Vocational / Professional	Mandatory	VSXXX /PSXXX	0-0-40	20	800 (20 x 40)
			Total			
	Minimum Credit Requirement			20	800	
					<b>40</b>	<b>1200</b>

**Sardar Vallabhbhai National Institute of Technology (SVNIT) Surat****Note for new programs announcement through BoG notification**

- **For admission through JoSAA and CCMT for the academic year 2023-24**

**Subject: Regarding the new graduate / undergraduate programs and departments, action plan, faculty, and infrastructure requirement - submitting to the Senate and Finance Committee of the Institute through IAAC in reference to resolution no. 61.17.2 of 61st meeting of BoG held on 27th September, 2022.**

SVNIT Surat is planning to set up various departments and offer new programs at undergraduate and graduate levels by this newly setup and existing departments to cater to the need for cutting-edge technology and implementing National Educational Policy 2020 which ensures the holistic development of the student, providing the opportunity to explore the different fields and acquiring the knowledge across the higher educational institutes. The proposed programs are in the emerging thrust areas: Information Security and Privacy, Data Science, Artificial Intelligence, Business Administration, Machine Design, VLSI, Planning, and Computing. Admission for UG and Dual Degree programs will be through JoSAA and PG programs through CCMT. The admission criteria and reservation policy are as followed by JoSAA and CCMT for respective courses. and The Fee policy will be the same as that of current ongoing UG and PG programs in SVNIT.

The departments planned for being set up and the courses offered by this newly setup and existing departments are as follows:

**Table 1: New Programs offered by Existing Departments**

Sr. No.	Existing Department	Program offered at Post Graduate level	Student Intake	Remarks
1	Computer Science and Engineering	M.Tech. Computer Science and Engineering with Specialization in Information Security and Privacy	30	Scheme and Syllabus are approved in the meeting of 56 <sup>th</sup> IAAC held on May 19, 2022 And Approved in the meeting of 54 <sup>th</sup> Senate held on June 8, 2022 for further approval of finance and BoG
2	Computer Science and Engineering	M.Tech. Computer Science and Engineering with Specialization in Data Science	30	Scheme and Syllabus are approved in the meeting of 56 <sup>th</sup> IAAC held on May 19, 2022 And Approved in the meeting of 54 <sup>th</sup> Senate held on June 8, 2022 for further approval of finance and BoG
3	Mechanical Engineering	M.Tech. Mechanical Engineering with Specialization in Machine Design	30	Scheme and Syllabus are approved in the meeting of 56 <sup>th</sup> IAAC held on May 19, 2022 And Approved in the meeting of 54 <sup>th</sup> Senate held on June 8, 2022 for further approval of finance and BoG



## Annexure 2.1 of 61<sup>st</sup> IAAC

Table 2: Set up of New Departments and New Programs offered by these departments:

Sr. No.	Set up New Department	Program offered at Post Graduate level	Program offered at Undergraduate level	Student Intake	Remarks
4	Department of Artificial Intelligence		B.Tech. in Artificial Intelligence	120	New Department proposal was approved in the meeting of 55 <sup>th</sup> Senate held on Sept 20, 2022  Scheme and Syllabus are approved in the meeting of 61 <sup>st</sup> IAAC held on Feb 28, 2023
5	Department of Management Studies	Master of Business Administration		60	Scheme and Syllabus are approved in the meeting of 61 <sup>st</sup> IAAC held on Feb 28, 2023  Scheme and Syllabus are approved in the meeting of 61 <sup>st</sup> IAAC held on Feb 28, 2023
6	Department of Management Studies	Five years integrated program Master of Business Administration		60	Bifurcating the Department of Mathematics and Humanities as resolved in the meeting of 57 <sup>th</sup> IAAC held on July 22, 2022 and Approved in the meeting of 55 <sup>th</sup> Senate held on Sept 20, 2022 for further approval of finance and BoG  Scheme and Syllabus are approved in the meeting of 61 <sup>st</sup> IAAC held on Feb 28, 2023

Table 1.1: New Programs offered by Existing Departments

Sr. No.	Existing Department	Program offered at Under Graduate level	Student Intake	Remarks
7	Department of Civil Engineering	B. Plan.	60	Scheme and Syllabus are approved in the meeting of 61 <sup>st</sup> IAAC held on Feb 28, 2023
8	Department of Electronics Engineering	B.Tech. Electronics and VLSI Engineering	60	Scheme and Syllabus are approved in the meeting of 61 <sup>st</sup> IAAC held on Feb 28, 2023

## Annexure 2.1 of 61<sup>st</sup> IAAC

The action plan, faculty, and infrastructure requirement for the above 6 programs:

Table 3: Academic year wise Faculty and Infrastructure requirement

Sr. No.	Program Name	Student Intake	Academic year	Faculty required	Infrastructure requirement
1	M.Tech. Computer Science and Engineering with Specialization in Information Security and Privacy	30	2023-24	2 (0:0:2)	Existing labs and classrooms in the department will be shared.
			2024-25	4 (1:1:2) (SFR 15:1)	1 Computing lab Faculty cabins in a new upcoming administrative building can be shared.
2	M.Tech. Computer Science and Engineering with Specialization in Data Science	30	2023-24	2 (0:0:2)	Existing labs and classrooms in the department will be shared.
			2024-25	4 (1:1:2) (SFR 15:1)	1 Computing lab Faculty cabins in a new upcoming administrative building can be shared.
3	M.Tech. Mechanical Engineering with Specialization in Machine Design	30	2023-24	2 (0:0:2)	Existing labs and classrooms in the department will be shared.
			2024-25	4 (1:1:2) (SFR 15:1)	1 design lab Faculty cabins in a new upcoming administrative building can be shared.
4	B.Tech. Artificial Intelligence	120	2023-24	6 (0:0:6)	New Classroom complex available For the first two years existing lab facility of the mathematics department will be shared. Later 2 Computing labs will be developed.
			2024-25	12 (1:1:10)	
			2025-26	18 (1:3:14)	
			2026-27	24 (2:4:18) (SFR 20:1)	
5	Master of Business Administration (MBA)	60	2023-24	3 (0:0:3)	Existing labs and classrooms in the department will be shared.
			2024-25	6=1:1:4 (SFR 20:1)	1 Computing lab Faculty cabins in a new upcoming administrative building can be shared.
6	Five years integrated program Master of Business Administration	60	2023-24	3 (0:0:3)	New Classroom complex available For the first two years existing lab facility of the mathematics department will be shared. Later 2 Computing labs will be developed.
			2024-25	6 (1:1:4)	
			2025-26	9 (1:2:6)	
			2026-27	12 (1:3:8)	
			2027-28	15=2:3:10 (SFR	



## Annexure 2.1 of 61<sup>st</sup> IAAC

				20:1)	
7	Bachelor of Planning (B. Plan.)	60	2023-24	3 (0:0:3)	New Classroom complex available For the first two years existing lab facility of the Civil Engineering Department will be shared. Later 1 lab will be developed.
			2024-25	6 (1:1:4)	
			2025-26	9 (1:2:6)	
			2026-27	12=1:2:9 (SFR 20:1)	
8	B.Tech. Electronics and VLSI Engineering	60	2023-24	3 (0:0:3)	New Classroom complex available For the first two years existing lab facility of the Electronics Engineering Department will be shared. Later 2 labs will be developed.
			2024-25	6 (1:1:4)	
			2025-26	9 (1:2:6)	
			2026-27	12=1:2:9 (SFR 20:1)	

Sr. No.	Program Name	Academic Year	Number of Students	Tuition Fee Collection	Faculty Salary	Scholarship from MoE
1	M.Tech. Computer Science and Engineering with Specialization in Information Security and Privacy	2023-24	30	<b>21,00,000</b> (= 35,000 x 30 x 2)	<b>32,40,000</b> (1,35,000 x 2 x 12)	45,00,000 (12,500 x 30 x 12)
		2024-25	60	<b>42,00,000</b>	<b>96,60,000</b> [(2,75,000 + 2,60,000 + 2,70,000) x 12]	90,00,000
2	M.Tech. Computer Science and Engineering with Specialization in Data Science	2023-24	30	21,00,000	32,40,000	45,00,000
		2024-25	60	42,00,000	96,60,000	90,00,000
3	M.Tech. Mechanical Engineering with Specialization in Machine Design	2023-24	30	21,00,000	32,40,000	45,00,000
		2024-25	60	42,00,000	96,60,000	90,00,000
4	B.Tech. in Artificial Intelligence	2023-24	120	<b>1,50,00,000</b>	<b>97,20,000</b> (1,35,000 x 6 x 12)	-
		2024-25	240	<b>3,00,00,000</b>	<b>2,26,20,000</b> [(2,75,000 + 2,60,000 + 1,35,000 x 10) x 12]	-

## Annexure 2.1 of 61<sup>st</sup> IAAC

		2025-26	360	<b>4,50,00,000</b>	<b>3,53,40,000</b> [(2,75,000 + 2,60,000 x 3 + 1,35,000 x 14) x 12]	-
		2026-27	480	<b>6,00,00,000</b>	<b>4,82,40,000</b> [(2,75,000 x 2 + 2,60,000 x 4 + 1,35,000 x 18) x 12]	-
5	Master of Business Administration (MBA)	2023-24	<b>60</b>	<b>42,00,000</b> (= 35,000 x 60 x 2)	<b>48,60,000</b> (1,35,000 x 3 x 12)	<b>90,00,000</b> (12,500 x 60 x 12)
		2024-25	<b>120</b>	<b>84,00,000</b>	<b>1,29,00,000</b> [(2,75,000 + 2,60,000 + 5,40,000) x 12]	<b>1,80,00,000</b>
6	Five years integrated program Master of Business Administration	2023-24	60	<b>75,00,000</b> (= 62,500 x 60 x 2)	<b>48,60,000</b> (1,35,000 x 3 x 12)	-
		2024-25	120	<b>1,50,00,000</b>	<b>1,29,00,000</b> [(2,75,000 + 2,60,000 + 1,35,000 x 4) x 12]	-
		2025-26	180	<b>2,25,00,000</b>	<b>1,92,60,000</b> [(2,75,000 + 2,60,000 x 2 + 1,35,000 x 6) x 12]	-
		2026-27	240	<b>3,00,00,000</b>	<b>2,56,20,000</b> [(2,75,000 + 2,60,000 x 3 + 1,35,000 x 8) x 12]	-
		2027-28	300	<b>3,75,00,000</b>	<b>3,21,60,000</b> [(2,75,000 x 2 + 2,60,000 x 3 + 1,35,000 x 10) x 12]	-
7	B. Plan.	2023-24	60	<b>75,00,000</b>	<b>48,60,000</b> (1,35,000 x	-



## Annexure 2.1 of 61<sup>st</sup> IAAC

					3 x 12)	
		2024-25	120	<b>1,50,00,000</b>	<b>1,29,00,000</b> [(2,75,000 + 2,60,000 + 1,35,000 x 4) x 12]	-
		2025-26	180	<b>2,25,00,000</b>	<b>1,92,60,000</b> [(2,75,000 + 2,60,000 x 2 + 1,35,000 x 6) x 12]	-
		2026-27	240	<b>3,00,00,000</b>	<b>2,41,20,000</b> [(2,75,000 x 1 + 2,60,000 x 2 + 1,35,000 x 9) x 12]	-
8	B.Tech. in Electronics and VLSI Engineerin2	2023-24	60	<b>75,00,000</b>	<b>48,60,000</b> (1,35,000 x 3 x 12)	-
		2024-25	120	<b>1,50,00,000</b>	<b>1,29,00,000</b> [(2,75,000 + 2,60,000 + 1,35,000 x 4) x 12]	-
		2025-26	180	<b>2,25,00,000</b>	<b>1,92,60,000</b> [(2,75,000 + 2,60,000 x 2 + 1,35,000 x 6) x 12]	-
		2026-27	240	<b>3,00,00,000</b>	<b>2,41,20,000</b> [(2,75,000 x 1 + 2,60,000 x 2 + 1,35,000 x 9) x 12]	-

**For the above programs starting from Academic Year 2023-24:**

Faculty and Lab development for new programs: 9 Labs Rs. 4.50 crores per annum over the next 5 years. (50,00,000 x 9 x 5 = 22.5 crores over five years)

## **ANNEXURE 1.2 OF 61<sup>ST</sup> IAAC**

### **Total 17 Curriculum Schemes**

(6 UG Engineering Existing Programs + 3 Science M.Sc. Integrated Programs + 3 UG New Engineering Programs + 4 PG programs + 1 Dual Degree Program)

**B.Tech. (Chemical Engineering)****Department of Chemical Engineering, Sardar Vallabhbhai National Institute of Technology**

Year	Subjects	Code	Schemes	Credits	Notional hours	Evaluation Scheme				Exit-Equivalence for awarding a degree	Entry-Requirement
						Th.	Tu.	P	Total		
1 <sup>st</sup> of UG	<b>Mandatory Core-1</b> Introduction to Chemical Engineering	CHXXX	3-1-0	4	70	100	25	00	125	UG-Certificate –Chemical Engineering	1. 12 <sup>th</sup> and JEE
	<b>Other Engineering</b> Energy and Environmental Engineering	CEXXX	3-0-2	4	85	100	00	50	150		
	<b>Other Engineering</b> Fundamentals of Computer & Programming	CSXXX	3-0-2	4	85	100	00	50	150		
	<b>Mathematics</b> Mathematics-I	MAXXX	4-1-0	5	85	100	25	00	125		
	<b>Humanities</b> English & Professional Communication	HUXXX	3-0-0	3	55	100	00	00	100		
	Workshop Practice	MEXXX	0-0-4	2	60	00	00	100	100		
	Vocational/Professional Experience/ Training/ Training related to HEHV	CHXXX	0-0-10	5	200 (20*10)	00	00	100	100		



## Annexure 1.2 of 61<sup>st</sup> IAAC

				<b>27</b>	<b>640</b>						
	<b>Mandatory Core-1</b> Process Calculations	CHXXX	3-1-0	4	70	<b>100</b>	<b>25</b>	<b>00</b>	<b>125</b>		
	<b>Mandatory Core-2</b> Unit Processes	CHXXX	3-0-0	3	55	<b>100</b>	<b>00</b>	<b>00</b>	<b>100</b>		
	<b>Other Engineering</b> Engineering Drawing	MEXXX	2-0-4	4	100	<b>100</b>	<b>00</b>	<b>100</b>	<b>200</b>		
	<b>Science</b> Applied Chemistry	CYXXX	3-0-2	4	85	<b>100</b>	<b>00</b>	<b>50</b>	<b>150</b>		
	<b>Mathematics</b> Engineering Mathematics	CHXXX	3-1-0	4	70	<b>100</b>	<b>25</b>	<b>00</b>	<b>125</b>		
	Vocational/Professional Experience/ Training/ Training related to HEHV	CHXXX	0-0-10	5	200 (20*10)	<b>00</b>	<b>00</b>	<b>100</b>	<b>100</b>		
				24	580						
				<b>51</b>	<b>1220</b>						
2 <sup>nd</sup> of UG	<b>Mandatory Core-1</b> Mechanical Operations	CHXXX	3-1-2	5	100	<b>100</b>	<b>25</b>	<b>50</b>	<b>175</b>	<b>UG- Diploma</b> - Diploma in Chemical Engineering	1. 12th 2. UG- Certificate and 1 year of Vocational or Professional experience 3. Screening based on Branch Specific Prerequisite (written test)
	<b>Mandatory Core-2</b> Fluid Flow Operations	CHXXX	3-1-2	5	100	<b>100</b>	<b>25</b>	<b>50</b>	<b>175</b>		
	<b>Mandatory Core-3</b> Heat Transfer Operations	CHXXX	3-1-2	5	100	<b>100</b>	<b>25</b>	<b>50</b>	<b>175</b>		
	<b>Mandatory Core-4</b> Mass Transfer Operations-I	CHXXX	3-1-2	5	100	<b>100</b>	<b>25</b>	<b>50</b>	<b>175</b>		
	<b>Elective-1</b>	CHXXX	3-0-0	3	55	<b>100</b>	<b>00</b>	<b>00</b>	<b>100</b>		
	Vocational/Professional Experience/ Training	CHXXX	0-0-10	5	200 (20*10)	<b>00</b>	<b>00</b>	<b>100</b>	<b>100</b>		
				<b>28</b>	<b>655</b>						
	<b>Mandatory Core-1</b> Chemical Engineering	CHXXX	3-1-0	4	70	<b>100</b>	<b>25</b>	<b>00</b>	<b>125</b>		

## Annexure 1.2 of 61<sup>st</sup> IAAC

	Thermodynamics – I										
	<b>Mandatory Core-2</b> Mass Transfer Operations – II	CHXXX	3-1-2	5	100	100	25	50	175		
	<b>Mandatory Core-3</b> Chemical Reaction Engineering-I	CHXXX	3-1-2	5	100	100	25	50	175		
	<b>Elective-2</b>	CHXXX	3-0-0	3	55	100	00	00	100		
	<b>Other Engineering</b> Professional Ethics, Economics & Management	HUXXX	4-0-0	4	70	100	00	00	100		
	Vocational/Professional Experience/ Training	CHXXX	0-0-10	5	200 (20*10)	00	00	100	100		
				<b>26</b>	<b>595</b>						
				<b>54</b>	<b>1250</b>						
3 <sup>rd</sup> of UG	<b>Mandatory Core-1</b> General Chemical Technology	CHXXX	4-0-2	5	100	100	00	50	150	<b>B.Voc. / B.Sc.</b> – B.Voc. in Chemical Engineering	1. 12th 2. UG- Certificate and 2 years of Vocational or Professional experience <b>or</b> 2. UG-Diploma and 1 year of Vocational or Professional experience 3. Screening based on Branch Specific Prerequisite (written test)
	<b>Mandatory Core-2</b> Chemical Engineering Thermodynamics – II	CHXXX	3-1-0	4	70	100	25	00	125		
	<b>Mandatory Core-3</b> Chemical Reaction Engineering – II	CHXXX	3-1-0	4	70	100	25	00	125		
	<b>Elective-3</b>	CHXXX	3-0-0	3	55	100	00	00	100		
	<b>Elective-4</b> (Specialization for Minor / Honor)	CHXXX	3-0-0	3	55	100	00	00	100		
	<b>Seminar</b>	CHXXX	0-0-2	1	40	00	00	50	50		
	Vocational/Professional Experience/ Training	CHXXX	0-0-10	5	200 (20*10)	00	00	100	100		
				<b>25</b>	<b>590</b>						
	<b>Mandatory Core-1</b>	CHXXX	3-1-2	5	100	100	25	50	175		

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	Instrumentation and Process Control										
	<b>Mandatory Core-2</b> Process Equipment Design and Drawing	CHXXX	3-1-2	5	100	100	25	50	175		
	<b>Mandatory Core-3</b> Chemical Engineering Plant Design and Economics	CHXXX	3-1-0	4	70	100	25	00	125		
	<b>Elective-5</b>	CHXXX	3-0-0	3	55	100	00	00	100		
	<b>Elective-6</b> (Specialization for Minor / Honor)	CHXXX	3-0-0	3	55	100	00	00	100		
	<b>Project-I</b>	CHXXX	0-0-4	2	60	00	00	100	100		
	Vocational/Professional Experience/ Training	CHXXX	0-0-10	5	200 (20*10)	00	00	100	100		
				<b>27</b>	<b>640</b>						
				<b>52</b>	<b>1230</b>						
4 <sup>th</sup> of UG	<b>Mandatory Core-1</b> Process Modelling and Simulation	CHXXX	3-1-2	5	100	100	25	50	175	<b>B.Tech.</b>	1. 12th
	<b>Mandatory Core-2</b> Elements of Transport Phenomena	CHXXX	3-1-0	4	70	100	25	00	125		2. UG-Diploma and 2 years of Vocational or Professional experience or
	<b>Elective-7</b> (Specialization for Minor / Honor)	CHXXX	3-0-0	3	55	100	00	00	100		2. B.Voc. and 1 year of Vocational or Professional experience
	<b>Elective-8</b> (Specialization for Minor / Honor)	CHXXX	3-0-0	3	55	100	00	00	100		3. Screening based on Branch Specific Prerequisite
	<b>Humanities</b> Innovation Incubation and Entrepreneurship	HUXXX	3-0-0	3	55	100	00	00	100		
	<b>Project-II</b>	CHXXX	0-0-4	2	60	00	00	100	100		
	Vocational/Professional	CHXXX	0-0-10	5	200	00	00	100	100		



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	Experience/ Training				(20*10)						(written test)
				<b>25</b>	<b>595</b>						
	Internship training In Industry/ Research organization/Academic Institutes	CHXXX	0-0-40	20	800 (40*20)	<b>00</b>	<b>00</b>	<b>500</b>	<b>500</b>		
				<b>20</b>	<b>800</b>						
				<b>45</b>	<b>1395</b>						
				<b>202</b>	<b>5095</b>						

Note:

- (i) The professional/vocational experience/training is optional. However, it is mandatory for availing Exit from the program with awarding a certificate/degree.
- (ii) The entry requirement will be as per the Institute norms.
- (iii) The course code will be fixed after consulting the respective department.

**PROPOSED REVISED CURRICULUM FOR B TECH CIVIL ENGINEERING PROGRAM AS PER NEP  
MARCH 2023**

Year	Subjects	Proposed / Recommended subject	Code	Schemes	Credits	Notional hours	Exit equivalence for awarding the degree	Entry requirement	
1 <sup>st</sup> of UG (I and II Semest	First Semester								
	CBCS-1	<b>Mandatory Core</b> Engineering Graphics	CE101	2-0-4	04	100	UG – Certificate 1. Surveyor 2. Site Supervisor	12 <sup>th</sup> and JEE	
	CBCS-2	<b>Other Engineering</b> Mechanics of Materials	CE103	3-0-2	04	85			
	CBCS-3	Material Science	PHCE105	3-0-2	04	85			
	CBCS-4	<b>Mathematics-I</b>	MACE107	3-1-0	04	70			
	CBCS-5	<b>Humanities</b> English & Communication Skills	HUCE109	3-0-2	04	85			
	Vocational	(Optional) (Mandatory for Exit)	VSCE111	0-0-8	04	160 (20 x 8)			
					20(24)	425(585)			
	Second Semester								
	CBCS-1	<b>Mandatory Core</b> Surveying-I	CE102	3-1-2	05	100			
	CBCS-2	<b>Other Engineering</b> Environmental Pollution & Management	CE104	3-0-0	03	55			
	CBCS-3	<b>Other Engineering / Science</b> Building Technology	CE106	3-0-2	04	85			
	CBCS-4	<b>Mathematics II</b>	MACE108	3-1-0	04	70			
	CBCS-5	<b>Humanities</b> Innovation, Incubation &	HUCE110	3-0-0	04	55			

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		Entrepreneurship						
	Vocational	(Optional) (Mandatory for Exit)	VSCE112	0-0-8	04	160 (20 x 8)		
					20(24)	365(525)		
					<b>40(48)</b>	<b>790(1110)</b>		
2 <sup>nd</sup> of UG	Third Semester						<b>UG-Diploma in Civil Engineering</b>	1. 12th + JEE 2. 1 <sup>st</sup> year of UG or 2. UG-Certificate and 1 year of Vocational or Professional experience  Screening based on Civil Engineering Specific Written Test
	CBCS-1	<b>Mandatory Core</b> Hydraulic Engineering	CE201	3-1-2	05	100		
	CBCS-2	<b>Mandatory Core</b> Environmental Engineering	CE203	3-1-2	05	100		
	CBCS-3	<b>Optional Core</b> Building & Town Planning	CE205	3-1-2	05	100		
	CBCS-4	Elective	CE2##	3-0-0	03	55		
	CBCS-5	<b>Other Engineering / Mathematics / Humanities</b> Surveying II	CE207	3-1-2	05	100		
					23	455		
	Fourth Semester							
	CBCS-1	<b>Mandatory Core</b> Concrete Technology	CE202	3-0-2	04	85		
	CBCS-2	<b>Mandatory Core</b> Highway Materials & Construction	CE204	3-0-2	04	85		
	CBCS-3	<b>Optional Core</b> Soil Mechanics	CE206	3-1-2	05	100		
	CBCS-4	Elective	CE2##	3-0-0	03	55		
	CBCS-5	<b>Other Engineering / Humanities</b> Elementary Structural Mechanics	CE208	3-0-2	04	85		



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	Vocational	(Optional) (Mandatory for Exit)	VSCE210	0-0-8	4	160 (20 x 8)		
					20(24)	410(570)		
					<b>43(47)</b>	<b>865(1025)</b>		
3 <sup>rd</sup> of UG	Fifth Semester						<b>B.Voc. in Civil Engineering</b>	1. 12th + JEE 2. 2 <sup>nd</sup> year of UG or UG-Diploma and 1 year of Vocational or Professional experience  Screening based on Civil Engineering Specific Written Test
	CBCS-1	<b>Mandatory Core</b> Design of Steel Structures	CE301	3-0-2	04	85		
	CBCS-2	<b>Mandatory Core</b> Structural Analysis	CE303	3-1-2	05	100		
	CBCS-3	<b>Optional Core</b> Transport System Design	CE305	3-1-0	04	70		
	CBCS-4	Elective	CE3##	3-0-0	03	55		
	CBCS-5	Elective (Specialization - Minor / Honor)	CE3##	3-1-0/3-0-2	04	70/85		
					20	380/395		
	Sixth Semester							
	CBCS-1	<b>Mandatory Core</b> Estimation & Cost Analysis	CE302	3-1-2	05	100		
	CBCS-2	<b>Mandatory Core</b> Water Resources Engineering	CE304	3-1-2	05	100		
	CBCS-3	<b>Optional Core</b> Design of Concrete Structures	CE306	3-1-2	05	100		
	CBCS-4	<b>Elective</b>	CE3##	3-0-0	03	55		
	CBCS-5	<b>Elective (Specialization - Minor / Honor)</b>	CE3##	3-1-0/3-0-2	03 /04	70/85		
	Vocational	(Optional) (Mandatory for Exit)	VSCE310	0-0-8	4	160 (20 x 8)		
					21(25)/22(26)	425/440(585/600)		
					<b>41(45)</b>	<b>/ 805/820</b>		

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					42(46)	(965/980)		
4 <sup>th</sup> of UG	Seventh Semester						B.Tech. in Civil Engineering	1. 12th + JEE 2. 3 <sup>rd</sup> year of UG or 2. B.Voc. and 1 year of Vocational or Professional experience  Screening based on Civil Engineering Specific Written Test
	CBCS-1	Mandatory Core Construction Management Project	CE401	3-1-0	04	70		
	CBCS-2	Elective	CE4##	3-1-0/3-0-2	04	70/85		
	CBCS-3	Elective	CE4##	3-1-0/3-0-2	04	70/85		
	CBCS-4	Elective (Specialization – Minor / Honor)	CE4##	3-1-0/3-0-2	04	70/85		
	CBCS-5	Elective (Specialization – Minor / Honor)	CE4##	3-1-0/3-0-2	04	70/85		
					20	350/410		
	Eighth Semester							
	Vocational / Professional	Mandatory	VSCE410 /PSCE410	0-0-40	20	800 (20 x 40)		
					20			
					40	1150/1210		

<b>ELECTIVES (SEMESTER 3   4)</b>			
<b>Code</b>	<b>Course Name</b>	<b>Scheme</b>	<b>Credit</b>
CE211	Engineering Geology	3-0-0	3
CE212	Railway Engineering	3-1-0	4
CE213	Airport Planning	3-1-0	4
CE214	Town Planning	3-0-0	3
CE215	Sustainable Building Planning	3-0-0	3
CE216	Building Maintenance	3-0-0	3

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CE217	Environmental Management*	3-0-0	3
CE218	Advanced Surveying*	3-1-0	4
MECE219	Numerical Methods for Engineers	3-0-0	3
EE211	Renewable Energy Sources	3-0-0	3
EE215	Optimization Methods	3-0-0	3
CE219	Channel Hydraulics	3-1-0	04

<b>ELECTIVES (SEMESTER 5   6)</b>			
CE311	Geospatial Techniques*	3-1-0	04
CE312	Advanced Geotechnical Engineering*\$	3-1-0	04
CE313	Urban Transport Planning	3-1-0	04
CE314	Advanced Concrete Technology	3-1-0	04
CE315	Ground Engineering	3-1-0	04
CE316	Air Pollution and Control*	3-1-0	04
CE317	Housing	3-1-0	04
CE318	Solid and Hazardous Waste Management	3-1-0	04
CE320	Climate Change Studies	3-1-0	04
CE321	Stochastic Hydrology	3-1-0	04
CE322	Advanced Hydrologic Analysis	3-1-0	04
CE323	Urban Infrastructure Planning & Management	3-0-2	04
CE324	Public Transport Planning	3-1-0	04
CE325	Pavement Construction & Evaluation*	3-0-2	04
CE327	Ground Improvement Techniques*	3-1-0	04
CE328	Soil Exploration & Field Tests*	3-1-0	04
CE329	Industrial Waste Management	3-1-0	04
CE330	Transportation Safety & Environment	3-1-0	04
CE331	Highway Geometric Design	3-1-0	04
CE332	Building Information Modelling	3-0-2	04
CE333	Environmental Ethics, law & Policy	3-1-0	04
CE334	Intelligent transport System	3-1-0	04
CE335	Traffic Engineering & Management	3-0-2	04



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CE336	Pavement Analysis & Design*	3-1-0	04
CE337	Heavy Construction Technology	3-1-0	04
CE338	GPS & applications	3-1-0	04
CE339	Introduction to Earthquake Geotechnical Engineering	3-1-0	04
CE340	B.Tech. Project-I	0-0-8	04
HU301	Professional Ethics, Economics and Business Management	3-1-0	04
CE341	Water Supply Distribution Systems	3-1-0	04
CE342	Design of Storm and Sewerage Network	3-1-0	04
CE343	Hydraulics of Alluvial Rivers	3-1-0	04
CE344	Ground Water Engineering	3-1-0	04
CE345	Integrated Watershed Management	3-1-0	04
CE346	Irrigation & Drainage System	3-1-0	04
CE347	Water Infrastructure for Smart Cities	3-1-0	04
CE348	Design of Pre-stressed Concrete Structures*	3-1-0	04

<b>ELECTIVES (SEMESTER 7)</b>			
CE411	Hydropower Engineering	3-1-0	04
CE413	Industrial Safety and Environment*	3-1-0	04
CE414	Environmental Health and Risk Analysis*	3-1-0	04
CE415	Waste to Energy Technologies	3-1-0	04
CE417	Geosynthetic & Reinforced Soil Structure*	3-1-0	04
CE418	Rock Mechanics	3-1-0	04
CE419	Advanced Foundation Engineering*	3-1-0	04
CE420	Structural Vibration Control*	3-1-0	04
CE421	Rehabilitation of Concrete Structures*	3-1-0	04
CE422	Experimental Stress Analysis*	3-1-0	04
CE424	Advanced Design of Concrete Structures	3-1-0	04
CE425	Earthquake Resistant Design of Structures*	3-1-0	04
CE426	Design of Bridge Structures*	3-1-0	04
CE427	Construction Safety Management	3-1-0	04
CE428	Introduction to Finite Element Method	3-1-0	04

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CE429	Remote Sensing & Image Processing	3-0-2	04
CE430	Fundamentals of GIS	3-0-2	04
CE431	Regional Planning	3-1-0	04
CE432	Real Estate Management	3-1-0	04
CE433	Design of Formwork	3-1-0	04
CE434	Metro Construction technology	3-1-0	04
CE435	Traffic Flow Theory	3-1-0	04
CE436	Hydraulics of Alluvial Rivers	3-1-0	04
CE437	Computational Hydraulics	3-1-0	04
CE438	Construction Laws	3-1-0	04
CE439	Professional Practice	3-1-0	04
CE440	Advanced Construction Technology	3-1-0	04
CE441	Transport Economics*	3-1-0	04
CE442	Operation and Maintenance Management of Pavements*	3-1-0	04
CE443	Urban Design & Landscape Planning	3-0-2	04
CE444	Smart Cities Planning & Management	3-1-0	04
CE445	Non-liner Analysis of Frame Buildings	3-1-0	04
CE446	Introduction to Wind Engineering	3-1-0	04
CE447	B.Tech. Project-II	0-0-8	04
CE448	Advanced Hydraulic Structures	3-1-0	04
CE449	Flood Control and River Training Works	3-1-0	04
CE450	Advanced Water and Wastewater Treatment	3-1-0	04
CE451	Computer Aided Design of Structures	3-1-0	04
CE452	Design of Industrial Structures	3-1-0	04

**DETAILS OF COURSE REQUIREMENTS FOR HONORS AND MINOR DEGREE PROGRAMME IN CIVIL ENGINEERING****Honours in Geotechnical Engineering**

<b>Code</b>	<b>Course Name</b>	<b>Scheme</b>
CE312	Advanced Geotechnical Engineering	3-1-0
CE327	Ground Improvement Techniques	3-1-0
CE328	Soil Exploration & Field Tests	3-1-0
CE417	Geosynthetic & Reinforced Soil Structure	3-1-0
CE419	Advanced Foundation Engineering	3-1-0

**Honours in Structural Engineering**

<b>Code</b>	<b>Course Name</b>	<b>Scheme</b>
CE423	Design of Pre-stressed Concrete Structures	3-1-0
CE424	Advanced Design of Concrete Structures	3-1-0
CE425	Earthquake Resistant Design of Structures	3-1-0
CE426	Design of Bridge Structures	3-1-0
CE445	Non-linear Analysis of Frame Buildings	3-1-0



**Honours in Geoinformatics**

<b>Code</b>	<b>Course Name</b>	<b>Scheme</b>
CE218	Advanced Surveying	3-1-0
CE311	Geospatial Techniques	3-1-0
CE338	GPS & applications	3-1-0
CE429	Remote Sensing & Image Processing	3-0-2
CE430	Fundamentals of GIS	3-0-2

**Honours in Pavement Engineering**

<b>Code</b>	<b>Course Name</b>	<b>Scheme</b>
CE325	Pavement Construction & Evaluation	3-0-2
CE336	Pavement Analysis & Design	3-1-0
CE442	Operation and Maintenance Management of Pavements	3-1-0
CE441	Transport Economics	3-1-0

**Honours in Water Infrastructure**

<b>Code</b>	<b>Course Name</b>	<b>Scheme</b>
CE319	Channel Hydraulics	3-1-0
CE341	Water Supply Distribution Systems	3-1-0
CE342	Design of Storm and Sewerage Network	3-1-0
CE448	Advanced Hydraulic Structure	3-1-0
CE449	Flood Control and River Training Works	3-1-0

**Honours in Occupational Safety and Health**

<b>Code</b>	<b>Course Name</b>	<b>Scheme</b>
CE316	Air Pollution and Control	3-1-0
CE318	Solid and Hazardous Waste Management	3-1-0
CE413	Industrial Safety and Environment	3-1-0
CE414	Environmental Health and Risk Analysis	3-1-0
CE450	Advanced Water and Wastewater Treatment	3-1-0

**B Tech in Civil Engineering with Minor in Computer Science & Engineering**

Code	Course Name	Scheme (Indicative)
CS###	Data Structure and Algorithms	3-1-0
CS###	Computer Networks for minor degree	3-1-0
CS###	Introduction to Operating Systems	3-1-0
CS###	Cyber Physical Systems	3-1-0

**B Tech in Civil Engineering with Minor in Artificial Intelligence**

Code	Course Name	Scheme (Indicative)
CSAI345 / CSAI347	Data Structure and Algorithm / Introduction to Data Science	3-1-0
CSAI346	Introduction to AI	3-1-0
CSAI449	Introduction to ML	3-1-0
CSAI451	Applied Machine Learning	3-1-0



## UG NEP 2020 Proposed Curriculum Scheme

Year	Subjects	Proposed / Recommended subject	Code	Schemes	Credits	Notional hours
1 <sup>st</sup> of UG (I and II Semester)	First Semester					
	CBCS-1	<b>Mandatory Core</b> Introduction to Computer Science	CS101	3-1-0	4	70
	CBCS-2	<b>Mandatory Core</b> Introduction to Programming	CS103	3-0-2	4	85
	CBCS-3	<b>Other Engineering</b> Digital Electronics & Logic Design	EC103	3-0-2	4	85
	CBCS-4	<b>Other Engineering</b> Basics of Electrical Engineering	EE105	3-0-2	4	85
	CBCS-5	<b>Mathematics</b> Fundamentals of Engineering Mathematics	MA115	3-1-0	4	70
	Vocational	(Optional) (Mandatory for Exit)	VSXXX	0-0-8	4	160 (20 x 8)
					20	555
	Second Semester					
	CBCS-1	<b>Mandatory Core</b> Data Structures	CS102	3-1-2	5	100
	CBCS-2	<b>Mandatory Core</b> Web Programming and Python	CS104	3-0-2	4	85
	CBCS-3	<b>Other Engineering</b> Energy & Environmental Engineering	CEME 106	3-0-2	4	85
	CBCS-4	<b>Mathematics</b> Linear Algebra and Statistics	MA116	3-1-0	4	70
	CBCS-5	<b>Humanities</b> English & Professional Communication	HU110	3-0-0	3	65
	Vocational	(Optional) (Mandatory for Exit)	VSXXX	0-0-8	4	160 (20 x 8)
					20	565
					<b>40</b>	<b>1120</b>
<b>Exit Level 1: Certificate in Programming Skills</b>						
2 <sup>nd</sup> of UG	Third Semester					

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	CBCS-1	<b>Mandatory Core</b> Computer Organization	CS203	3-1-0	4	70
	CBCS-2	<b>Mandatory Core</b> Database Management Systems	CS205	3-1-2	5	100
	CBCS-3	<b>Mandatory Core</b> Design and Analysis of Algorithms	CS207	3-1-2	5	100
	CBCS-4	<b>Optional Core</b> Object Oriented Programming	CS209	3-0-2	4	85
	CBCS-5	<b>Mathematics</b> Discrete Mathematics	CS201	3-1-0	4	70
					22	425
	Fourth Semester					
	CBCS-1	<b>Mandatory Core</b> Microprocessor and Interfacing Techniques	CS202	3-1-2	5	100
	CBCS-2	<b>Mandatory Core</b> Operating Systems	CS204	3-1-2	5	100
	CBCS-3	<b>Mandatory Core</b> Computer Networks	CS206	3-0-2	4	85
	CBCS-4	<b>Mandatory Core</b> Automata and Formal Languages	CS208	3-1-0	4	70
	CBCS-5	<b>Optional Core</b> Information Security and Cryptography	CS210	3-0-2	4	85
	Vocational	(Optional) (Mandatory for Exit)	VSXXX	0-0-8	4	160 (20 x 8)
					22	600
					<b>44</b>	<b>1025</b>
<b>Exit Level 2: Diploma in Computer Science and Engineering</b>						
3 <sup>rd</sup> of UG	Fifth Semester					
	CBCS-1	<b>Mandatory Core</b> System Software	CS301	3-0-2	4	85
	CBCS-2	<b>Optional Core</b> Machine Learning	CS303	3-0-2	4	85
	CBCS-3	<b>Management</b> Professional Ethics, Economics and Business Management	HU301	3-1-0	4	70
	CBCS-4	<b>Elective</b> Software Engineering, Modern Cryptography,	CS3AA	3-0-2	4	85

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		Unmanned Aerial Vehicles Information Systems				
	CBCS-5	<b>Elective</b> Data Structures and Algorithms /Network Security/Social Network Analysis	CS3WW	3-0-2	4	85
					20	410
	Sixth Semester					
	CBCS-1	<b>Optional Core</b> Artificial Intelligence	CS302	3-0-2	4	85
	CBCS-2	<b>Optional Core</b> Distributed Computing	CS304	3-0-2	4	85
	CBCS-3	<b>Optional Core</b> Cyber Physical Systems	CS306	3-0-2	4	85
	CBCS-4	<b>Elective</b> High Performance Computing/ Unmanned Aerial Vehicles Information Systems	CS3BB	3-0-2	4	85
	CBCS-5	<b>Elective</b> Computer Networks for minor degree /Blockchain Technology/Data Science	CS3XX	3-0-2	4	85
	Vocational	(Optional) (Mandatory for Exit)	VSXXX	0-0-8	4	160 (20 x 8)
					20	585
					<b>40</b>	<b>995</b>
	<b>Exit Level 3: B.Sc. in Computer Science and Engineering</b>					
4 <sup>th</sup> of UG	Seventh Semester					
	CBCS-1	<b>Management</b> Innovation, Incubation and Entrepreneurship	HUXXX	3-1-0	4	70
	CBCS-2	<b>Elective</b> Cyber Laws and Forensic Tools, Big Data Analytics, Unmanned Aerial Vehicles Forensics	CS4CC	3-0-2	4	85
	CBCS-3	<b>Elective</b> Software Security and Defensive Programming, System Analysis and Simulation	CS4DD	3-0-2	4	85

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	CBCS-4	<b>Elective</b> Introduction to Operating Systems/Security in Cyber Physical Systems/Deep Learning	CS4YY	3-0-2	4	85
	CBCS-5	<b>Elective</b> Cyber Physical Systems for Minor degree/Machine Learning for Security/Natural Language Processing	CS4ZZ	3-0-2	4	85
					20	410
	<b>Eighth Semester</b>					
	Vocational / Professional	<b>Professional Training</b>	CS402	0-0-40	20	800 (20 x 40)
					20	800
					<b>40</b>	<b>1210</b>
<b>Exit Level 4: B.Tech. in Computer Science and Engineering</b>						

<b>Electives (Specialization in Cyber Security)</b>	<b>Electives (Specialization in AI and ML)</b>
<ul style="list-style-type: none"> <li>• Network Security</li> <li>• Blockchain Technology</li> <li>• Security in Cyber Physical Systems</li> <li>• Machine Learning for Security</li> </ul>	<ul style="list-style-type: none"> <li>• Social Network Analysis</li> <li>• Data Science</li> <li>• Deep Learning</li> <li>• Natural Language Processing</li> </ul>
<b>Electives (Minor in Computer Science and Engineering)</b> <ul style="list-style-type: none"> <li>• Data Structure and Algorithms</li> <li>• Computer Networks for minor degree</li> <li>• Introduction to Operating Systems</li> <li>• Cyber Physical Systems</li> </ul>	

### List of Elective Courses:

Sr. No.	Course	Code
1	Software Engineering	CS3AA
2	Modern Cryptography	CS3AA



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3	Unmanned Aerial Vehicles Information Systems	CS3AA
4	Data Structures and Algorithms	CS3WW
5	Network Security	CS3WW
6	Social Network Analysis	CS3WW
7	High Performance Computing	CS3BB
8	Unmanned Aerial Vehicles Information Systems	CS3BB
9	Computer Networks for minor degree	CS3XX
10	Blockchain Technology	CS3XX
11	Data Science	CS3XX
12	Cyber Laws and Forensic Tools	CS4CC
13	Big Data Analytics	CS4CC
14	Unmanned Aerial Vehicles Forensics	CS4CC
15	Software Security and Defensive Programming	CS4DD
16	System Analysis and Simulation	CS4DD
17	Introduction to Operating Systems	CS4YY
18	Security in Cyber Physical Systems	CS4YY
19	Deep Learning	CS4YY
20	Cyber Physical Systems for Minor degree	CS4ZZ
21	Machine Learning for Security	CS4ZZ
22	Natural Language Processing	CS4ZZ

## Annexure 1.2 of 61<sup>st</sup> IAAC

1. Each department is requested to revise the curriculum structure as per Table 3.

Year	Subjects	Code	Schemes	Credits	Notional hours	Exit-Equivalence for awarding a degree	Entry-Requirement
1 <sup>st</sup> of UG	<b>Mandatory Core</b>	EE101	3-1-2	5	100	<b>UG-Certificate</b> – Electrical Engineering	1. 12 <sup>th</sup> and JEE
	<b>Other Engineering</b>		3-0-2	4	85		
	<b>Science</b>		3-0-2	4	85		
	<b>Mathematics</b>		3-1-0	4	70		
	<b>Humanities</b>		3-0-0	3	55		
	<b>Vocational</b>	VS101	0-0-8	4	120 (20 x 8)		
				<b>24</b>	515		
	<b>Mandatory Core</b>	EE102	4-1-0	5	85		
	<b>Other Engineering</b>		3-0-2	4	85		
	<b>Other Engineering</b>		3-0-2	4	85		
	<b>Mathematics</b>		3-1-0	4	70		
	<b>Humanities</b>		3-0-0	3	55		
	<b>Vocational</b>	VS102	0-0-8	4	160 (20 x 4)		
				<b>24</b>	540		
				<b>48</b>	<b>1055</b>		
2 <sup>nd</sup> of UG	<b>Mandatory Core</b>	EE201	3-1-2	5	100	<b>UG-Diploma</b> - Diploma in Electrical Engineering	1. 12 <sup>th</sup> and JEE 2. UG-Certificate and 1 year of Vocational or Professional experience 3. Screening based on Branch Specific Prerequisite (written test)
	<b>Mandatory Core</b>	EE203	3-1-0	4	70		
	<b>Optional Core</b>	EE2XX	3-1-0	4	70		
	<b>Elective</b>	EE2YY	3-1-2	5	100		
	<b>Other Engineering</b>		3-0-0	3	55		
				<b>21</b>	<b>395</b>		
	<b>Mandatory Core</b>	EE202	3-1-2	5	100		
	<b>Mandatory Core</b>	EE204	3-1-2	5	100		
	<b>Optional Core</b>	EE2XX	3-1-2	5	100		
	<b>Elective</b>	EE2YY	3-0-0	3	55		
	<b>Humanities/Management</b>		3-0-0	3	55		
	<b>Vocational</b>	VS202	0-0-8	4	160 (20 x 8)		
				<b>25</b>	<b>570</b>		
				<b>46</b>	<b>965</b>		
3 <sup>rd</sup> of UG	<b>Mandatory Core</b>	EE301	3-1-2	5	100	– B. Voc. in Electrical Engineering	1. 12 <sup>th</sup> and JEE 2. UG-Diploma and 1 year of Vocational or Professional experience 3. Screening based on Branch Specific Prerequisite (written test)
	<b>Mandatory Core</b>	EE303	3-1-2	5	100		
	<b>Optional Core</b>	EE3XX	3-1-2	5	100		
	<b>Elective</b>	EE3YY	3-0-0	3	55		
	<b>Elective Specialization (minor / honor)</b>	EE3ZZ	3-0-0	3	55		
				<b>21</b>	<b>410</b>		
	<b>Mandatory Core</b>	EE302	3-1-2	5	100		
	<b>Mandatory Core</b>	EE304	3-1-2	5	100		

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	<b>Optional Core</b>	EE3XX	3-0-2	4	85		
	<b>Elective</b>	EE3YY	3-0-0	3	55		
	<b>Elective (Specialization for Minor / Honor)</b>	EE3ZZ	3-0-0	3	55		
	<b>Vocational</b>	VS302	0-0-8	4	160 (20 x 8)		
				<b>24</b>	<b>555</b>		
				<b>45</b>	<b>965</b>		
4 <sup>th</sup> of UG	<b>Elective</b>	EE4XX	3-0-2	4	85	<b>B.Tech. (EE)</b>	1. 12 <sup>th</sup> and JEE 2. B. Voc. and 1 year of Vocational or Professional experience 3. Screening based on Branch Specific Prerequisite (written test)
	<b>Elective</b>	EE4XX	3-1-0	4	70		
	<b>Elective (Specialization for Minor / Honor)</b>	EE4ZZ	3-0-0	3	55		
	<b>Elective (Specialization for Minor / Honor)</b>	EE4ZZ	3-0-0	3	55		
	<b>Humanities/ Management</b>		3-0-0	3	55		
				<b>17</b>	<b>320</b>		
	<b>Vocational/ Professional</b>	VS402 /PS402	0-0-40	20	800 (20 x 40)		
				<b>20</b>	<b>800</b>		
				<b>37</b>	<b>1120</b>		

For example, MEME for UG Program Electrical Engineering

15 Teaching weeks + 2 Examination weeks (10 Hours)

**Observation:**

1. Need revision of curriculum structure for 1<sup>st</sup> year, 2<sup>nd</sup> year, 3<sup>rd</sup> year, and 4<sup>th</sup> year as per Table 3
2. Include Vocational and Professional Experience in the first year for UG-Certificate at present 0 Credits and number of hours not specified
3. Need to define the track for specialization for offering Minor and Honors

4.

Year	Subjects	Code	Schemes	Credits	Notional hours	Exit-Equivalence for awarding a degree	Entry-Requirement
1 <sup>st</sup> of UG	<b>Mandatory Core</b> (Basic Electrical Engineering)	EE101	3-1-2	5	100	<b>UG-Certificate</b> – <b>Electrical Engineering</b>	2. 12 <sup>th</sup> and JEE
	<b>Other Engineering</b> Fundamentals of Computer Programming		3-0-2	4	85		
	<b>Science</b> Physics		3-0-2	4	85		
	<b>Mathematics</b> Mathematics-I		3-1-0	4	70		
	<b>Humanities</b> Holistic Empowerment & Human Values		3-0-0	3	55		
	<b>Vocational/ Professional Experience</b>	VS101	0-0-8	4	160 (20x8)		
				<b>24</b>	<b>515</b>		
	<b>Mandatory Core</b> Electrical Circuits	EE102	4-1-0	5	85		
	<b>Other Engineering</b> Electronics Devices & Circuits		3-0-2	4	85		
	<b>Other Engineering</b> Engineering Drawing		2-0-4	4	100		
	<b>Mathematics</b> Mathematics-II		3-1-0	4	70		
	<b>Humanities</b> English & Professional Communication		3-0-0	3	55		
	<b>Professional Experience</b> Electrical Workshop	VS102	0-0-8	4	160 (20x8)		
				<b>24</b>	<b>540</b>		
				<b>48</b>	<b>1055</b>		
2 <sup>nd</sup> of UG	<b>Mandatory Core</b> Electrical Machines I	EE201	3-1-2	5	100	<b>UG-Diploma</b> - Diploma in Electrical Engineering	1. 12 <sup>th</sup> and JEE 2. UG-Certificate and 1 year of Vocational or Professional experience 3. Screening based on Branch Specific Prerequisite (written test based on following subjects) <b>Basic Electrical Engineering, Mathematics - II</b>
	<b>Mandatory Core</b> Signals & Systems	EE203	3-1-0	4	70		
	<b>Optional Core</b> Electromagnetic theory	EE2XX	3-1-0	4	70		
	<b>Elective</b>	EE2YY	3-0-0	3	55		
	<b>Other Engineering department</b> Digital Circuits		3-1-2	5	100		
				<b>21</b>	<b>395</b>		
	<b>Mandatory Core</b> Electrical Machines – II	EE202	3-1-2	5	100		
	<b>Mandatory Core</b> Elements of Power Systems	EE204	3-1-2	5	100		



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	<b>Optional Core</b> Numerical Methods and Applications to Electrical Engineering	EE2XX	3-1-2	5	100		
	<b>Elective</b>	EE2YY	3-0-0	3	55		
	<b>Humanities/Management</b> Professional Ethics, Economics and Management		3-0-0	3	55		
	<b>Vocational</b>	VS202	0-0-8	4	160 (20 x 8)		
				<b>25</b>	<b>570</b>		
				<b>46</b>	<b>965</b>		
3 <sup>rd</sup> of UG	<b>Mandatory Core</b> Control Systems	EE301	3-1-2	5	100	<b>B. Voc Electrical Engineering</b>	<b>1. 12th and JEE</b> <b>2. UG-Diploma and 1 year of Vocational or Professional experience</b> <b>3. Screening based on Branch Specific Prerequisite (written test based on following subjects)</b> <b>Electrical Machines and Elements of Power System</b>
	<b>Mandatory Core</b> Power Electronic Converters	EE303	3-1-2	5	100		
	<b>Optional Core</b> Power System Analysis	EE3XX	3-1-2	5	100		
	<b>Elective</b>	EE3YY	3-0-0	3	55		
	<b>Elective (Specialization for Minor / Honor)</b>	EE3ZZ	3-0-0	3	55		
				<b>21</b>	<b>410</b>		
	<b>Mandatory Core</b> Electrical and Electronic Measurements	EE302	3-1-2	5	100		
	<b>Mandatory Core</b> Micro-processors & Micro-controllers	EE304	3-1-2	5	100		
	<b>Optional Core</b> Electrical Machine Design	EE3XX	3-0-2	4	85		
	<b>Elective</b>	EE3YY	3-0-0	3	55		
	<b>Elective (Specialization for Minor / Honor)</b>	EE3ZZ	3-0-0	3	55		
	<b>Vocational</b>	VS302	0-0-8	4	160 (20 x 8)		
				<b>24</b>	<b>555</b>		
				<b>45</b>	<b>965</b>		
4 <sup>th</sup> of UG	<b>Elective</b>	EE4XX	3-1-0	4	85	<b>B.Tech. (EE)</b>	<b>1. 12th and JEE</b> <b>2. B. Voc. and 1 year of Vocational or Professional experience</b> <b>2. Screening based on Branch Specific Prerequisite (written test based on following subjects)</b> <b>Power Systems, Control Systems, Power Electronic Converters</b>
	<b>Elective</b>	EE4XX	3-1-0	4	70		
	<b>Elective (Specialization for Minor / Honor)</b>	EE4ZZ	3-0-0	3	55		
	<b>Elective (Specialization for Minor / Honor)</b>	EE4ZZ	3-0-0	3	55		
	<b>Humanities/Management</b> Innovation, Incubation and Entrepreneurship		3-0-0	3	55		
				<b>17</b>	<b>320</b>		
	Vocational/ Professional	VS402 /PS402	0-0-40	20	800 (20 x 40)		
				<b>20</b>	<b>800</b>		
				<b>41</b>	<b>1120</b>		

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2. Define the specialization tracks for Minor, Honors – allowing interdisciplinary specialization as per the CIDER (Centre for Interdisciplinary Education and Research) proposal. The specialization track is achieved through the set of elective subjects for Minor (in another discipline) and Honor (in its own discipline). These specialization subjects can be distributed from 5<sup>th</sup>, 6<sup>th</sup>, and 7<sup>th</sup> semesters.

For example,

<ul style="list-style-type: none"> <li>○ B.Tech. (Civil, Mech, ChE) (Minor in Electrical Engineering) <ul style="list-style-type: none"> <li>• Electrical Machines</li> <li>• Electrical Circuits</li> <li>• Power System</li> <li>• Electrical and Electronic Measurements</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>○ B.Tech. EE Honors in Power Electronics <ul style="list-style-type: none"> <li>• Modelling of Electrical Machines</li> <li>• Power Electronic Systems and Electric Drives</li> <li>• Advanced Power Electronics</li> <li>• Flexible AC Transmission</li> </ul> </li> </ul>
<ul style="list-style-type: none"> <li>○ B.Tech. (ECE, CSE) (Minor in Electrical Engineering) <ul style="list-style-type: none"> <li>• Electrical Machines</li> <li>• Power System</li> <li>• Power Electronics</li> <li>• Electrical and Electronic Measurements</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>○ B.Tech. EE Honors in Power Systems <ul style="list-style-type: none"> <li>• Computer Methods for Power Systems</li> <li>• Switch Gear and Protection</li> <li>• Flexible AC Transmission</li> <li>• High Voltage Engineering</li> </ul> </li> </ul>
<ul style="list-style-type: none"> <li>○</li> </ul>	<ul style="list-style-type: none"> <li>○ B.Tech. EE Honors in Control and Instrumentation <ul style="list-style-type: none"> <li>• State Variable Analysis</li> <li>• Optimal Control</li> <li>• Advanced Industrial Instrumentation</li> <li>• Discrete-Time Control Systems</li> </ul> </li> </ul>

3. Each department will provide a pool of Mandatory Core, Optional Core and Elective Subjects. The department will also provide Vocational training, it may be Institute based or Industry based. The department will also provide a valid list of Professional experience (Experiential learning) or Field work for earning the credits. For Vocational training and Professional experience, the student will be evaluated through an assessment mechanism devised by the department.

For example, UG-Computer Science and Engineering program – pool of subjects

<ul style="list-style-type: none"> <li>○ Core Subjects Discipline-wise (Mandatory) <ul style="list-style-type: none"> <li>• Basic Electrical Engineering</li> <li>• Electrical Circuits</li> <li>• Electrical Machines -I</li> <li>• Signals &amp; Systems</li> <li>• Electrical Machines – II</li> <li>• Elements of Power Systems</li> <li>• Control Systems</li> <li>• Power Electronic Converters</li> <li>• Electrical and Electronic Measurements</li> <li>• Micro-processors and Micro-controllers</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Core Subjects Discipline-wise (Optional) <ul style="list-style-type: none"> <li>• Electromagnetic Theory</li> <li>• Numerical Methods and Applications to Electrical Engineering</li> <li>• Power System Analysis</li> <li>• Electrical Machine Design</li> </ul> </li> </ul>
<ul style="list-style-type: none"> <li>○ Other Engineering Subjects <ul style="list-style-type: none"> <li>• Fundamentals of Computer Programming</li> <li>• Electronic Devices and Circuits</li> <li>• Engineering Drawing</li> <li>• Digital Circuits</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>○ Vocational training <ul style="list-style-type: none"> <li>• Institute based (VS302) <ul style="list-style-type: none"> <li>○ Hands-on training in FPGA – a tool for digital Control of Power Electronic Converters</li> </ul> </li> <li>• Industry based <ul style="list-style-type: none"> <li>○ Internship/ training</li> </ul> </li> </ul> </li> </ul>
<ul style="list-style-type: none"> <li>○ Science <ul style="list-style-type: none"> <li>• Physics</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>○ Professional (Experiential learning) <ul style="list-style-type: none"> <li>○ Institute based</li> </ul> </li> </ul>

<ul style="list-style-type: none"> <li>○ <b>Mathematics</b> <ul style="list-style-type: none"> <li>• Mathematics - I</li> <li>• Mathematics – II</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>○ Mini project / Sponsored project</li> <li>○ <b>Industry based</b> <ul style="list-style-type: none"> <li>○ Internship/ training</li> </ul> </li> </ul>
<ul style="list-style-type: none"> <li>○ <b>Art and Humanities</b> <ul style="list-style-type: none"> <li>• Holistic Empowerment and Human Values</li> <li>• English and Professional Communication</li> </ul> </li> <li>○ <b>Management</b> <ul style="list-style-type: none"> <li>• Professional Ethics, Economics and Management</li> <li>• Innovations, Incubation and Entrepreneurship</li> </ul> </li> </ul>	<p><b>Elective</b></p> <p>Semester – III EE2YY</p> <ul style="list-style-type: none"> <li>• Forecasting and Planning Methods (EE209)</li> <li>• Renewable Energy Sources (EE211)</li> <li>• Modern Material for Electrical Engineering (EE213)</li> <li>• Optimization Methods (EE215)</li> <li>• Object oriented programming and Data structure (EE217)</li> </ul> <p>Semester – IV EE2YY</p> <ul style="list-style-type: none"> <li>• Special Machines (EE208)</li> <li>• Power Plant Engineering (EE210)</li> <li>• Digital Signal Processing (EE212)</li> <li>• Energy Audit and Management (EE214)</li> <li>• Reliability Evaluation of Electrical Systems (EE216)</li> </ul> <p>Semester V EE3YY</p> <ul style="list-style-type: none"> <li>• Electrical Traction and Linear Machines (EE307)</li> <li>• Utilization of Electrical Energy (EE309)</li> <li>• Artificial Intelligence Techniques (EE311)</li> <li>• Power System Operation and Control (EE313)</li> <li>• Random Processes (EE315)</li> </ul> <p>Semester VI EE3YY</p> <ul style="list-style-type: none"> <li>• Robotics (EE308)</li> <li>• Advanced Industrial Automation (EE310)</li> <li>• Instrumentation (EE312)</li> <li>• Cryptography and Cyber Security for Smart Grid (EE314)</li> <li>• Restructuring and Deregulation of Power Systems (EE316)</li> <li>• Wind and Solar Energy Conversion (EE318)</li> </ul>

	<p>Semester VII</p> <p>Elective EE4YY</p> <ul style="list-style-type: none"> <li>• Advanced Micro-controller (EE401)</li> <li>• Power Quality Disturbances and Mitigation (EE403)</li> <li>• Advanced Electrical Drives (EE405)</li> <li>• Power System Transients (EE407)</li> <li>• HVDC Transmission (EE409)</li> <li>• Nonlinear Control (EE411)</li> <li>• Advanced Optimization Methods (EE413)</li> </ul> <p>Elective EE4YY</p> <ul style="list-style-type: none"> <li>• Electric Vehicles (EE421)</li> <li>• Switched Mode Power Supply (EE423)</li> <li>• Power Filter Technology (EE425)</li> <li>• EHV AC Transmission (EE427)</li> <li>• Distributed Power Generation and Micro-grid (EE429)</li> <li>• Smart Grid Technologies (EE431)</li> </ul>
	<p><b>Elective (Specialization minor / Honor)</b></p> <p><b>Semester – V (minor) (EE3ZZ)</b></p> <ul style="list-style-type: none"> <li>• Electrical Machines (ECE, CSE, ChE, CE, Mech) (EE351)</li> </ul> <p><b>Semester – V (Honor)</b></p> <ul style="list-style-type: none"> <li>• Modelling of Electrical Machines (EEPE361)</li> <li>• State Variable Analysis (EEIC363)</li> <li>• Computer Methods for Power Systems (EEPS365)</li> </ul> <p><b>Semester VI (minor)</b></p> <ul style="list-style-type: none"> <li>• Power Electronics (EC, CSE) (EEM352)</li> <li>• Electrical Circuits (Ch, CE, Mech) (EEM354)</li> </ul> <p><b>Semester VI (Honor)</b></p> <ul style="list-style-type: none"> <li>• Power Electronic Systems and Electric Drives (EEPE362)</li> <li>• Switch Gear and Protection (EEPS364)</li> <li>• Optimal Control (EEIC366)</li> </ul> <p><b>Semester – VII (minor)</b></p> <ul style="list-style-type: none"> <li>• Electrical Power System (ECE, CSE, ChE, CE, Mech) (EEM451)</li> <li>• Electrical and Electronic</li> </ul>



## Annexure 1.2 of 61<sup>st</sup> IAAC

	<p>Measurements (ECE, CSE, ChE, CE, Mech) (EEM453)</p> <p>Semester – VII (Honor)</p> <ul style="list-style-type: none"><li>• Advanced Power Electronics (EEPE461)</li><li>• FACTs Flexible AC Transmission (EEPE463)</li><li>• FACTs Flexible AC Transmission (EEPS465)</li><li>• High Voltage Engineering (EEPS467)</li><li>• Advanced Industrial Instrumentation (EEIC469)</li><li>• Discrete-Time Control Systems (EEIC471)</li></ul>
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**B. Tech. Electronics & Communication Engineering**

**UG Scheme as per NEP 2020**

**Semester - I**

Sr. No.	Subjects	Code	Schemes	Credits	Notional hours
1.	<b>Science</b> Semiconductor Physics and Devices	EC 1XX	3-0-0	03	55
2.	<b>Mathematics</b> Mathematics-I	MA 1XX	3-1-0	04	85
3.	<b>Other Engineering</b> Fundamentals of Computer & Programming	CS 1XX	3-0-2	04	85
4.	<b>Other Engineering</b> Basic Electrical Engineering	EE 1XX	3-0-2	04	85
5.	<b>Humanities</b> Holistic Empowerment and Human Values	HU 1XX	3-0-0	03	55
6.	<b>Vocational</b>	EC 1XX	0-0-8	04	160 (20 x 8)
				<b>22</b>	<b>525</b>

**Semester - II**

Sr. No.	Subjects	Code	Schemes	Credits	Notional hours
1.	<b>Mathematics</b> Mathematics-II	MA 1XX	3-1-0	04	85
2.	<b>Mandatory Core</b> Electronic Circuits	EC 1XX	3-1-2	05	100
3.	<b>Mandatory Core</b> Digital Logic Design	EC 1XX	3-1-2	05	100
4.	<b>Other Engineering</b> Network Analysis and Synthesis	EE 1XX	3-0-0	03	55
5.	<b>Humanities</b> English & Professional Communication	HU 1XX	3-0-0	03	55
6.	<b>Vocational</b>	EC 1XX	0-0-8	04	160 (20 x 8)
				<b>24</b>	<b>555</b>

**Proposed Vocational Training:**

**B. Tech. I Year**

1. Electronics Workshop

2. Python Programming
3. Arduino Programming

Proposed Exit Certificate:

UG Certificate in Basic Electronics

### Semester - III

Sr. No.	Subjects	Code	Schemes	Credits	Notional hours
1.	<b>Mandatory Core</b> Analog Circuits	EC 2XX	3-1-2	05	100
2.	<b>Mandatory Core</b> Signals and Systems	EC 2XX	3-1-0	04	85
3.	<b>Mandatory Core</b> Microprocessor and Microcontrollers	EC 2XX	3-1-2	05	100
4.	<b>Mandatory Core</b> Principles of Communication Systems	EC 2XX	3-1-2	05	100
5.	<b>Other Engineering</b> Control Systems	EE 2XX	3-0-0	03	55
6.	<b>Vocational</b>	EC 2XX	0-0-8	04	160 (20 x 8)
				<b>26</b>	<b>600</b>

### Semester - IV

Sr. No.	Subjects	Code	Schemes	Credits	Notional hours
1.	<b>Mandatory Core</b> Statistical Signal Analysis	EC 2XX	3-1-0	04	85
2.	<b>Mandatory Core</b> Linear IC Applications	EC 2XX	3-1-2	05	100
3.	<b>Mandatory Core</b> Electromagnetic Waves	EC 2XX	3-0-2	04	85
4.	<b>Mandatory Core</b> Digital Integrated Circuits	EC 2XX	3-0-2	04	85
5.	<b>Humanities</b> Professional Ethics, Economics, and Business Management	HU 2XX	3-0-0	03	55
6.	<b>Vocational</b>	EC 2XX	0-0-8	04	160 (20 x 8)
				<b>24</b>	<b>570</b>

**Proposed Vocational Training:****B. Tech. II Year**

1. C++ Programming
2. UAVs & Robotics Development Training
3. Embedding C Programming
4. HDL
5. Android Application Development
6. Mini Projects/Research Project

Proposed Exit Certificate:

UG Diploma in Electronics and Communication Engineering

**Semester - V**

Sr. No.	Subjects	Code	Schemes	Credits	Notional hours
1.	<b>Mandatory Core</b> Digital Communication	EC 3XX	3-0-2	04	85
2.	<b>Mandatory Core</b> Digital Signal Processing	EC 3XX	3-0-2	04	85
3.	<b>Optional Core</b>	EC 3XX	3-0-2	04	85
4.	<b>Elective</b>	EC 3XX	3-0-2	04	85
5.	<b>Elective (Specialization)</b>	EC 3XX	3-0-2	04	85
6.	<b>Professional Experience</b> (Mini Project/Sponsored Project/ Industrial Project)	EC 3XX	0-0-8	04	160 (20 x 8)
				<b>24</b>	<b>585</b>

**Semester - VI**

Sr. No.	Subjects	Code	Schemes	Credits	Notional hours
1.	<b>Optional Core</b>	EC 3XX	3-0-2	04	85
2.	<b>Optional Core</b>	EC 3XX	3-0-2	04	85
3.	<b>Elective</b>	EC 3XX	3-0-2	04	85
4.	<b>Elective (Specialization)</b>	EC 3XX	3-0-2	04	85
5.	<b>Elective (Specialization)</b>	EC 3XX	3-0-2	04	85
6.	<b>Professional Experience</b> (Mini Project/Sponsored Project/ Industrial Project)	EC 3XX	0-0-8	04	160 (20 x 8)
				<b>24</b>	<b>585</b>

Proposed Exit Certificate:

B. Voc. in Electronics and Communication Engineering



### Semester - VII

Sr. No.	Subjects	Code	Schemes	Credits	Notional hours
1.	Optional Core	EC 4XX	3-0-2	04	85
2.	Elective	EC 4XX	3-0-2	04	85
3.	Elective	EC 4XX	3-0-2	04	85
4.	Elective (Specialization)	EC 4XX	3-0-2	04	85
5.	Elective (Specialization)	EC 4XX	3-0-2	04	85
6.	Professional Mini Project	EC 4XX	0-0-8	04	160 (20 x 8)
				<b>24</b>	<b>585</b>

### Semester - VIII

Sr. No.	Subjects	Code	Schemes	Credits	Notional hours
1.	Professional	EC 4XX	0-0-40	20	800 (20 x 40)
				<b>20</b>	<b>800</b>

Proposed Exit Certificate:

B. Tech. in Electronics and Communication Engineering

### Specializations

<ul style="list-style-type: none"> <li>• <b>B. Tech. EC with Specialization in Communication Systems</b> <ul style="list-style-type: none"> <li>• Data Communication Networks</li> <li>• Wireless Mobile Communication</li> <li>• Optical Fiber Communication</li> <li>• Microwave Engineering</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• <b>B. Tech. EC with Specialization in VLSI &amp; Embedded System</b> <ul style="list-style-type: none"> <li>• VLSI Design</li> <li>• Embedded Systems</li> <li>• VLSI Technology</li> <li>• VLSI Systems</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• <b>B. Tech. EC with Specialization in Signal Processing &amp; Machine Learning</b> <ul style="list-style-type: none"> <li>• Digital Image Processing</li> <li>• Speech Processing and Human-Machine Communication</li> <li>• Machine Learning</li> <li>• Deep Learning</li> </ul> </li> </ul>
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<ul style="list-style-type: none"> <li>• <b>Science</b> <ol style="list-style-type: none"> <li>1. Semiconductor Physics and Devices</li> </ol> </li> <li>• <b>Mathematics</b> <ol style="list-style-type: none"> <li>1. Mathematics-I</li> <li>2. Mathematics-II</li> </ol> </li> </ul>	<ul style="list-style-type: none"> <li>• <b>Humanities</b> <ol style="list-style-type: none"> <li>1. Holistic Empowerment and Human Values</li> <li>2. English &amp; Professional Communication</li> <li>3. Professional Ethics, Economics, and Business Management</li> </ol> </li> <li>• <b>Other Engineering Subjects</b> <ol style="list-style-type: none"> <li>1. Fundamentals of Computer &amp; Programming (FCP)</li> <li>2. Basic Electrical Engineering</li> <li>3. Network Analysis and Synthesis</li> <li>4. Control Systems</li> </ol> </li> </ul>
<ul style="list-style-type: none"> <li>• <b>Core Subjects Discipline-wise (Mandatory)</b> <ol style="list-style-type: none"> <li>1. Electronic Circuits (EC)</li> <li>2. Digital Logic Design (DLD)</li> <li>3. Analog Circuits (AC)</li> <li>4. Signals and Systems (S&amp;S)</li> <li>5. Digital Integrated Circuits (DIC)</li> <li>6. Principles of Communication Systems (PC)</li> <li>7. Electromagnetic Waves (EMW)</li> <li>8. Statistical Signal Analysis (SSA)</li> <li>9. Microprocessor and Microcontrollers (MP &amp; MC)</li> <li>10. Linear IC Applications (LIC)</li> <li>11. Digital Signal Processing (DSP)</li> <li>12. Digital Communication (DC)</li> </ol> </li> </ul>	<ul style="list-style-type: none"> <li>• <b>Core Subjects Discipline-wise (Optional) (3-0-2)</b> <ol style="list-style-type: none"> <li>1. Data Structures and Algorithms (FCP)</li> <li>2. Computer Architecture and Organization (DLD)</li> <li>3. Data Communication Networks (DLD)</li> <li>4. Wireless Mobile Communication (DCOM)</li> <li>5. VLSI Design (DIC)</li> <li>6. Machine Learning (Maths-II)</li> <li>7. Internet of Things</li> <li>8. CMOS Analog VLSI Design (AC)</li> <li>9. Intelligent Systems and Robotics (FCP)</li> <li>10. MIMO Communication systems (DCOM)</li> <li>11. Testing and Verification of VLSI Circuits (DLD)</li> </ol> </li> </ul>
<ul style="list-style-type: none"> <li>• <b>Elective (3-0-2)</b> <ol style="list-style-type: none"> <li>1. Sensors and Transducers</li> <li>2. Neural Networks</li> <li>3. Multimedia Communication</li> <li>4. High-Performance Computing</li> <li>5. Computer Vision</li> <li>6. MEMS</li> <li>7. Fundamentals of Nanoelectronics</li> <li>8. Quantum Computing</li> <li>9. VLSI Technology</li> <li>10. Solar Photovoltaic Technology</li> <li>11. Electronic Instrumentation (LIC)</li> <li>12. Biomedical Instrumentation (LIC)</li> <li>13. Information Theory and Coding</li> <li>14. Real-Time Systems (FCP)</li> <li>15. Ad-Hoc Networks (DCOM)</li> </ol> </li> </ul>	<ul style="list-style-type: none"> <li>• <b>Elective- Specializationwise (3-0-2)</b> <ol style="list-style-type: none"> <li>1. Global Navigation Satellite System</li> <li>2. Adaptive Signal Processing (S&amp;S)</li> <li>3. Advanced Electronic Circuits (LIC)</li> <li>4. Optical Wireless Communication (EMW)</li> <li>5. Estimation and Detection Theory</li> <li>6. Processor Architecture</li> <li>7. EM Interference and Compatibility</li> <li>8. Digital Image Processing (S&amp;S)</li> <li>9. Antenna Theory (EMW)</li> <li>10. Speech Processing and Human-Machine Communication (S&amp;S)</li> <li>11. Embedded Systems (DLD)</li> <li>12. Optical Fiber Communication (PC)</li> <li>13. Deep Learning (Maths-II)</li> <li>14. VLSI Systems (DIC)</li> <li>15. Cognitive Radio (DCOM)</li> <li>16. Microwave Engineering (EMW)</li> </ol> </li> </ul>

**(1) Multiple Entry and Multiple Exit**

Multiple Entry -

- (a) for the students who are admitted in the first year of program in SVNIT (own students) based on the entry requirement criteria 1 and 2
- (b) for the students – from NIT/IIT - maximum number of students at any year and required screening test will be as suggested in entry criteria.

<b>Exit-Equivalence for awarding a degree</b>	<b>Entry-Requirement</b>
<b>One-year Certificate course in Mechanical Engineering</b>	1. Completion of 12 <sup>th</sup> standard and JEE
<b>Diploma in Mechanical Engineering</b>	1. 12th + JEE 2. 1st year of UG or 2. UG-Certificate and 1 year of Vocational or Professional experience 3. Screening based on Prerequisites set up by the Department of Mechanical Engineering (written test)
<b>B. Voc. in Mechanical Engineering</b>	1. 12th + JEE 2. 2 <sup>nd</sup> year of UG or 2. UG-Diploma and 1 year of Vocational or Professional experience 3. Screening based on Prerequisites set up by the Department of Mechanical Engineering (written test)
<b>B.Tech. in Mechanical Engineering</b>	1. 12th + JEE 2. 3 <sup>rd</sup> year of UG or 2. B. Voc. and 1 year of Vocational or Professional experience 3. Screening based on Prerequisites set up by the Department of Mechanical Engineering (written test)

## (2) Curriculum Structure for UG in Mechanical Engineering

Year	Subjects	Proposed / Recommended subject	Code	Scheme L-T-P	Credits (Min.)	Notional hours (Approx.)
1 <sup>st</sup> of UG	<b>First Semester</b>					
	CBCS-1	<b>Mandatory Core</b> Elements of Thermal and Fluid Systems	ME	3-0-2	4	85
	CBCS-2	<b>Mandatory core</b> Engineering Mechanics	ME	4-0-2	5	100
	CBCS-3	<b>(Mathematics)</b> Mathematics	MA	3-0-0	3	55
	CBCS-4	<b>(Other Engineering)</b> Energy and Environmental Engineering	MECE	3-0-2	4	85
	CBCS-5	<b>(Other Engineering)</b> Applied Electrical and Electronics Engineering	EEEL	3-0-2	4	85
	CBCS-6	<b>(Mandatory Laboratory)</b> Workshop Practice	ME	0-0-4	1	40
	CBCS-7* *Audit course	<b>(Humanities)</b> Holistic Empowerment and Human Values	HU	3-0-0	0	55
	Vocational/ Professional	<b>(Optional) (Mandatory for Exit)</b> Professional Mechanical Practice – I	VS	0-0-8	2	160 (20 x 8)
					23	665
	<b>Second Semester</b>					
	CBCS-1	<b>Mandatory Core</b> Engineering Thermodynamics	ME	3-0-2	4	85
	CBCS-2	<b>Mandatory Core</b> Engineering Drawing	ME	3-0-4	5	115
	CBCS-3	<b>Mandatory Core</b>	ME	3 – 0-2	4	85



**Annexure 1.2 of 61<sup>st</sup> IAAC**

		Elements of Materials and Manufacturing				
	CBCS-4	<b>(Other Engineering)</b> Fundamentals of Computer Programming	CS	3-0-2	4	85
	CBCS-5	<b>(Other Engineering/ Science)</b> Applied Sciences	PHCY	3-0-0	3	55
	Vocational/ Professional	<b>(Optional) (Mandatory for Exit)</b> Professional Software Practice- I	VSXXX	0-0-8	2	160 (20 x 8)
					22	<b>585</b>
					45	1250
<b>2<sup>nd</sup> of UG</b>	<b><u>Third Semester</u></b>					
	CBCS-1	<b>Mandatory Core</b> Measurement and Instrumentation	ME	3-0-2	4	85
	CBCS-2	<b>Mandatory Core</b> Theory of Machines	ME	3-1-2	5	100
	CBCS-3	<b>Mandatory Core</b> Metallurgy	ME	3-0-2	4	85
	CBCS-4	<b>Mandatory Core</b> Fluid Mechanics	ME	3-1-2	5	100
	CBCS-5	<b>Elective (Specialization - Minor / Honors)</b> <b><u>Elective-I</u></b>	ME	3-0-0	3	55
	Vocational / Professional	<b>(Optional) (Mandatory for Exit)</b> Professional Mechanical Practice - II	VS	0-0-8	2	160 (20 x 8)
					23	600
	<b><u>Fourth Semester</u></b>					
	CBCS-1	<b>Mandatory Core</b> Fluid Machines	ME	3-0-2	4	85
	CBCS-2	<b>Mandatory Core</b> Heat Transfer	ME	3-0-2	4	85
	CBCS-3	<b>Mandatory Core</b> Industrial	ME	3-1-0	4	70

**Annexure 1.2 of 61<sup>st</sup> IAAC**

		Engineering				
	CBCS-4	<b>Mandatory Core</b> Dynamics of Machines	ME	3-0-2	4	85
	CBCS-5	<b>Elective</b> <b>(Specialization -</b> <b>Minor / Honors)</b> <b>Elective - II</b>	ME	3-0-0	3	55
	Vocational / Professional	<b>(Optional)</b> <b>(Mandatory for</b> <b>Exit)</b> Professional Software Practice - II	VS	<b>0-0-8</b>	<b>2</b>	<b>160</b> <b>(20 x 8)</b>
					21	540
					<b>44</b>	<b>1140</b>
<b>3<sup>rd</sup> of UG</b>	<b>Fifth Semester</b>					
	CBCS-1	<b>Mandatory Core</b> Thermal Power Plant	ME	3-1-0	4	70
	CBCS-2	<b>Mandatory Core</b> Mechanical Vibration and Tribology	ME	3-0-2	4	85
	CBCS-3	<b>Mandatory Core</b> Machining Processes	ME	3-0-2	4	85
	CBCS-4	<b>Mandatory Core</b> Fundamentals of Machine Design	ME	4-0-2	5	100
	CBCS-5	<b>Elective</b> <b>(Specialization -</b> <b>Minor / Honor)</b> <b>Elective - III</b>	ME	3-0-0	3	55
	Vocational/ Professional	<b>(Optional)</b> <b>(Mandatory for</b> <b>Exit)</b> Professional Mechanical Practice - III	VS	0-0-8	2	160 (20 x 8)
					22	555
	<b>Sixth Semester</b>					
	CBCS-1	<b>Mandatory Core</b> Production Technology	ME	3-0-2	4	85
	CBCS-2	<b>Mandatory Core</b> Design of Machine Components	ME	3-1-2	5	100

**Annexure 1.2 of 61<sup>st</sup> IAAC**

	CBCS-3	<b>Mandatory Core</b> Applied Thermal engineering	ME	4-0-2	5	100
	CBCS-4	<b>Elective</b> <b>(Specialization -</b> <b>Minor / Honors)</b> <u>Elective - IV</u>	ME	3-0-0	3	55
	CBCS-5	<b>Elective</b> <b>(Specialization -</b> <b>Minor / Honors)</b> <u>Elective - V</u>	ME	3-0-0	3	55
	Vocational / Professional	<b>(Optional)</b> <b>(Mandatory for</b> <b>Exit)</b> Mini Project	VS	0-0-8	2	160 (20 x 8)
					22	555
					<b>44</b>	<b>1110</b>
<b>4<sup>th</sup> of UG</b>	<b>Seventh Semester</b>					
	CBCS-1	<b>Mandatory Core</b> CAD-CAM	ME	4-0-2	5	100
	CBCS-2	<b>Mandatory Core</b> Industrial Management Techniques	ME	3-1-0	4	70
	CBCS-3	<b>Elective</b> <b>(Specialization -</b> <b>Minor / Honors)</b> <u>Elective - VI</u>	ME	3-0-0	3	55
	CBCS-4	<b>Elective</b> <b>(Specialization -</b> <b>Minor / Honors)</b> <u>Elective - VII</u>	ME	3-0-0	3	55
	CBCS-5	<b>Elective</b> <b>(Specialization -</b> <b>Minor / Honors)</b> <u>Elective - VIII</u>	ME	3-0-0	3	55
	Vocational / Professional	<b>(Optional)</b> <b>(Mandatory for</b> <b>Exit)</b> Project	VS	0-0-8	2	160 (20 x 8)
					20	495
	<b>Eighth Semester</b>					
	Vocational / Professional	<b>Mandatory</b> Professional Experience	VS/PS	0-0-40	20	800 (20 x 40)
					20	800
					<b>40</b>	<b>1295</b>

# Department of Mathematics and Humanities

## Implementation of National Education Policy

Programme: **Five Years Integrated M.Sc.Programme in Mathematics**

Year	Subjects	Code	Schemes	Credits	Notional hours	Evaluation Scheme				Exit-Equivalence for awarding a degree	Entry-Requirement
						Th.	Tu.	P	Total		
1 <sup>st</sup>	<b>Mandatory Core</b> Foundation Course in Mathematics-I	MA 103	3-1-0	4	70	100	25	00	125	<b>UG-Certificate</b> – <b>UG-Certificate in Mathematical Sciences</b>	1. 12 <sup>th</sup> and JEE
	<b>Mandatory Core</b> Mathematics-I	MA 101 S1	3-1-0	4	70	100	00	00	100		
	<b>Science</b> Applied Chemistry	CY 104 S1/S2	3-0-2	4	85	100	00	50	150		
	<b>Other Engineering Branch</b> Energy and Environmental Engineering	CEME 106 S1/S2	2-0-4	4	100	100	00	100	200		
	<b>Humanities</b> English and Professional Communication	HU 110 S2/S1	3-0-0	3	65	100	00	00	100		
	<b>Professional Experience</b> Community Project-Part-I (Preliminaries)	MAXXX	0-0-10	5	200 (20 X 10)	00	00	100	100		
				24	590						
	<b>Mandatory Core</b> Foundation Course in Mathematics-I	MAMA 114 S2	3-1-0	4	70	100	25	00	125		
	<b>Mandatory Core</b> Mathematics-II	MA 114 S2	3-1-0	4	70	100	00	00	100		
	<b>Other Branch</b> Fundamental of Computer Programming	CS 109 S2/S1	3-0-2	4	85	100	00	50	150		
	<b>Science</b> Mechanics, Lasers and Fiber Optics	PH 103	3-0-2	4	85	100	00	50	150		



## Annexure 1.2 of 61<sup>st</sup> IAAC

	<b>Humanities</b> Holistic Empowerment and Human values	HU 107 S1/S2	3-0-0	00	65	100	00	00	100		
	<b>Professional Experience</b> Community Project-Part-II	MAXXX	0-0-10	5	200 ( 20 X 10)	00	00	100	100		
					<b>575</b>						
				21							
				<b>45</b>	<b>1165</b>						
2 <sup>nd</sup>	<b>Mandatory Core</b> Element of Analysis	MA 201	3-2-0	5	85	<b>100</b>	<b>50</b>	<b>00</b>	<b>150</b>	<b>UG-Diploma</b> - <b>UG-Diploma in Mathematical Sciences</b>	<ol style="list-style-type: none"> <li>12<sup>th</sup>. However, preference will be given to the candidates admitted through JEE.</li> <li>UG-Certificate in Mathematical sciences or equivalent and 1 year of Vocational or Professional experience</li> <li>Screening based on Branch Specific Prerequisite (written test based on the following subjects: Calculus, Foundation of Mathematics Course, Ordinary differential equation, Multiple Integral and its application, Basic of Vector calculus )</li> <li>Candidate must have acquired 50% credit of the subjects equivalent to the mandatory subjects of first year of Five Years Integrated M.Sc.programme in Mathematics at SVNIT</li> </ol>
	<b>Mandatory Core</b> Analytical Geometry	MA 203	3-2-0	5	85	100	50	00	150		
	<b>Mandatory Core</b> Discrete Mathematical Structure	MA 205	3-1-0	4	70	100	25	00	125		
	<b>Science</b> Electromagnetic and Relativity	PH 207	3-1-0	4	70	100	25	00	125		
	<b>Humanities</b> English and Professional Communication - II	HU 201	3-0-0	3	65	100	00	00	100		
	<b>Vocational:</b> Mathematical Software-I	MA 207	0-0-10	5	200 (20X 10)	00	00	100	100		
				26	575						
	<b>Mandatory Core</b> Numerical Analysis	MA 202	3-1-2	5	100	100	25	50	175		
	<b>Mandatory Core</b> Linear Algebra	MA 204	3-2-0	5	85	100	50	00	150		
	<b>Optional Core</b> Elementary Number theory	MA 206	3-1-0	4	70	100	25	00	125		
	<b>Optional Core</b> Computational Life Science	MA 208	3-0-0	3	65	100	00	00	100		
	<b>Other Branch</b> Data Structure	CS 210	3-1-2	5	100	100	25	50	175		

## Annexure 1.2 of 61<sup>st</sup> IAAC

	<b>Vocational</b> Mathematical Software-II	MAXXX	0-0-10	5	200 (20 x 10)	00	00	100	100		
				27	620						
				<b>53</b>	<b>1195</b>						
3 <sup>rd</sup>	<b>Mandatory Core</b> Ordinary Differential Equations	MA 305	3-2-0	5	85	<b>100</b>	<b>50</b>	<b>00</b>	<b>150</b>	<b>B.Sc.</b> – <b>B.Sc.</b> in Mathematics (Degree will be awarded to the students during exit if any and to all the eligible students of the existing programme upon their request)	<ol style="list-style-type: none"> <li>12<sup>th</sup>. However, preference will be given to the candidates admitted through JEE.</li> <li>UG-Diploma in Mathematical science or equivalent and 1 year of Vocational or Professional experience</li> <li>Screening based on Branch Specific Prerequisite (written test on subjects: Element of Analysis, Analytical Geometry, Discrete Mathematical Structure, Numerical Analysis, Linear Algebra, Computational Life Science, Data Structure, Calculus, Foundation of Mathematical Course, Ordinary differential equation, Multiple Integral and its application, Basic of Vector calculus)</li> <li>Candidate must have acquired 50% credit of the subjects equivalent to the mandatory subject each of first and second year of Five Years Integrated M.Sc. programme in Mathematics at SVNIT</li> </ol>
	<b>Mandatory Core</b> Mechanics	MA 303	3-1-0	4	70	<b>100</b>	<b>25</b>	<b>00</b>	<b>125</b>		
	<b>Optional Core</b> Probability and Statistics-I	MA 301	3-2-0	5	85	100	50	00	150		
	<b>Other Branch</b> Computer Networks	CS 303	3-1-2	5	100	100	25	50	175		
	<b>Elective</b> Advance Mathematical Methods/Stochastic Differential Equations	MA 361/ MA 363	3-1-0	4	70	100	25	00	125		
	<b>Vocational</b> <b>Mini Project-I</b> Preliminary <b>Part-I</b> Preliminary	MAXXX	0-0-10	5	200 ( 20 X 8)	00	00	100	100		
				28	610						
	<b>Mandatory Core</b> Complex Analysis	MA 302	3-2-0	5	85	100	50	00	150		
	<b>Mandatory Core</b> Continuum Mechanics	MA 304	3-1-0	4	70	100	25	00	125		
	<b>Optional Core</b> Metric Space	MA 306	3-1-0	4	70	100	25	00	125		
	<b>Other Branch</b> Artificial Intelligence	CS 308	3-1-2	5	100	100	25	50	175		
	<b>Elective</b> Integral and Wavelet Transform/ Mathematical Finance / Fuzzy Set theory	MA 362/ MA 364/ MA 366	3-1-0	4	70	100	25	00	125		

## Annexure 1.2 of 61<sup>st</sup> IAAC

	<b>Vocational</b> Mini Project-I-Part-II	MAXXX	0-0-10	5	200 (20 x 10)	00	00	100	100		
				27	595						
				<b>55</b>	<b>1205</b>						
4 <sup>th</sup>	<b>Mandatory Core</b> Topology	MA 401	3-1-0	4	70	<b>100</b>	<b>25</b>	<b>00</b>	<b>125</b>	<b>B.Sc. Honors.</b> - B.Sc. Honors. in Mathematics (Degree will be awarded to the students during exit if any and to all the eligible students of the existing programme upon their request)	1. 12th. However, preference will be given to the candidates admitted through JEE.  2. B.Sc. Mathematics and 1 year of Vocational or Professional experience  3. Screening based on Branch Specific Prerequisite (written test on subjects: Element of Analysis, Analytical Geometry, Discrete Mathematical Structure, Numerical Analysis, Linear Algebra, Computational Life Science, Data Structure, Probability and Statistics-I, Mechanics, Ordinary Differential Equations, Complex Analysis, Continuum Mechanics, Metric Space, Element of Analysis, Analytical Geometry, Discrete Mathematical Structure, Numerical Analysis, Linear Algebra, Computational Life Science, Data Structure, Calculus, Foundation of Mathematical Course, Ordinary differentia
	<b>Mandatory Core</b> Abstract Algebra	MA 403	3-1-0	4	70	100	25	00	125		
	<b>Mandatory Core</b> Fluid Dynamics	MA 405	3-2-0	5	85	100	50	00	150		
	<b>Optional Core</b> Optimization Techniques	MA 407	3-2-0	5	85	100	50	00	150		
	<b>Elective</b> Sobolev Space / Data Science/ Block Chain Technology	MA 421/ CS 491/ CS 423	3-2-0	5	85	100	50	00	150		
	<b>Vocational</b> <b>Mini Project-II</b> Preliminary Part-I	MAXXX	0-0-10	5	200 ( 20 X 10)	00	00	100	100		
				28	595						
	<b>Mandatory Core</b> Functional Analysis	MA 402	3-1-0	4	70	100	25	00	125		
	<b>Mandatory Core</b> Higher Transcendental Functions	MA 404	3-1-0	4	70	100	25	00	125		
	<b>Mandatory Core</b> Partial Differential Equations	MA 406	3-2-0	5	85	100	50	00	150		
	<b>Optional Core</b> Calculus of Variations & Integral Equations	MA 408	3-2-0	5	85	100	50	00	150		
	<b>Elective</b> Multi Objective Optimization/ Natural Language Processing	MA 422 / CS 492	3-0-0	5	65	100	00	00	100		
	<b>Vocational</b>	MAXXX	0-0-10	5	200	00	00	100	100		

## Annexure 1.2 of 61<sup>st</sup> IAAC

	Mini Project-II Part-II				( 20 X 10)						equation, Multiple Integral and its application, Basic of Vector calculus) 4. Candidate must have acquired 50% credit of the subjects equivalent to the mandatory subjects each of first, second and third year of Five Years Integrated M.Sc. programme in Mathematics at SVNIT
				28	575						
				56	1170						
5 <sup>th</sup>	Mandatory Core Measure Theory and Integration	MA 501	3-1-0	4	70	100	25	00	125	M.Sc.-Five Years Integrated M.Sc. Mathematics ( For the students in the existing Five years Integrated M.Sc. programme in Mathematics since beginning of the programme without any exit) M.Sc. Mathematics ( For students admitted after first year of the existing programme)	1. 12 <sup>th</sup> . However, preference will be given to the candidates admitted through JEE. 2. B.Sc. Honors / B.Sc. ( 4 year programme) Mathematics or equivalent and 1 year of Vocational or Professional experience 3. Screening based on Branch Specific Prerequisite (written test on the subjects: Topology, Abstract Algebra, Fluid Dynamics, Optimization Techniques, Functional Analysis, Higher Transcendental Functions, Partial Differential Equations, Calculus of Variations & Integral Equations, Element of Analysis, Analytical Geometry, Discrete Mathematical Structure,
	Mandatory Core Mathematical Modelling and Simulation	MA 505	3-1-2	5	100	100	25	50	175		
	Optional Core Probability and Statistics-II	MA 503	3-1-0	4	70	100	25	00	125		
	Humanities Academic Writing	HU 501	3-0-0	5	65	100	00	00	100		
	Elective Advance Operations Research/ Fluid Dynamics in Porous Media/ Advanced Numerical Analysis / Linear Operator and Approximation Theory	MA 521/ MA 523/ MA 525/ MA 527	3-1-0	4	70	100	25	00	125		
	Professional Dissertation Preliminaries	MA 507	0-0-8	4	160 (20 X 8)	00	00	100	100		
				26	535						
	Professional	MA 502	0-0-40	20	(40 X 20	00	00	500	500		



**Annexure 1.2 of 61<sup>st</sup> IAAC**

	Dissertation			)= 800							<p>Numerical Analysis, Linear Algebra, Computational Life Science, Data Structure, Probability and Statistics-I, Mechanics, Ordinary Differential Equations, Complex Analysis, Continuum Mechanics, Metric Space, Element of Analysis, Analytical Geometry, Discrete Mathematical Structure, Numerical Analysis, Linear Algebra, Computational Life Science, Data Structure, Calculus, Foundation of Mathematical Course, Ordinary differential equation, Multiple Integral and its application, Basic of Vector calculus )</p> <p>4. Candidate must have acquired 50% credit of the subjects equivalent to the mandatory subjects each of first, second, third and fourth year of Five Years Integrated M.Sc. programme in Mathematics at SVNIT</p>
			20	800							
			46	1335							

Pool of the subjects:

<p>○ Core Subjects Discipline-wise (Mandatory)</p> <p>MAMA 103 S1 Foundation Course in Mathematics-I  MA 101 S1 Mathematics-I  MAMA 114 S2 Foundation Course in Mathematics-I  MA 114 S2 Mathematics-II  MA 201 Element of Analysis  MA 203 Analytical Geometry  MA 205 Discrete Mathematical Structure  MA 202 Numerical Analysis  MA 204 Elementary Number theory  MA 305 Ordinary Differential Equations  MA 303 Mechanics  MA 302 Complex Analysis  MA 304 Continuum Mechanics  MA 401 Topology  MA 403 Abstract Algebra  MA 405 Fluid Dynamics  MA 406 Partial Differential Equations  MA 402 Functional Analysis  MA 404 Higher Transcendental Functions  MA 501 Measure Theory and Integration  MA 505 Mathematical Modelling and Simulation</p>	<p>○ Core Subjects Discipline-wise (Optional)</p> <p>MA 206 Elementary Number theory  MA 208 Computational Life Science  MA 301 Probability and Statistics-I  MA 306 Metric Space  MA 407 Optimization Techniques  MA 408 Calculus of Variations &amp; Integral Equations  MA 503 Probability and Statistics-II</p>
<p>○ Other Engineering Subjects</p> <p>CEME 106 S1/S2 Energy and Environmental Engineering  CS 109 S2/ S1 Fundamental of Computer Programming  CS 210 Data Structure  CS 303 Computer Networks  CS 308 Artificial Intelligence</p>	<p>○ Vocational training</p> <ul style="list-style-type: none"> <li>● Institute based <ul style="list-style-type: none"> <li>○ Python Programming</li> <li>○ C/C++ Programming</li> <li>○ Java Programming</li> <li>○ R Programming</li> <li>○ MATLAB</li> <li>○ MAPLE</li> </ul> </li> <li>● Industry based <ul style="list-style-type: none"> <li>○ R Programming</li> </ul> </li> </ul>

	<ul style="list-style-type: none"> <li>○ MATLAB</li> <li>○ MAPLE</li> </ul>
<ul style="list-style-type: none"> <li>○ Science</li> </ul> <p>CY 104 S1/S2 Applied Chemistry PH 103 Mechanics, Lasers and Fiber Optics PH 207 Electromagnetic and Relativity</p>	<ul style="list-style-type: none"> <li>○ Professional (Experiential learning) <ul style="list-style-type: none"> <li>• Institute based <ul style="list-style-type: none"> <li>○ Mini project / Sponsored project</li> <li>○ Dissertation</li> </ul> </li> <li>• Industry based <ul style="list-style-type: none"> <li>○ Training</li> </ul> </li> </ul> </li> </ul>
<ul style="list-style-type: none"> <li>○ Art and Humanities</li> </ul> <p>HU 110 S2/S1 English and Professional Communication HU 107 S1/S2 Holistic Empowerment and Human values HU 201 English and Professional Communication - II HU 501 Academic Writing</p>	<ul style="list-style-type: none"> <li>○ Elective – Specialization Subjects</li> </ul> <p>MA 361 Advance Mathematical Methods MA 363 Stochastic Differential Equations MA 362 Integral and Wavelet Transform MA 364 Mathematical Finance MA 366 Fuzzy Set theory MA 421 Sobolev Space CS 491 Data Science CS 423 Block Chain Technology MA 422 Multi Objective Optimization CS 492 Natural Language Processing MA 521 Advance Operations Research MA 523 Fluid Dynamics in Porous Media MA 525 Advanced Numerical Analysis MA 527 Linear Operator and Approximation Theory</p>

# Department of Mathematics and Humanities

## Implementation of National Education Policy

Programme: **Ph.D.**

Ph.D .	Mathematics	<p><b><u>Qualification:</u></b> Master Degree in Mathematics / Mathematics and Computing with 60% marks/6.5 CGPA (55% marks/6.0 CGPA for SC/ST). Further, for FIR position, apart from above qualification, GATE / NET – Mathematical Science.</p>
Ph.D .	Management	<p><b><u>Qualification:</u></b> MBA (Master of Business Administration) / MMS (Master of Management Studies) / MHRD (Master of Human Resource Development) / MPA (Master of Public Administration)/ PG Degree or Diploma in Management equivalent to MBA approved by the Government body (AICTE / UGC /AIU) / M.Tech. (Industrial Engineering and Management) / Industrial Engineering /Industrial Management / Management / Engineering Management) / M.Com. / CS/CA with 60% marks/6.5 CGPA (55% marks/6.0 CGPA for SC/ST).</p> <p>Further for <b>FIR</b> position, apart from above qualification, <b>CAT</b> with minimum of 75 percentile (60 percentile for SC / ST) conducted by IIMs / <b>NET – Management</b> (including Business Administration and Management /Marketing / Marketing Management /Industrial Relations and Personnel Management / Personnel Management / Financial Management /Co-operative Management) / <b>NET - Labour Welfare/Personnel Management/Industrial Relations/ Labour and Social Welfare/Human Resource Management / NET – Commerce.</b></p>
Ph.D .	English	<p><b><u>Qualification:</u></b> M.A. – English with 60% marks/6.5 CGPA (55% marks/6.0 CGPA for SC/ST). Further for <b>FIR</b> position, apart from above qualification, <b>NET – English.</b></p>

**CURRICULUM STRUCTURE****M. Sc. (Physics)**

Programme: Five Years Integrated M.Sc. Physics

Year	Subjects	Code	Schemes	Credits	Notional hours	Evaluation Scheme				Exit-Equivalence for awarding a degree	Entry-Requirement
1 <sup>st</sup>	Semester I					Th.	Tu.	P	Total		
	<b>Mandatory Core</b> Waves and Mechanics	PH 102	3-0-2	4	85	100	00	50	150	<b>UG-Certificate</b> – in Physical Sciences	12 <sup>th</sup> and JEE
	<b>Mandatory Core</b> Electromagnetic Theory-I	PH202	3-1-0	4	70	100	25	50	175		
	<b>Science</b> Mathematics-I	MA101	3-1-0	4	70	100	25	00	125		
	<b>Other Engineering Branch</b> Basics of electrical engineering/Others	EEXXX	3-0-2	4	85	100	00	50	150		
	<b>Humanities</b> English and Professional Communication	HU 110 S2/S1	3-0-0	3	55	100	00	00	100		
	<b>Professional Experience</b> Vocational Training	VSXXX	0-0-8/10	5	200 (20 X 10)	00	00	100	100		
	Semester II			<b>24</b>	<b>565</b>						
	<b>Mandatory Core</b> Thermodynamics and Statistical Physics	PHPH 102 S2/Sa1	3-1-0	4	70	100	25	00	125		
	<b>Mandatory Core</b> Basic Electronics	PH 201	3-0-2	4	85	100	00	50	150		



## Annexure 1.2 of 61<sup>st</sup> IAAC

	<b>Other Engineering Branch</b> Introduction to Computer programing/Others	CS XXX	3-0-2	4	85	100	00	50	150		
	<b>Science</b> Mathematics-II	MA 114	3-1-0	4	70	100	25	00	125		
	<b>Humanities</b> Holistic Empowerment and Human values	HU 107 S1/S2	3-0-0	3	55	100	00	00	100		
	<b>Professional Experience</b> Vocational Training	VSXXX	0-0-8/10	5	200 ( 20 X 10)	00	00	100	100		
				<b>24</b>	<b>565</b>						
				<b>48</b>	<b>1130</b>						
2 <sup>nd</sup>	Semester III										
	<b>Mandatory Core</b> Semiconductor physics	PH 303	3-0-2	4	85	100	00	50	150	<b>UG- Diploma</b> - in Physical Sciences	1 12t h
	<b>Mandatory Core</b> Solid State Physics	PH 306	3-0-2	4	85	100	00	50	150		2 UG- Certificate
	<b>Mandatory Core</b> Quantum Mechanics-I	PH 204	3-1-0	4	70	100	25	00	125		in <u>Physical</u> <u>Sciences</u> or
	<b>Science</b> State and properties of matter /Others	CY205	3-0-2	4	85	100	00	50	150		equivalent and 1 year of
	<b>Science</b> Mathematics-III	MA XXX	3-1-0	4	70	100	25	00	125		Vocational or
	<b>Professional Experience</b> Vocational Training	VSXXX	0-0-8/10	5	200 (20X 10)	00	00	100	100		Professional experience
	IV semester			<b>25</b>	<b>595</b>						3 Scrc
				<b>73</b>	<b>1725</b>						

## Annexure 1.2 of 61<sup>st</sup> IAAC

	<b>Mandatory Core</b> Mathematical Methods in Physics	PH306	3-1-0	4	70	100	25	00	125		ening based on Branch Specific Prerequisite (written test in Physics.)  4. Candidate must have sufficient knowledge in at least 50% of the mandatory subjects of first year of Five Years Integrated M.Sc. programme in Physics at SVNIT
	<b>Mandatory Core</b> Classical Mechanics	PH 203	3-1-0	4	70	100	25	00	125		
	<b>Mandatory Core</b> Electromagnetic Theory-II	PH 301	3-0-2	4	85	100	00	50	150		
	<b>Science</b> Solid state Chemistry & spectroscopy	CY213	3-0-2	4	85	100	00	50	150		
	<b>Other Engineering Branch</b> Data Structure/Others	CS 210	3-1-2	5	100	100	25	50	175		
	<b>Professional Experience</b> Vocational Training	VSXXX	0-0-8/10	5	200 (20 x 10)	00	00	100	100		
				<b>26</b>	<b>610</b>						
				<b>99</b>	<b>2335</b>						
3 <sup>rd</sup>	<b>Mandatory Core</b> Quantum Mechanics-II	PH 405	3-1-0	4	70	100	25	00	125	<b>B.Sc.</b> –B.Sc. in Physics (Degree will be awarded to the students	1 12th 2. UG-Diploma in <u>Physical Sciences</u> or equivalent and 1 year
	<b>Mandatory Core</b> Atomic and Molecular Physics	PH 305	3-1-0	4	70	100	25	00	125		
	<b>Other Engineering Branch</b> Artificial Intelligence /Others	CS 210	3-0-2	4	85	100	00	50	150		

## Annexure 1.2 of 61<sup>st</sup> IAAC

	<b>Departmental Elective -I</b> Basic Course on Relativity/ Material Science	PH 362 / PH 441	3-1-0	4	55	100	25	00	125	during exit if any and to all the eligible students of the existing program me upon their request)	of Vocational or Professional experience  3 Screeni ng based on Branch Specific Prerequ isite (written test in Physics. )  4. Candidate must have sufficient knowledge in at least 50% of the
	<b>Departmental Elective -II</b> Basic of Astronomy and Astrophysics/ Solar Cell Technology	PH361/ PH363	3-1-0	4	55	100	25	00	125		
	<b>Vocational Mini Project-I</b>	PH311	0-0-8/10	5	200 ( 20 X 8)	00	00	100	100		
				<b>25</b>	<b>535</b>						
	<b>VI semester</b>			<b>124</b>	<b>2870</b>						
	<b>Mandatory Core</b> Optics	PHXXX	3-0-2	4	85	100	25	50	175		
	<b>Mandatory Core</b> Statistical Mechanics	PH402	3-1-0	4	70	100	25	00	125		
	<b>Mandatory Core</b> Digital Electronics	PH 306	3-0-2	4	85	100	25	50	175		
	<b>Departmental Elective -I</b> Nanoscience and Nanotechnology/ Electronics and optical communication	PH425/ PH406	3-1-0	4	70	100	25	00	125		
	<b>Departmental Elective -II</b> Remote sensing/Many Body Physics and Relativistic Quantum Mechanics	PH423/PH442	3-1-0	4	70	100	00	00	100		
	<b>Vocational Mini Project-II</b>	PHXXX	0-0-8/10	5	200 (20 x 10)	00	00	100	100		

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				25	580						mandatory subjects each of first and second year of Five Years Integrated M.Sc. programme in Physics at SVNIT
				149	3450						
4th	<b>Mandatory Core</b> Plasma Physics	PH307	3-1-0	4	70	100	25	00	125		1
	<b>Mandatory Core</b> Nuclear Physics	PH308	3-0-4	5	105	100	25	50	175		
	<b>Mandatory Core</b> Laser and photonics	PHXXX	3-1-0	4	70	100	25	50	175		
	<b>Departmental Elective -I</b> Astrophysics and space science/Microprocessor and Microcontrollers/Characterization Techniques	PH302/ PHXXX	3-1-0/ 3-0-2	4	70	100	25	00	125		
	<b>Departmental Elective -II</b> Density Functional Theory/Elementary excitation in solids/Green's Function and partial differential equations	PH443/ PH422	3-1-0	4	70	100	25	00	125		
	<b>Vocational Mini Project-III</b>	PHXXX	0-0-8/10	5	200 ( 20 x 10)	00	00	100	100		
				26	585						

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	VIII semester			175	4035						
	<b>Mandatory Core</b> Computational Physics	PH 401	3-0-4	5	105	100	00	50	150		
	<b>Mandatory Core</b> Particle Physics	PH403	3-1-0	4	70	100	25	00	125		
	<b>Departmental Elective -I</b> Condensed Matter Physics/Advanced crystallography/Electromag netic Communication	PH404/PHXXX	3-1-0	4	70	100	25	00	125		
	<b>Departmental Elective -II</b> Global Navigation Satellite System/Quantum Field Theory /Thin films and vacuum technology	PHXXX/PH421/PH XXX	3-1-0	4	70	100	25	00	125		
	<b>Departmental Elective -III</b> Nuclear Science and Techniques/Non Destructive Testing/Microwave Plasma**(Astro)	PHXXX/PHXXX	3-1-0	4	70	100	25	00	125		
	<b>Dissertation Preliminaries(DP)</b>	PHXXX	0-0-10	5	200 ( 20 X 10)	00	00	200	200		
				26	585						
	IX semester			201	4620						
5 <sup>th</sup>	<b>Dissertation Final(FD)</b>	PH YYY	0-0-40	20	800 ( 20 X 40)	00	00	800	800	<b>M.Sc.- Five Years Integrate d M.Sc. Physics (</b>	1 12th 2. B.Sc. Honors Physics or equivalent
				221	5420						
	X semester										



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	Dissertation Final(FD)	PH YYY	0-0-40	20	800 ( 20 X 40)	00	00	800	800	For the students in the	and 1 year of Vocational
				241	6220						

## Annexure 1.2 of 61<sup>st</sup> IAAC

										existing program me since beginning of the program me ) / M.Sc. Physics ( For students admitted after first year of the existing program me)	or Professional experience 3. Screening based on Branch Specific Prerequisite (written test Physics)  4. Candidate must have sufficient knowledge in at least 50% of the mandatory subjects each of first, second, third and fourth year of Five Years Integrated M.Sc. programme in Physics at SVNIT
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<ul style="list-style-type: none"><li>○ M.Sc. Minor in Physics</li><li>○ Material Sciences</li><li>○ Thin Films and Vacuum Technology</li><li>○ Nano Science and Technology</li></ul>	<ul style="list-style-type: none"><li>○ M.Sc. Honors in Physics</li><li>○ Material Science</li><li>○ Nuclear and Particle Physics</li><li>○ Electronics</li><li>○ Theoretical Physics</li><li>○ Computational Physics</li></ul>
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<ul style="list-style-type: none"> <li>○ Core Subjects Discipline-wise (Mandatory)</li> </ul> <p>PHXXX Waves and Mechanics</p> <p>PH 201 Basic Electronics</p> <p>PHPH 102 S2/Sa1 Thermodynamics and Statistical Physics</p> <p>PH202 Electromagnetic-I</p> <p>PH 303 Semiconductor physics</p> <p>PH 306 Solid State Physics</p> <p>PH 204 Quantum Mechanics-I</p> <p>PH 305 Atomic and Molecular Physics</p> <p>PH 203 Classical Mechanics</p> <p>PH 306 Digital Electronics</p> <p>PH 405 Quantum Mechanics-II</p> <p>PH 306 Mathematical Methods in Physics</p> <p>PH 362 Basic Course on Relativity</p> <p>PHXXX Optics</p> <p>PHXXX Digital Electronics</p> <p>PHXXX Laser &amp; Photonics</p> <p>PH 402 Statistical Mechanics</p> <p>PH 401 Computational Physics</p> <p>PH 308 Nuclear Physics</p> <p>PH 307 Plasma Science and Technology</p> <p>PH 403 Particle Physics</p>	<ul style="list-style-type: none"> <li>○ Core Subjects Discipline-wise (Optional)</li> </ul> <p>PH 425 Nanoscience and Nanotechnology</p> <p>PH 406 Electronics and optical communication</p> <p>PH 302 Astrophysics and space science</p> <p>PH XXX Microprocessor and Microcontrollers</p> <p>PH 404 Condensed Matter Physics</p> <p>PH XXX Electromagnetic Communication</p>
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<ul style="list-style-type: none"> <li>○ Other Engineering Subjects</li> <li>EEXXX Basics of electrical engineering</li> <li>CS XXX Introduction to Computer Programming</li> <li>CS 210 Data Structure</li> </ul>	<ul style="list-style-type: none"> <li>○ Vocational training <ul style="list-style-type: none"> <li>● Institute based <ul style="list-style-type: none"> <li>○ Python Programming</li> <li>○ C/C++ Programming</li> <li>○ Java Programming</li> <li>○ R Programming</li> <li>○ MATLAB</li> <li>○ MAPLE</li> </ul> </li> <li>● Industry based <ul style="list-style-type: none"> <li>○ R Programming</li> <li>○ MATLAB</li> <li>○ MAPLE</li> </ul> </li> </ul> </li> </ul>
<ul style="list-style-type: none"> <li>○ Science</li> <li>MA101 Mathematics-I</li> <li>MA 114 Mathematics-II</li> <li>MAXXX Mathematics-III</li> <li>CY 213 Solid state Chemistry &amp; spectroscopy</li> <li>CY 205 State and properties of matter</li> </ul>	<ul style="list-style-type: none"> <li>○ Professional (Experiential learning) <ul style="list-style-type: none"> <li>● Institute based <ul style="list-style-type: none"> <li>○ Mini project / Sponsored project</li> <li>○ Dissertation</li> </ul> </li> <li>● Industry based <ul style="list-style-type: none"> <li>○ Training</li> </ul> </li> </ul> </li> </ul>



<ul style="list-style-type: none"> <li>○ Art and Humanities</li> </ul> <p>HU 110 S2/S1 English and Professional Communication</p> <p>HU 107 S1/S2 Holistic Empowerment and Human values</p> <ul style="list-style-type: none"> <li>○ Management</li> </ul> <p>--</p>	<ul style="list-style-type: none"> <li>○ Elective – Specialization Subjects</li> </ul> <p>PHXXX Basic of Astronomy and Astrophysics</p> <p>PHXXX Solar Cell Technology</p> <p>PH441 Material Science</p> <p>PHXXX Remote sensing</p> <p>PHXXX Many Body Physics and Relativistic Quantum Mechanics</p> <p>PHXXX Density Functional Theory</p> <p>PHXXX Quantum field theory</p> <p>PHXXX Nondestructive Testing</p> <p>PHXXX Green's Function and Differential equations</p> <p>PHXXX Nuclear Science and technology</p> <p>PHXXX Global Navigation Satellite System</p> <p>PHXXX Thin films and vacuum technology</p> <p>PHXXX Advanced crystallography</p> <p>PHXXX Elementary excitations in solids</p> <p>PHXXX Characterization Techniques</p>
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**Department of Chemistry**  
**Implementation of National Education Policy (NEP)**

**Programme: Five Years Integrated M.Sc. Chemistry**

Year	Subjects	Code	Schemes	Credits	Notional hours	Evaluation Scheme				Exit-Equivalence for awarding a degree	Entry-Requirement
						Th.	Tu.	P	Total		
<b>1<sup>st</sup></b>	<b>Mandatory Core</b> Stoichiometry, Solutions and Gases	CY 101	3-1-2	5	100	100	25	50	175	<b>UG-Certificate in Chemical Sciences</b>	1. 12 <sup>th</sup> and JEE
	<b>Mandatory Core</b> Atomic Structure and Chemical Bonding	CY 103	3-0-2	4	85	100	00	50	150		
	<b>Skill enhancement course</b> Qualitative and Quantitative Analysis	CY 105	3-0-2	4	85	100	00	50	150		
	<b>Value Addition Course</b> Mathematics	MA XXX	3-1-0	4	70	100	25	00	125		
	<b>Ability Enhancement Course</b> English and Professional Communication	HU XXX	3-0-0	3	55	100	00	00	100		
	<b>Vocational (Optional) (mandatory for exit)</b> Laboratory techniques and safety	CY 107	0-0-10	5	200 (20 X 10)	00	00	100	100		
				<b>25</b>	<b>595</b>						
	<b>Mandatory Core</b> Fundamentals of Organic Chemistry	CY 102	3-1-2	5	100	100	25	50	175		
	<b>Mandatory Core</b> Basic Industrial Chemistry	CY 104	3-1-2	5	100	100	25	50	175		
	<b>Value Addition Course</b> Fundamentals of Computer Programming	CS XXX	3-0-2	4	85	100	00	50	150		
	<b>Value Addition Course</b> Physics	PH XXX	3-0-0	3	55	100	00	00	100		

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	<b>Ability Enhancement Course</b> Holistic Empowerment and Human values	HU XXX	3-0-0	3	55	100	00	00	100		
	<b>Vocational (Optional) (mandatory for exit)</b> Industrial Safety and Training	CY 106	0-0-10	5	200 ( 20 X 10)	00	00	100	100		
				<b>25</b>	<b>595</b>						
				<b>50</b>	<b>1190</b>						
<b>2<sup>nd</sup></b>	<b>Mandatory Core</b> Chemistry of Elements	CY 201	3-1-2	5	100	100	25	50	175	<b>UG-Diploma</b> in Chemical Sciences	<ol style="list-style-type: none"> <li>1. 12th</li> <li>2. UG-Certificate in Chemical Sciences or equivalent and 1 year of Vocational or Professional experience</li> <li>3. Screening based on Branch Specific Prerequisite (written test based on the following subject, Stoichiometry, solutions and gases; Fundamentals of Organic Chemistry; Qualitative and quantitative analysis; Atomic structure and chemical bonding; Basic Industrial Chemistry)</li> <li>4. Candidate must have sufficient knowledge in at least 50% of the mandatory subjects of the first year of five Years Integrated M.Sc. programme in Chemistry at SVNIT.</li> </ol>
	<b>Mandatory Core</b> Hydrocarbons & their Functional Groups	CY 203	3-1-2	5	100	100	25	50	175		
	<b>Mandatory Core</b> State and Properties of Matter	CY 205	3-1-2	5	100	100	25	50	175		
	<b>Value Addition Course</b> Environmental Science	CY 207	3-0-2	4	85	100	00	50	150		
	<b>Skill Enhancement Course</b> Quality Control and Quality Assurance	CY 209	3-0-0	3	55	100	00	00	100		
	<b>Vocational (Optional) (mandatory for exit)</b> Chemical Plant Operations	CY 211	0-0-10	5	200 (20 X 10)	00	00	100	100		
				27	640						
	<b>Mandatory Core</b> Coordination and Bioinorganic Chemistry	CY 202	3-1-2	5	100	100	25	50	175		
	<b>Mandatory Core</b> Stereochemistry & Reaction Mechanism	CY 204	3-1-2	5	100	100	25	50	175		
	<b>Mandatory Core</b> Equilibrium and Changes	CY 206	3-1-2	5	100	100	25	50	175		
	<b>Discipline specific elective</b> Dyes and Drugs	CY 208	3-0-0	3	55	100	00	00	100		
	<b>Skill Enhancement course</b>	CY 210	3-0-0	3	55	100	00	00	100		

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	Biomolecules and Cell Biology										
	<b>Vocational (Optional) (mandatory for exit)</b> Laboratory Demonstration of Quality Control and Quality Assurance Practicals	CY 212	0-0-10	5	200 (20 x 10)	00	00	100	100		
				<b>26</b>	<b>610</b>						
				<b>53</b>	<b>1250</b>						
3 <sup>rd</sup>	<b>Mandatory Core</b> Organometallic Chemistry	CY 301	3-0-4	5	115	100	00	100	200	<b>B.Sc. in Chemistry</b> (Degree will be awarded to the students during exit if any and to all the eligible students of the existing programme upon their request)	<b>1.</b> 12th <b>2.</b> UG-Diploma in Chemical Sciences or equivalent and 1 year of Vocational or Professional experience <b>3.</b> Screening based on Branch Specific Prerequisite (written test on subject Stoichiometry, solutions and gases; Fundamentals of Organic Chemistry; Atomic structure and chemical bonding; Chemistry of elements; Hydrocarbons & their functional groups; State and Properties of Matter; Coordination and Bioinorganic Chemistry; Stereochemistry & Reaction Mechanism) <b>4.</b> Candidate must have sufficient knowledge in at least 50% of the mandatory subjects each of first and
	<b>Mandatory Core</b> Pericyclic Reactions and Photochemistry	CY 303	3-0-4	5	115	100	00	100	200		
	<b>Mandatory Core</b> Analytical Chemistry	CY 305	3-0-4	5	115	100	00	100	200		
	<b>Discipline specific Elective</b> Physical Methods of Structure Determination	CY 307	3-0-0	3	55	100	00	00	100		
	<b>Skill enhancement course</b> Unit Process in Chemical Industries	CY 309	3-0-0	3	55	100	00	00	100		
	<b>Vocational (Optional) (mandatory for exit)</b> Purification of Liquids and Solids	CY 311	0-0-10	5	200 (20 X 10)	00	00	100	100		
				26	655						
	<b>Mandatory Core</b> Spectroscopic Techniques-I	CY 302	3-0-4	5	115	100	00	100	200		
	<b>Mandatory Core</b> Molecules in Motion and Reaction Dynamics	CY 304	3-1-2	5	100	100	25	50	175		
	<b>Skill enhancement course</b> Polymer Chemistry	CY 306	3-0-4	5	115	100	00	100	200		
	<b>Discipline specific elective</b> Chemistry in Industries	CY 308	3-0-0	3	55	100	00	00	100		

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	<b>Discipline specific elective</b> Materials Chemistry	CY 310	3-0-0	3	55	100	00	00	100		second year of five Years Integrated M.Sc. programme in Chemistry at SVNIT.
	<b>Vocational (Optional) (mandatory for exit)</b> Mini Project-I	CY 312	0-0-10	5	200 (20 x 10)	00	00	100	100		
				<b>26</b>	<b>640</b>						
				<b>52</b>	<b>1295</b>						
4 <sup>th</sup>	<b>Mandatory Core</b> Advanced Inorganic Chemistry	CY 401	3-0-4	5	115	100	00	100	200	<b>B.Sc. Honours.</b> - B.Sc. Honours. in Chemistry (Degree will be awarded to the students during exit if any and to all the eligible students of the existing programme upon their request)	1. 12th 2. B.Sc. Chemistry and 1 year of Vocational or Professional experience 3. Screening based on Branch Specific Prerequisite (written test on the subject: Stoichiometry, solutions and gases; Fundamentals of Organic Chemistry; Atomic structure and chemical bonding; Chemistry of elements; Hydrocarbons & their functional groups; State and Properties of Matter; Coordination and Bioinorganic Chemistry; Stereochemistry & Reaction Mechanism; Organometallic Chemistry; Pericyclic Reactions and Photochemistry; Analytical Chemistry; Spectroscopic Techniques; Molecules in Motion and Reaction Dynamics)
	<b>Mandatory Core</b> Methods in Organic Synthesis	CY 403	3-0-4	5	115	100	00	100	200		
	<b>Mandatory Core</b> Spectroscopic Techniques-II	CY 405	3-1-0	4	70	100	25	00	125		
	<b>Skill enhancement course</b> Computational Chemistry	CY 407	3-0-4	5	115	100	00	100	200		
	<b>Discipline specific Elective</b> Surfactant Chemistry/Chemistry of Nanomaterials	CY 409/ CY 411	3-0-0	3	55	100	00	00	100		
	<b>Vocational (Optional) (mandatory for exit)</b> Mini Project-II	CY 413	0-0-10	5	200 (20 X 10)	00	00	100	100		
				27	670						
	<b>Mandatory Core</b> Symmetry, Spectra & Magnetism	CY 402	3-1-0	4	70	100	25	00	125		
	<b>Mandatory Core</b> Chemistry of Natural Products	CY 404	3-0-4	5	115	100	00	100	200		
	<b>Mandatory Core</b> Physical Aspects of Molecular Spectroscopy	CY 406	3-1-0	4	70	100	25	00	125		
	<b>Skill enhancement course</b> Purification and Separation Techniques	CY 408	3-0-4	5	115	100	00	100	200		



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	<b>Discipline specific Elective</b> Green Chemical Processing / C-H Functionalization	CY 410/ CY 412	3-0-0	3	55	100	00	00	100		4. Candidate must have sufficient knowledge in at least 50% of the mandatory subjects each of the first, second and third year of Five Years Integrated M.Sc. programme in Chemistry at SVNIT.
	<b>Vocational (Optional) (mandatory for exit)</b> Mini Project-III	CY 414	0-0-10	5	200 (20 X 10)	00	00	100	100		
				26	625						
				<b>52</b>	<b>1295</b>						
5 <sup>th</sup>	<b>Mandatory Core</b> Quantum Chemistry	CY 501	3-1-0	4	70	100	25	00	125	<b>M.Sc.-Five Years Integrated M.Sc. Chemistry (For the students in the existing programme since the beginning of the programme) / M.Sc. Chemistry ( For students admitted after the first year of the existing programme)</b>	1. 12th 2. B.Sc. Honors Chemistry or equivalent and 1 year of Vocational or Professional experience 3. Screening based on Branch Specific Prerequisite (written test on the subjects - Chemistry of elements; Hydrocarbons & their functional groups; State and Properties of Matter; Coordination and Bioinorganic Chemistry; Stereochemistry & Reaction Mechanism; Organometallic Chemistry; Pericyclic Reactions and Photochemistry; Analytical Chemistry; Spectroscopic Techniques; Molecules in Motion and Reaction Dynamics; Advanced Inorganic Chemistry; Methods in Organic
	<b>Mandatory Core</b> Heterocycles and Organic Synthesis	CY 503	3-1-0	4	70	100	25	00	125		
	<b>Skill enhancement course</b> Research Methodology in Chemistry	CY 505	3-0-0	3	55	100	00	00	100		
	<b>Discipline specific elective</b> Catalysis /Medicinal Chemistry	CY 507/ CY 509	3-0-0	3	55	100	00	00	100		
	<b>Discipline specific elective</b> Supramolecular Chemistry/ Nuclear chemistry	CY 511/ CY 513	3-0-0	3	55	100	00	00	100		
	<b>Professional</b> Dissertation-I	CY 515	0-0-10	5	200 (20 X 10)	00	00	100	100		
				22	505						
	<b>Professional</b> Dissertation-II	CY 502	0-0-40	20	800 (40 X 20 )	00	00	500	500		
				20	800						
	<b>Total Credits</b>			<b>250</b>	<b>6155</b>						

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											<p>Synthesis; Quantum Chemistry; Symmetry, Spectra &amp; Magnetism; Physical Aspects of Molecular Spectroscopy)</p> <p>4. Candidate must have sufficient knowledge in at least 50% of the mandatory subjects each of the first, second, third and fourth year of Five Years Integrated M.Sc. programme in Chemistry at SVNIT.</p>
	<b>Total credits (without vocational)</b>			<b>210</b>	<b>4555</b>						

### Pool of the subjects

<p>○ <b>Discipline Specific Core (Mandatory Core)</b></p> <p>CY 101 Stoichiometry, Solutions and Gases</p> <p>CY 102 Fundamentals of Organic Chemistry</p> <p>CY 103 Atomic Structure and Chemical Bonding</p> <p>CY 104 Basic Industrial Chemistry</p> <p>CY 201 Chemistry of Elements</p> <p>CY 202 Coordination and Bioinorganic Chemistry</p> <p>CY 203 Hydrocarbons &amp; their Functional Groups</p> <p>CY 204 Stereochemistry &amp; Reaction Mechanism</p>	<p>○ <b>Discipline Specific Elective</b></p> <p>CY 208 Dyes and drugs</p> <p>CY 307 Physical Methods of Structure Determination</p> <p>CY 308 Chemistry in Industries</p> <p>CY 310 Materials Chemistry</p> <p>CY 411 Chemistry of Nanomaterials</p> <p>CY 409 Surfactant Chemistry</p> <p>CY 410 Green Chemical Processing</p> <p>CY 412 C-H Functionalization</p>
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CY 205 State and Properties of Matter CY 206 Equilibrium and Changes CY 207 Environmental Science CY 209 Quality Control and Quality Assurance CY 301 Organometallic Chemistry CY 302 Spectroscopic Techniques-I CY 303 Pericyclic Reactions and Photochemistry CY 304 Molecules in Motion and Reaction Dynamics CY 305 Analytical Chemistry CY 401 Advanced Inorganic Chemistry CY 402 Symmetry, Spectra & Magnetism CY 403 Methods in Organic Synthesis CY 404 Chemistry of Natural Products CY 405 Spectroscopic Techniques-II CY 406 Physical Aspects of Molecular Spectroscopy CY 501 Quantum Chemistry CY 503 Heterocycles and Organic Synthesis	CY 507 Catalysis CY 509 Medicinal Chemistry CY 511 Supramolecular Chemistry CY 513 Nuclear chemistry
<ul style="list-style-type: none"> <li>○ <b>Other Departments courses</b></li> <li>○ <b>Science</b></li> <li>PH XXX Physics</li> <li>MA XXX Mathematics</li> <li>○ <b>Art and Humanities</b></li> <li>HU XXX Holistic Empowerment and Human values</li> <li>HU XXX English and Professional Communication</li> <li>○ <b>Engineering</b></li> <li>CS XXX Fundamental of Computer Programming</li> </ul>	<ul style="list-style-type: none"> <li>○ <b>Skill enhancement Course</b></li> <li>CY 105 Qualitative and Quantitative Analysis</li> <li>CY 210 Biomolecules and Cell Biology</li> <li>CY 309 Unit Process in Chemical Industries</li> <li>CY 306 Polymer Chemistry</li> <li>CY 407 Computational Chemistry</li> <li>CY 408 Purification and Separation Techniques</li> <li>CY 505 Research Methodology in Chemistry</li> </ul>
<ul style="list-style-type: none"> <li>○ <b>Vocational training</b></li> <li>CY 107 Laboratory Techniques and Safety</li> <li>CY 106 Industrial Safety and Training</li> <li>CY 211 Chemical Plant Operations</li> <li>CY 212 Laboratory Demonstration of Quality Control and Quality Assurance Practicals</li> <li>CY 311 Purification of Liquids and Solids</li> </ul>	<ul style="list-style-type: none"> <li>○ <b>Institute/ Industry Professional (Experiential learning)</b></li> <li>CY 515 Dissertation-I</li> <li>CY 502 Dissertation-II</li> </ul>

CY 312 Mini Project-I CY 413 Mini Project-II CY 414 Mini Project-III	
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**B. Tech. Artificial Intelligence**

Year	Subjects	Proposed / Recommended subject	Code	Schemes	Credits	Notional hours
1 <sup>st</sup> of UG (I and II Semester)	<b>First Semester</b>					
	CBCS-1	<b>Mandatory Core</b> Introduction to Computer Science	CSAI101	3-1-0	4	70
	CBCS-2	<b>Mandatory Core</b> Introduction to Programming	CSAI103	3-0-2	4	85
	CBCS-3	<b>Other Engineering</b> Digital Electronics & Logic Design	EC103	3-0-2	4	85
	CBCS-4	<b>Other Engineering</b> Basics of Electrical Engineering	EE105	3-0-2	4	85
	CBCS-5	<b>Mathematics</b> Fundamentals of Engineering Mathematics	MA115	3-1-0	4	70
	Vocational	(Optional) <b>(Mandatory for Exit)</b>	VSXXX	0-0-8	4	160 (20 x 8)
					20	555
	<b>Second Semester</b>					
	CBCS-1	<b>Mandatory Core</b> Data Structures	CSAI102	3-1-2	5	100
	CBCS-2	<b>Mandatory Core</b> Web Programming and Python	CSAI104	3-0-2	4	85
	CBCS-3	<b>Other Engineering</b> Energy & Environmental Engineering	EE105	3-0-2	4	85
	CBCS-4	<b>Mathematics</b> Linear Algebra and Statics	MA116	3-1-0	4	70
	CBCS-5	<b>Humanities</b> English & Professional Communication	HU110	3-0-0	3	65
	Vocational	(Optional) <b>(Mandatory for Exit)</b>	VSXXX	0-0-8	4	160 (20 x 8)
					20	565
					<b>40</b>	<b>1120</b>



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Exit Level 1: Certificate in Programming Skills						
2 <sup>nd</sup> of UG	Third Semester					
	CBCS-1	<b>Mandatory Core</b> Computer Organization	CSAI201	3-1-0	4	70
	CBCS-2	<b>Mandatory Core</b> Design and Analysis of Algorithms	CSAI203	3-1-2	5	100
	CBCS-3	<b>Optional Core</b> Database Management Systems	CSAI205	3-1-2	5	100
	CBCS-4	<b>Elective</b> Object Oriented Programming	CSAI207	3-0-2	4	85
	CBCS-5	<b>Mathematics</b> Discrete Mathematics	CSAI209	3-1-0	3	70
					22	
	Fourth Semester					
	CBCS-1	<b>Mandatory Core</b> Artificial Intelligence	CSAI202	3-1-2	5	100
	CBCS-2	<b>Mandatory Core</b> Operating Systems	CSAI204	3-1-2	5	100
	CBCS-3	<b>Mandatory Core</b> Automata and Formal Languages	CSAI206	3-1-0	4	70
	CBCS-4	<b>Optional Core</b> Computer Networks	CSAI208	3-0-2	4	85
	CBCS-5	<b>Elective</b> Microprocessor and Interfacing Techniques	CSAI210	3-0-2	4	85
	Vocational	(Optional) <b>(Mandatory for Exit)</b>	VSXXX	0-0-8	4	160 (20 x 8)
					20	
					<b>40</b>	
Exit Level 2: Diploma in Computer Science and Engineering(AI)						
3 <sup>rd</sup> of UG	Fifth Semester					
	CBCS-1	<b>Mandatory Core</b> Machine Learning	CSAI301	3-1-2	5	100
	CBCS-2	<b>Mandatory Core</b> Data Science	CSAI303	3-1-2	5	100
	CBCS-3	<b>Optional Core</b>	CSAI305	3-0-2	4	85

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		Information Security and Cryptography				
	CBCS-4	<b>Elective</b>	<b>CSAI 3AA</b>	3-0-0	3	60
	CBCS-5	<b>Elective</b> <b>(Specialization – Honor / Minor)</b> Cyber Physical System (CS XXX) <b>(H)</b> Data Structure and Algo/Introduction to Data Science <b>(M)</b>	<b>CSAI3BB</b>	3-0-0	3	60
					20	
	<b>Sixth Semester</b>					
	CBCS-1	<b>Mandatory Core</b> Deep Learning	CSAI302	3-1-2	5	100
	CBCS-2	<b>Mandatory Core</b> Cloud Computing,	CSAI304	3-1-2	5	100
	CBCS-3	<b>Optional Core</b> Reinforcement Learning	CSAI306	3-0-2	4	85
	CBCS-4	<b>Elective</b>	CSAI3CC	3-0-0	3	60
	CBCS-5	<b>Elective</b> <b>(Specialization – Honor / Minor)</b> IoT and Edge Computing <b>(H)</b> Introduction to Artificial Intelligence <b>(M)</b>	CSAI3DD	3-0-0	3	60
	Vocational	(Optional) <b>(Mandatory for Exit)</b>	VSXXX	0-0-8	4	160 (20 x 8)
					20	
					<b>40</b>	
	<b>Exit Level 3: B.Sc. in Artificial Intelligence</b>					
4 <sup>th</sup> of UG	<b>Seventh Semester</b>					
	CBCS-1	<b>Mandatory Core</b> Intelligent Multiagent and Expert Systems	CSAI401	3-0-2	4	85
	CBCS-2	<b>Elective</b>	CSAI4AA	3-0-2	4	85
	CBCS-3	<b>Elective</b>	CSAI4BB	3-0-2	4	85
	CBCS-4	<b>Elective</b> <b>(Specialization – Honor / Minor)</b> Drone and Autonomous Systems <b>(H)</b> Introduction to Machine Learning <b>(M)</b>	CSAI4CC	3-0-2	4	85
	CBCS-5	<b>Elective</b>	CSAI4DD	3-0-2	4	85

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		<b>(Specialization – Honor / Minor)</b> IoT and Sensor data Analytics <b>(H)</b> Applied Machine Learning <b>(M)</b>				
					20	
	<b>Eighth Semester</b>					
	Vocational / Professional	<b>Mandatory</b>	VSXXX / PSXXX	0-0-40	20	800 (20 x 40)
					20	800
					<b>40</b>	
<b>Exit Level 4: B.Tech. in Artificial Intelligence</b>						

<b>Elective (Specialization – AI Honors in IoT)</b>	<b>Elective (Specialization – Minor in AI)</b>
Cyber Physical System (CSAI332) IoT and Edge Computing (CSAI344) Drone and Autonomous Systems (CSAI441) IoT and Sensor data Analytics (CSAI447)	Data Structure and Algo (CSAI345)/ Intro to Data Science (CSAI347) Introduction to AI (CSAI346) Introduction to ML (CSAI449) Applied Machine Learning (CSAI451)

### Core Elective-1 (CSAI3AA/CSAI3BB):

1	Probabilistic Graphical Model (CSAI321)	8	Optimization Techniques (CSAI333)
2	Data Science (CSAI323)	9	Big data analytics and Large-Scale Computing (CSAI335)
3	Computer Graphics (CSAI325)	10	Computational Intelligence (CSAI337)
4	System Software (CSAI327)	11	Human Computer Interaction (CSAI338)
5	Information Retrieval (CSAI329)	12	Multimedia System & Applications (CSAI341)
6	Cyber Physical Systems (CSAI331)	13	Unmanned Aerial Vehicles Information System (CSAI343)
7	Data Structure and Algo (CSAI345)	14	Introduction to Data Science (CSAI347)

### Core Elective-2 (CSAI3CC) / 3 (CSAI3DD):

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1	Natural Language Processing (CSAI322)	7	Speech and Audio Processing (CSAI334)
2	Computer Vision and Image Processing (CSAI324)	8	Reinforcement Learning (CSAI336)
3	High Performance Computing (CSAI326)	9	Data Visualization (CSAI338)
4	Social Network Analysis (CSAI328)	10	Machine Learning for Security (CSAI340)
5	Digital Forensics (CSAI330)	11	Service Oriented Architectures (CSAI342)
6	Unmanned Aerial Vehicles Forensics (CSAI332)	12	IoT and Edge Computing (CSAI344)
		13	Introduction to AI (CSAI346)

**Core Elective-4 (CSAI4AA)/ 5 (CSAI4BB) / 6 (CSAI4CC):**

1	AI in Market and Finance (CSAI421)	10	Innovation, Incubation and Entrepreneurship (HU410)
2	AI for Bio-Medical Image Processing (CSAI423)	11	Research Methodology (CS421)
3	Cloud Computing for AI and ML (CSAI425)	12	Bioinformatics (CSAI439)
4	Surveillance Video Analysis (CSAI427)	13	Data Mining (CSAI441)
5	Adversarial Machine Learning (CSAI429)	14	Drone and Automation Systems (CSAI443)
6	Secure Cloud Computing (CSAI431)	15	Animation and Rendering (CSAI445)
7	IoT & Sensor Data Analytics (CSAI433)	16	System Analysis and Simulation (CSAI447)
8	Robotics Process Automation (CSAI435)	17	Introduction to ML (CSAI449)
	Advanced Database Management System (CSAI437)	18	Applied Machine Learning (CSAI451)

# Urban Planning Section, DoCE, SVNIT

## (Proposed-Department of Planning)

Programme: **Four Years Bachelor in Planning (B.Plan.)**

Year	Subjects	Proposed / Recommended Subject	Code	Scheme L-T-P	Credit	Notional hours (Approx.)
<b>1st of UG (I and II Semester)</b>	<b>First Semester</b>					
	CBCS-1	<b>Mandatory Core</b> Fundamentals of Urban and Regional Planning	BP 101	3-0-2	4	85
	CBCS-2	<b>Other Engineering</b> Surveying and Photogrammetry	BP 102	3-1-2	5	100
	CBCS-3	<b>Science</b> Evaluation of Aesthetics culture and Technology	BP 103	3-0-2	4	85
	CBCS-4	<b>Mathematics</b> Statistical and Quantitative Methods in Planning	BP 104	3-1-0	4	70
	CBCS-5	<b>Humanities</b> Elements of Economics	BP 105	3-0-0	3	50
	Vocational / Professional	<b>(Optional)</b> <b>(Mandatory for Exit)</b>	BP 106	0-0-8	4	160 (20x8)
					20 or 24	390 or 550
	<b>Second Semester</b>					
	CBCS-1	<b>Mandatory Core</b> Planning Theory - I	BP 201	3-1-0	4	70
	CBCS-2	<b>Other Engineering</b> Ecology, Environment and Resource Management	BP 202	3-0-2	4	85
	CBCS-3	<b>Other Engineering / Science</b> Demography and Urbanization	BP 203	3-1-0	4	70
	CBCS-4	<b>Mathematics</b> Planning Techniques	BP 204	3-1-0	4	70



Year	Subjects	Proposed / Recommended Subject	Code	Scheme L-T-P	Credit	Notional hours (Approx.)
	CBCS-5	<b>Humanities</b> Holistic Empowerment and Human values	BP 205	3-1-0	4	70
	Vocational / Professional	<b>(Optional)</b> <b>(Mandatory for Exit)</b>	BP 206	0-0-8	4	160 (20x8)
					20 or 24	365 or 525
					<b>40 or 48</b>	<b>755 or 1075</b>
<b>2nd of UG</b>	<b>Third Semester</b>					
	CBCS-1	<b>Mandatory Core</b> Planning Theory - II	BP 301	3-1-0	4	70
	CBCS-2	<b>Mandatory Core</b> Housing and Community Planning	BP 302	3-0-2	4	85
	CBCS-3	<b>Optional Core</b> Traffic and Transport Planning	BP 303	3-0-2	4	85
	CBCS-4	<b>Elective</b>		3-0-2 / 3-1-0	4	85
	CBCS-5	<del>Other Engineering/ Mathematics/ Humanities</del> English, Professional Communication and Technical report writing	BP 304	3-1-0	4	70
					20	395
	<b>Forth Semester</b>					
	CBCS-1	<b>Mandatory Core</b> Socioeconomic Aspects of Planning	BP 401	3-1-0	4	70
	CBCS-2	<b>Mandatory Core</b> Planning and Management of Utilities and Services	BP 402	3-0-2	4	85

Year	Subjects	Proposed / Recommended Subject	Code	Scheme L-T-P	Credit	Notional hours (Approx.)
	CBCS-3	<b>Optional Core</b> Settlement Sociology and Cultural Aspects	BP 403	3-1-0	4	70
	CBCS-4	<b>Elective</b>		3-0-2 / 3-1-0	4	85
	CBCS-5	<b>Other Engineering / Humanities</b> Project Formulation. Appraisal and Management	BP 404	3-1-0	4	70
	Vocational / Professional	<b>(Optional) (Mandatory for Exit)</b>	BP 405	0-0-8	4	160 (20x8)
					20 or 24	380 or 540
					<b>40 or 44</b>	<b>775 or 935</b>
<b>3rd of UG</b>	<b>Fifth Semester</b>					
	CBCS-1	<b>Mandatory Core</b> Planning Legislation	BP 501	3-1-0	4	70
	CBCS-2	<b>Mandatory Core</b> Urban Governance and Finance	BP 502	3-1-0	4	70
	CBCS-3	<b>Optional Core</b> Regional Planning	BP 503	3-1-0	4	70
	CBCS-4	<b>Elective</b>		3-0-2 / 3-1-0	4	85
	CBCS-5	<b>Elective (Specialization – Minor / Honor)</b>		3-0-2 / 3-1-0	4	85
					20	380
	<b>Sixth Semester</b>					
	CBCS-1	<b>Mandatory Core</b> Urban Renewal and Conservation	BP 601	3-0-2	4	85
	CBCS-2	<b>Mandatory Core</b> Planning Studio	BP 602	0-0-8	4	135
	CBCS-3	<b>Optional Core</b> Geo-Informatics for Planning	BP 603	3-0-2	4	85

Year	Subjects	Proposed / Recommended Subject	Code	Scheme L-T-P	Credit	Notional hours (Approx.)
	CBCS-4	Elective		3-0-2 / 3-1-0	4	85
	CBCS-5	Elective (Specialization – Minor / Honor)		3-0-2 / 3-1-0	4	85
	Vocational / Professional	(Optional) (Mandatory for Exit)	BP 604	0-0-8	4	160 (20x8)
					20 or 24	475 or 635
					<b>40 or 44</b>	<b>855 or 1015</b>
<b>4th of UG</b>	<b>Seventh Semester</b>					
	CBCS-1	Mandatory Core Urban Management	BP 701	3-1-0	4	85
	CBCS-2	Mandatory Core Design Portfolio	BP 702	0-0-8	4	135
	CBCS-3	Elective		3-0-2 / 3-1-0	4	85
	CBCS-4	Elective (Specialization – Minor / Honor)		3-0-2 / 3-1-0	4	85
	CBCS-5	Elective (Specialization – Minor / Honor)		3-0-2 / 3-1-0	4	85
					20	475
	<b>Eight Semester</b>					
	Vocational / Professional	Mandatory	BP 801	0-0-40	20	800 (20x40)
					20	800
					<b>40</b>	<b>1275</b>

## List of Electives

Semester 3/4	Semester 5/6	Semester 7/8
<ol style="list-style-type: none"><li>1. Introduction to Urban Design</li><li>2. Energy Efficient Planning</li><li>3. Landscape Planning and Design</li><li>4. Introduction to Urban Design</li><li>5. Real Estate Planning &amp; Valuation</li></ol>	<ol style="list-style-type: none"><li>1. Transport Planning</li><li>2. Urban Energy Systems</li><li>3. Rural Development and Management</li><li>4. Disaster Risk Mitigation and Management</li><li>5. Sustainable Urban Development</li></ol>	<ol style="list-style-type: none"><li>1. Climate Change</li><li>2. Circular Economics</li><li>3. Environmental Impact Assessment (EIA)</li><li>4. Planning and Management of Informal Sector</li><li>5. Metropolitan Planning and Development</li><li>6. Human values in Planning</li><li>7. Planning for Small and Medium Towns</li><li>8. Carbon financing for cities</li></ol>

Curriculum Structure for 1<sup>st</sup> year and 2<sup>nd</sup> year for B. Tech. in Electronics and VLSI Engineering

## Semester - I

Sr. No.	Subjects	Code	Schemes	Credits	Notional hours
1.	<b>Science</b> Semiconductor Physics and Devices	EC 1XX	3-0-0	03	55
2.	<b>Mathematics</b> Mathematics-I	MA 1XX	3-1-0	04	85
3.	<b>Other Engineering</b> Fundamentals of Computer & Programming	CS 1XX	3-0-2	04	85
4.	<b>Other Engineering</b> Basic Electrical Engineering	EE 1XX	3-0-2	04	85
5.	<b>Humanities</b> Holistic Empowerment and Human Values	HU 1XX	3-0-0	03	55
6.	<b>Vocational</b>		0-0-8	04	160 (20 x 8)
				<b>22</b>	<b>525</b>

## Semester - II

Sr. No.	Subjects	Code	Schemes	Credits	Notional hours
1.	<b>Mathematics</b> Mathematics-II	MA 1XX	3-1-0	04	85
2.	<b>Mandatory Core</b> Electronic Circuits	EC 1XX	3-0-2	04	85
3.	<b>Mandatory Core</b> Digital Logic Design	EC 1XX	3-0-2	04	85
4.	<b>Other Engineering</b> Network Analysis and Synthesis	EE 1XX	3-0-0	03	55
5.	<b>Humanities</b> English & Professional Communication	HU 1XX	3-0-0	03	55
6.	<b>Vocational</b>		0-0-8	04	160 (20 x 8)
				<b>22</b>	<b>525</b>

### Semester - III

Sr. No.	Subjects	Code	Schemes	Credits	Notional hours
1.	<b>Mandatory Core</b> Analog Circuits	EC 2XX	3-0-2	04	85
2.	<b>Mandatory Core</b> Signals and Systems	EC 2XX	3-1-0	04	85
3.	<b>Mandatory Core</b> Microprocessor and Microcontrollers	EC 2XX	3-0-2	04	85
4.	<b>Science</b> Engineering Chemistry	AC 2XX	3-0-2	04	85
5.	<b>Other Engineering</b> Control Systems	EE 2XX	3-0-0	03	55
6.	<b>Vocational</b>		0-0-8	04	160 (20 x 8)
				<b>23</b>	<b>555</b>

### Semester - IV

Sr. No.	Subjects	Code	Schemes	Credits	Notional hours
1.	<b>Mandatory Core</b> Statistical Signal Analysis	EC 2XX	3-1-0	04	85
2.	<b>Mandatory Core</b> Linear IC Applications	EC 2XX	3-0-2	04	85
3.	<b>Mandatory Core</b> Analog and Digital Communication	EC 2XX	3-0-2	04	85
4.	<b>Mandatory Core</b> Digital Integrated Circuits	EC 2XX	3-0-2	04	85
5.	<b>Humanities</b> Professional Ethics, Economics, and Business Management	HU 2XX	3-0-0	03	55
6.	<b>Vocational</b>		0-0-8	04	160 (20 x 8)
				<b>23</b>	<b>555</b>



**M. Tech.**  
**Computer Science and Engineering**  
**(CSE)**  
**with Specialization in**  
**Data Science**

At end of the programme graduation, the students of the program will have:

PSO1: ability to apply advanced engineering knowledge of computer science & engineering and design skill with analytical mind set for solving the real problems through research and development for catering the need of industry.

PSO2: ability to investigate innovative, sustainable and environmental adaptive solution for the society to meet the desired need using standard engineering practice.

At the end of studying the program, a student is expected to

1. engage in critical thinking and develop an ability to independently carry out research /investigation and development work to solve practical problems.
2. develop an ability to communicate effectively, develop an ability to interact with the engineering fraternity and with society at large.
3. be able to write and present technical reports on complex engineering activities.
4. be able to demonstrate a degree of mastery over the area as per the specialization of the program (Data Science). The mastery should be at a level higher than the requirements in the appropriate bachelor program.
5. demonstrate higher level of professional skills to tackle multidisciplinary and complex problems related to variety real time applications data.
6. be able to distinguish and analyze the data for the applications for the machine-cognition tasks.
7. have adequate technologies and theoretical background of software development that will help them to pursue a career in software industries in general and data science background in particular.
8. be educated to stick on professional ethics and able to solve societal needs and developments.

**M. Tech. - I Computer Science and Engineering (CSE) with Specialization in Data Science**

**Semester I**

Sr. No.	Course	Code	Credit	Teaching Scheme			Examination Scheme			Total
				L	T	P	L	T	P	
1.	Core-1 Mathematical Foundations of Computer Science	CSEDS601	4	3	1	0	100	25	0	125
2.	Core-2 Design and Analysis of Algorithms	CSEDS603	4	3	0	2	100	0	50	150
3.	Core-3 Machine Learning	CSEDS605	4	3	0	2	100	0	50	150
4.	Core-4 Foundations of Data Science	CSEDS607	4	3	0	2	100	0	50	150
5.	Core Elective-1	CSEDSXXX	4	3	0	2	100	0	50	150
6.	Research Methodology in CSE	CSEDS609	4	4	0	0	100	0	0	100
	<b>Total</b>		<b>23</b>	<b>19</b>	<b>1</b>	<b>8</b>	<b>600</b>	<b>25</b>	<b>200</b>	<b>825</b>
	<b>Total Contact Hours per week</b>			<b>28</b>						

**Semester II**

Sr. No.	Course	Code	Credit	Teaching Scheme			Examination Scheme			Total
				L	T	P	L	T	P	
1.	Core-5 Advanced Statistical Techniques	CSEDS602	4	3	1	0	100	25	0	125
2.	Core-6 Scalable Systems for Data Science	CSEDS604	4	3	0	2	100	0	50	150
3.	Core Elective-2	CSEDSXXX	4	3	0	2	100	0	50	150
4.	Core Elective-3	CSEDSXXX	4	3	0	2	100	0	50	150
5.	Core Elective-4	CSEDSXXX	4	3	0	2	100	0	50	150
6.	Institute Elective	CSEDSXXX	4	3	0	2	100	0	50	150
	<b>Total</b>		<b>24</b>	<b>18</b>	<b>1</b>	<b>10</b>	<b>600</b>	<b>25</b>	<b>250</b>	<b>875</b>
	<b>Total Contact Hours per week</b>			<b>29</b>						

M. Tech. Computer Science and Engineering (CSE) with Specialization in Data Science

**Semester III**

Sr. No.	Course	Code	Credit	Teaching Scheme			Examination Scheme			Total
				L	T	P	L	T	P	
1.	Dissertation Preliminaries <sup>#</sup>	CSEDS701	8	0	0	16	0	0	250	250
	<b>Total</b>		<b>8</b>	<b>0</b>	<b>0</b>	<b>16</b>	<b>0</b>	<b>0</b>	<b>250</b>	<b>250</b>
	<b>Total Contact Hours per week</b>			<b>16</b>						

<sup>#</sup> Internal-100, External-150

**Semester IV**

Sr. No.	Course	Code	Credit	Teaching Scheme			Examination Scheme			Total
				L	T	P	L	T	P	
1.	Dissertation <sup>#</sup>	CSEDS700	12	0	0	24	0	0	400	400
	<b>Total</b>		<b>12</b>	<b>0</b>	<b>0</b>	<b>24</b>	<b>0</b>	<b>0</b>	<b>400</b>	<b>400</b>
	<b>Total Contact Hours per week</b>			<b>24</b>						

<sup>#</sup> Internal-160, External-240

M. Tech. Computer Science and Engineering (CSE) with Specialization in Data Science

<b>Core Elective 1</b>	
CSEDS611	Information Retrieval
CSEDS613	Advanced Database Management Systems
CSEDS615	Embedded Systems Design
CSEDS617	Computer Vision and Image Processing
CSEDS619	Speech and Audio Processing
CSEDS621	High Performance Computing
<b>Core Elective 2, Core Elective 3, and Core Elective 4</b>	
CSEDS606	Artificial Intelligence
CSEDS608	Data Mining and Data Warehousing
CSEDS610	Natural Language Processing
CSEDS612	Data Science for Software Engineering
CSEDS614	Big Data Analytics and Large-Scale Computing
CSEDS616	Cyber Physical Systems
CSEDS618	Machine Learning for Security
<b>Institute Elective</b>	
CSEDS620	Business Data Analytics
CSEDS622	Social Networks
CSEDS624	Cyber Laws



**M. Tech.**  
**Computer Science and Engineering**  
**(CSE)**  
**with Specialization in**  
**Information Security and Privacy**

## M. Tech.(CSE) with Specialization in Information Security and Privacy

At end of the programme graduation, the students of the program will have:

PSO1: ability to apply advanced engineering knowledge of computer science & engineering and design skill with analytical mind set for solving the real problems through research and development for catering the need of industry.

PSO2: ability to investigate innovative, sustainable and environmental adaptive solution for the society to meet the desired need using standard engineering practice.

At the end of studying the program, a student is expected to

1. engage in critical thinking and develop an ability to independently carry out research /investigation and development work to solve practical problems.
2. develop an ability to communicate effectively, develop an ability to interact with the engineering fraternity and with society at large.
3. be able to write and present technical reports on complex engineering activities.
4. be able to demonstrate a degree of mastery over the area as per the specialization of the program (Information Security). The mastery should be at a level higher than the requirements in the appropriate bachelor program.
5. demonstrate higher level of professional skills to tackle multidisciplinary and complex problems related to information security.
6. be able to differentiate between the Security Software and Software Security and understand the importance of building-in the security in a software being developed from scratch.
7. have adequate technologies and theoretical background of software development that will help them to pursue a career in software industries in general and information security background in particular.
8. be educated to stick on professional ethics and able to solve societal needs and developments.

## M. Tech. Computer Science and Engineering (CSE) with Specialization in Information Security and Privacy

### Semester I

Sr. No.	Course	Code	Credit	Teaching Scheme			Examination Scheme			Total
				L	T	P	L	T	P	
1.	<a href="#">Core-1</a> Mathematical Foundations of Computer Science	CSEIS601	4	3	1	0	100	25	0	125
2.	<a href="#">Core-2</a> Design and Analysis of Algorithms	CSEIS603	4	3	0	2	100	0	50	150
3.	<a href="#">Core-3</a> Principles of Information Security and Privacy	CSEIS605	4	3	0	2	100	0	50	150
4.	<a href="#">Core-4</a> Modern Cryptography	CSEIS607	4	3	1	0	100	25	0	125
5.	<u>Research Methodology in CSE</u>	CSEIS609	4	4	0	0	100	0	0	100
6.	<a href="#">Core Elective-1</a>	CSEISXXX	4	3	0	2	100	0	50	150
<b>Total</b>			<b>24</b>	<b>19</b>	<b>2</b>	<b>6</b>	<b>600</b>	<b>50</b>	<b>150</b>	<b>800</b>
<b>Total Contact Hours per Week</b>			<b>27</b>							

### Semester II

Sr. No.	Course	Code	Credit	Teaching Scheme			Examination Scheme			Total
				L	T	P	L	T	P	
1.	<a href="#">Core-5</a> Information Theory and Coding	CSEIS602	4	3	1	0	100	25	0	125
2.	<a href="#">Core-6</a> Network Security	CSEIS604	4	3	0	2	100	0	50	150
3.	<a href="#">Core Elective-2</a>	CSEISXXX	4	3	0	2	100	0	50	150
4.	<a href="#">Core Elective-3</a>	CSEISXXX	4	3	0	2	100	0	50	150
5.	<a href="#">Core Elective-4</a>	CSEISXXX	4	3	0	2	100	0	50	150
6.	<a href="#">Institute Elective-1</a>	CSEISXXX	4	3	0	2	100	0	50	150
<b>Total</b>			<b>24</b>	<b>18</b>	<b>1</b>	<b>10</b>	<b>600</b>	<b>25</b>	<b>250</b>	<b>875</b>
<b>Total Contact Hours per Week</b>			<b>29</b>							

M. Tech.(CSE) with Specialization in Information Security and Privacy

**Semester III**

Sr. No.	Course	Code	Credit	Teaching Scheme			Examination Scheme			Total
				L	T	P	L	T	P	
1.	Dissertation Preliminaries <sup>#</sup>	CSEIS701	8	0	0	16	0	0	250	250
	<b>Total</b>		<b>8</b>	<b>0</b>	<b>0</b>	<b>16</b>	<b>100</b>	<b>0</b>	<b>250</b>	<b>250</b>
	<b>Total Contact Hours per week</b>			<b>16</b>						

# Internal-100, External-150

**Semester IV**

Sr. No.	Course	Code	Credit	Teaching Scheme			Examination Scheme			Total
				L	T	P	L	T	P	
1.	Dissertation <sup>#</sup>	CSEIS700	12	0	0	24	0	0	400	400
	<b>Total</b>		<b>12</b>	<b>0</b>	<b>0</b>	<b>24</b>	<b>0</b>	<b>0</b>	<b>400</b>	<b>400</b>
	<b>Total Contact Hours per week</b>			<b>24</b>						

# Internal-160, External-240

M. Tech.(CSE) with Specialization in Information Security and Privacy

Code	Subject Name
CSEIS601	Core-1 Mathematical Foundations of Computer Science
CSEIS603	Core-2 Design and Analysis of Algorithms
CSEIS605	Core-3 Principles of Information Security and Privacy
CSEIS607	Core-4 Modern Cryptography
CSEIS609	Research Methodology in CSE
CSEIS602	Core-5 Information Theory and Coding
CSEIS604	Core-6 Network Security
<b>Core Elective 1 to 4</b>	
CSEIS611	Cloud Computing and Big Data Analytics
CSEIS613	Machine Learning
CSEIS615	Cyber Physical Systems
CSEIS617	Digital Forensics
CSEIS619	Social Networks
CSEIS621	Defensible Security Architectures
CSEIS606	Machine Learning for Security
CSEIS608	Information Security Risks and Management
CSEIS612	Mobile Forensics and Security
CSEIS614	Software Security
CSEIS616	Security in the Resource Constrained Environments
CSEIS618	Security and Privacy in Social Networks
CSEIS624	Blockchain Fundamentals and Use Cases
CSEIS626	Adversarial Machine Learning
CSEIS628	Cyber Laws
CSEIS632	Mobile Security and Penetration Testing
CSEIS634	Secure Software Engineering
CSEIS636	Foundations of Privacy Engineering
CSEIS638	Bitcoin and Cryptocurrency Technologies
CSEIS642	Advanced Cryptography
CSEIS644	Security Protocols
CSEIS646	Hardware Security



M. Tech.(CSE) with Specialization in Information Security and Privacy

Institute Elective 1	
CSEIS692	Ethical Hacking and Penetration Testing

## DEPARTMENT OF MECHANICAL ENGINEERING

### M. Tech. (Machine Design)



**SARDAR VALLABHBHAI NATIONAL INSTITUTE OF TECHNOLOGY**  
Ichchhanath, Dumas Road,  
Surat- 395007, Gujarat, India

## **Vision and Mission of Institute**

### **Vision Statement**

To be one of the leading technical institutes disseminating globally acceptable education, effective industrial training and relevant research output.

### **Mission Statement**

To be a globally accepted center of excellence in technical education catalyzing absorption, innovation, diffusion and transfer of high technologies resulting in enhanced quality for all the stakeholders.

## **Vision and Mission of Department**

### **Vision Statement**

Perceive to be a globally accepted centre of quality technical education based on innovation and academic excellence.

### **Mission Statement**

Strives to disseminate technical knowledge to its undergraduate, post graduate and research scholars to meet intellectual, ethical and career challenges for sustainable growth of humanity, nation and global community.

### **Program Educational Objectives (PEOs)**

Postgraduate program in Machine Design plays a vital role in the field of Mechanical Engineering discipline from the fundamentals to applications in industrial practices. The importance of this program is in understanding, design, development and implementation of mechanical systems.

**PEO1: Knowledge:** Impart broad technical knowledge in mechanical engineering discipline with research attitude, problem solving techniques and hands-on skill.

**PEO2: Career:** Provide successful career with professional ethics and responsibilities as a leading or participating role in mechanical engineering, R & D organization, academia and other fields or to pursue higher studies.

**PEO3: Learning:** Understand the concepts and design of machine components, analyze and simulate mechanical components and systems.

**Proposed M. Tech. Machine Design  
Program Structure**

**Semester I**

**C- Core, CE - Core Elective,**

**L-Theory, T-Tutorial, P-Practical**

Sr. No.	Course Title	Code	Credit	Teaching Scheme	Examination Scheme			Total
				L-T-P	L	T	P	
1	C-1 Advanced Machine Design	ME XXX	4	4-0-0	100	0	0	100
2	C-2 Lubrication and Rotor Dynamics	ME XXX	4	4-0-0	100	0	0	100
3	C-3 Advanced Mechanical Vibrations	ME XXX	4	3-1-0	100	25	0	125
4	CE -1	ME XXX	3	3-0-0	100	0	0	100
5	CE -2	ME XXX	3	3-0-0	100	0	0	100
6	Laboratory Practice	ME XXX	2	0-0-4	00	0	100	100
7	Software Practice-1		2	0-0-4	00	0	100	100
	<b>Total</b>		<b>22</b>	18-0-8	500	25	200	725
	<b>Total Contact Hours per week</b>			<b>26</b>				

Core Electives -1	<ol style="list-style-type: none"> <li>1. Advanced Computational Methods</li> <li>2. Experimental Stress Analysis</li> <li>3. Industrial Robotics</li> <li>4. Biomechanics</li> <li>5. Dynamics of Mechanical Systems</li> </ol>
Core Electives -2	<ol style="list-style-type: none"> <li>1. Analytical Dynamics</li> <li>2. Geometric Modelling &amp; Simulation</li> <li>3. Fracture Mechanics</li> <li>4. Optimization Techniques</li> <li>5. Computer Aided Machine Design</li> </ol>

## Semester II

C- Core, CE - Core Elective,

L-Theory, T-Tutorial, P-Practical

Sr. No.	Course	Code	Credit	Teaching Scheme	Examination Scheme			Total
				L-T-P	L	T	P	
1	C-4 Finite Element Methods	ME XXX	4	4-0-0	100	0	0	100
2	C-5 Advanced Mechanics of Solids	ME XXX	4	3-1-0	100	25	0	125
3	CE-3	ME XXX	3	3-0-0	100	0	0	100
4	CE-4	ME XXX	3	3-0-0	100	0	0	100
5	Institute Elective	ME XXX	3	3-0-0	100	0	0	100
6	Project Lab	ME XXX	2	0-0-4	0	0	100	100
7	Software Practice-2	ME XXX	2	0-0-4	0	0	100	100
	<b>Total</b>		<b>21</b>	17-0-8	500	25	200	725
	<b>Total contact hours per week</b>			<b>25</b>				

Core Electives -3	<ol style="list-style-type: none"> <li>Design of Pressure Vessels</li> <li>Vehicle Dynamics</li> <li>Advanced Mechanisms Design</li> <li>Design and Analysis of Machine Tools</li> <li>Computer Aided Analysis of Mechanical Systems</li> </ol>
Core Electives -4	<ol style="list-style-type: none"> <li>Tribology in Machine Design</li> <li>Mechanics of Composites</li> <li>Quality Engineering and Management</li> <li>Automatic Control Systems</li> <li>Smart Materials, Structures and Devices</li> </ol>
Institute Electives	<ol style="list-style-type: none"> <li>Mechatronics</li> <li>Product Design &amp; Development</li> <li>Artificial Intelligence</li> <li>Data Analytics</li> </ol>



PROPOSED List of Elective Courses			
Stream-Specific Elective Courses			
Sr. No.	Code	Title of Course	Credit
1.	ME XXX	Advanced Computational Methods	3
2.	ME XXX	Experimental Stress Analysis	3
3.	ME XXX	Industrial Robotics	3
4.	ME XXX	Biomechanics	3
5.	ME XXX	Dynamics of Mechanical Systems	3
6.	ME XXX	Analytical Dynamics	3
7.	ME XXX	Geometric Modelling & Simulation	3
8.	ME XXX	Fracture Mechanics	3
9.	ME XXX	Optimization Techniques	3
10.	ME XXX	Computer Aided Machine Design	3
11.	ME XXX	Design of Pressure Vessels	3
12.	ME XXX	Vehicle Dynamics	3
13.	ME XXX	Advanced Mechanisms Design	3
14.	ME XXX	Design and Analysis of Machine Tools	3
15.	ME XXX	Computer Aided Analysis of Mechanical Systems	3
16.	ME XXX	Tribology in Machine Design	3
17.	ME XXX	Mechanics of Composites	3
18.	ME XXX	Quality Engineering and Management	3
19.	ME XXX	Automatic Control Systems	3
20.	ME XXX	Smart Materials, Structures and Devices	3
<b>Note:</b> Students can opt any 03 choices in Semester-I & II.			
Institute Electives			
Sr. No.	Code	Title of Course	Credit
1.	ME XXX	Mechatronics	3
2.	ME XXX	Product Design & Development	3
3.	ME XXX	Artificial Intelligence	3
4.	ME XXX	Data Analytics	3

### Semester III

Sr. No.	Course	Code	Credit	Teaching Scheme			Examination Scheme			Total
				L	T	P	L	T	P	
1	Dissertation Preliminaries	ME XXX	8	0	0	16	0	0	400	400
2	Seminar	ME XXX	2	0	0	4	0	0	100	100
	<b>Total</b>		10	0	0	20	0	0	500	500
	<b>Total contact hours per week</b>			20						

### Semester IV

Sr. No.	Course	Code	Credit	Teaching Scheme			Examination Scheme			Total
				L	T	P	L	T	P	
1	Dissertation	ME XXX	12	0	0	24	0	0	600	600



## Department of Management (DOM)

### Integrated Program in Management (IPM)

#### Dual Degree (B.Tech +MBA)

Duration (4+1)

First Degree: Bachelor in Technology (Discipline Name)

Second Degree (MBA)

### Programme Objective

A 5-year integrated B.Tech and MBA program aims to provide students with unique technical and managerial skills, preparing them for leadership roles in various industries. The program is designed to give students a comprehensive understanding of technical and organizational concepts, helping them develop a holistic business operations perspective.

Some of the key objectives of this program include the following:

- Providing a solid foundation in engineering principles and practices and exposure to core business and management concepts.
- Critical thinking, problem-solving, and decision-making skills are essential for success in technical and managerial roles.

- We are fostering creativity, innovation, and entrepreneurship among students, enabling them to identify and pursue new opportunities in the business world.
- Enhancing communication, leadership, and interpersonal skills is critical for effective teamwork and collaboration.
- We prepare students for various engineering, technology, finance, consulting, and entrepreneurship career opportunities.

Overall, a 5-year integrated B.Tech and MBA program aims to provide students with a unique educational experience that combines technical expertise with business acumen, equipping them with the skills and knowledge needed to succeed in a rapidly evolving business landscape.

## **Brief Programme Structure**

Overall, the 5-year integrated B.Tech and MBA program provides students with a well-rounded education that combines technical and business skills, preparing them for leadership roles in today's complex and dynamic global marketplace.

The structure of a 5-year integrated B.Tech and MBA program is divided into Ten semesters. First Four years (8 semesters) & 5th Year (2 semesters)

**Years 1-2:** Foundation courses in Science and Engineering: The program's first two years are typically focused on providing students with a strong foundation in the sciences and engineering. Courses may include mathematics, physics, chemistry, computer science, and introductory engineering courses such as mechanics, thermodynamics, and electrical circuits.

**Years 3-4:** Core Engineering Courses

**Year 4:** Besides core engineering, students will begin their MBA coursework. This may include foundational courses such as accounting, finance, marketing, human resources, operations management, and business strategy & Analytics.

End of the 4<sup>th</sup>-year, the student will go on a two-month Internship program.

**Year 5:** The program's final year will focus on MBA core courses and electives (per the regular MBA second program structure). These courses will provide students with a deeper understanding of business concepts and practices and the opportunity to specialize in a particular area of Analytics.

In addition to coursework, the program may also include opportunities for internships, industry projects, and other hands-on learning activities. These experiences will provide students with real-world exposure to the engineering and business industries, allowing them to apply what they have learned in the classroom to practical situations.

Overall, the structure of a 5-year integrated B.Tech and MBA program is designed to provide students with a well-rounded education in engineering and management, with a focus on practical skills, leadership, and innovation.

## **Program Structure (Details)**

### **First Degree (B.Tech)**

#### **First 3-year: Courses from Discipline Area**

#### **4<sup>th</sup> Year**

1<sup>st</sup> Semester (4<sup>th</sup> Year) {*along with B.Tech Courses*}

SN	Course	Credit	Hours
1	<b>Marketing Management</b>	2	28
2	<b>Operations Management</b>	2	28
3	<b>Managerial Economics</b>	2	28
4	<b>Accounting &amp; Financial Management</b>	2	28
5	<b>Organizational Behaviour &amp; HRM</b>	2	28

*Total Number of Credits: 10 (from Management  
Discipline)*

2<sup>nd</sup> Semester (4<sup>th</sup> Year) {*along with B.Tech Project Work*}

SN	Course	Credit	Hours
1	<b>Business Considerations for Edge Computing &amp; Transformation (Analytics Core)</b>	2	28
2	<b>Econometrics (Management Core)</b>	2	28
3	<b>Strategic Management for leadership &amp; People Analytics - (Management Core)</b>	2	28
4	<b>Business Analytics (Analytics Core)</b>	2	28
5	<b>Data Analytics (Analytic Core)</b>	2	28
6	<b>Fintech (Management Core)</b>	2	28

*Total Number of Credits: 12 ((from Management Discipline)*

*Two-month Internship Programme (after 1<sup>st</sup> Year)*

*Total Credit: 5*

5<sup>th</sup> Year: 1<sup>st</sup> Semester (Merge with Regular MBA  
(second-year 3<sup>rd</sup> semester) Students)

SN	Course	Credit	Hours
1	<b>Advanced Business Analytics(Analytics Core)</b>	2	28
2	<b>Big Data and Cloud Computing for Managers (Analytics Core)</b>	2	28
3	<b>Marketing Analytics (Management Core)</b>	2	28
4	<b>Supply Chain Analytics (Management Core)</b>	2	28
5	<b>Financial Analytics</b>	2	28
6	<b>HR Analytics (Management Core)</b>	2	28
7	<b>Social Media Analytics (Analytics Core)</b>	2	28
8	<b>Capstone(Management Core)</b>	2	28
9	<b>Electives</b>	2	28
10	<b>Elective</b>	2	28
11	<b>Elective</b>	2	
12	<b>Elective</b>	2	

Out of four electives, any two electives

Total Number of Credits: 20



5<sup>th</sup> Year: 2<sup>nd</sup> Semester (Merge with Regular MBA  
second year 4<sup>th</sup> semester) Students)

SN	Course	Credit	Hours
1	<b>Predictive Analytics (Analytics Core )</b>	1	28
2	<b>Cyber &amp; Crime Analytics</b>	1	28
3	<b>Deep Learning for Managers (Analytics Core)</b>	1	28
4	<b>Project Management for Business Analytics - (Analytics Core)</b>	1	28
5	<b>Industry 4.0 ( Analytics Core)</b>	1	28
6	<b>Growth Strategies for Digital Bazar &amp; Management - (Management Core)</b>	1	28
7	<b>Managing Digital Transformation (Management Core)</b>	1	28
8	<b>Integrative Project and Dissertation</b>	1	28
9	<b>Elective</b>	1	28
10	<b>Elective</b>	1	28
11	<b>Elective</b>	1	28
12	<b>Elective</b>	1	28

Out of four electives, any two electives

Total Number of Credits: 20

## Elective Baskets

<b>HR</b>	<b>Finance</b>	<b>Operations&amp; Supply Chain</b>	<b>Marketing &amp; Strategy</b>	<b>IT &amp; Digital Tranformation</b>
Legal Aspects of Business	Mergers and Acquisitions	Service Operation Management	Consumer Behaviour	Health Care Analytics
Recruitment & Selection: Analytical Prospective	Corporate Finance	Operations Strategy	Sales and Distribution Management	IT Strategy Management
Strategies and Skills for Successful Negotiation	Investment Analysis & Portfolio Management	Business Games & Decision Analysis	Digital Marketing & Innovation	Business Application of Blockchain
Management Lessons from Ramayan and Geeta	Management of Financial Institutions & Services	International Logistics Management	Pricing Strategy & Rural Marketing	Emerging Trends in Business
Performance and Compensation Management	Financial Modeling	Green Business Management	International Business & Strategy for Analytics	System Thinking and Business Dynamics
Personal Values, Goals and Career Options	Advanced Business Analytics for Finance	Circular Economy and Green Supply chain management	Neuromarketing and Consumer Neuroscience	Cyber Management
Making and Transformation of a CEO	Quantitative Applications in Finance	Advanced Mathematical Modeling for Managerial Decisions	International Business Strategy	AI in Management
Business and Society	Futures Options & Risk Management	supply Chain Thinking: Value Creation and Adaptation	International Marketing and Analytics	IT Consultancy Management
Personal Competencies for International HRM	International Finance	QUALITY MANAGEMENT AND SIX SIGMA	Entrepreneur & Knowledge Management	Gamification for Managers

[illegible]

## Sardar Vallabhbhai National Institute of Technology, Surat



Proposal  
of  
Master of Business Administration  
(Business Analytics)

Duration: 2 years (including an eight week internship)  
(Including implementation of NEP in the proposed structure  
of programme)

Department of Management Studies (DOMS)\*

*\*vide resolution no. 5 of 55<sup>th</sup> SENATE meeting held on 20/09/22 and 61st  
BOG meeting held on 27.09.2022*

## Index

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## 1. About the Department

Just now, Management section is the part of Department of Mathematics and Humanities. The Department of Mathematics & Humanities has been serving with distinction the needs of training young students for undertaking advanced teaching in institutes of technology and research in organizations involved in scientific work at national and international levels. The alumni of this department occupied high positions in teaching and research spread over India and abroad.

As per the resolution of the **55th Senate meeting held on 20.09.2022** and **61st BOG meeting held on 27.09.2022**, the **Department of Mathematics and Humanities will be demerged in to three departments:** Department of Mathematics, Department of Humanities & Social Sciences, and Department of Management Studies.

The Management section has existing following faculty members:

Management			Total
Professor	Associate Professor	Assistant Professor	
NIL	01	01	02

The number of faculty members having extensive expertise in the various fields is as under:

Expertise fields	Specialization	No. of faculty
Management	Techno innovation to Techno entrepreneurship through Techno Business incubation, Marketing Entrepreneurship Strategy, Supply Chain Management (SCM), General Management, Time Series Analysis, Econometrics, Quantitative Analysis, Stock Market, Portfolio Management, Financial Management	02

At present, the Management section of the department has been offering:

- Ph.D. programme in Management
- Various courses at B.Tech. and M.Sc. level related to Economics and Business Management, Innovation Incubation and Entrepreneurship, Marketing Management and Personnel Management

## 2. About the programme

As per the resolution of the 55th Senate meeting held on 20.09.2022 and 61st BOG meeting held on 27.09.2022, the Department of Mathematics and Humanities will be demerged in to three departments: Department of Mathematics, Department of Humanities & Social Sciences, and Department of Management Studies.

It is planned that the Department of Management Studies will offer a two / five years MBA program / Integrated MBA Program. As per the resolution, detailed proposal and action plan,

course curriculum, number of students, faculty requirements and infrastructure /space / fund requirement be placed after recommendation from Senate & Finance Committee of the Institute.

Hence, with reference to above, the following task force committee was constituted for the MBA program at SVNIT, Surat:

- (1) Prof. Ravi Shankar, Professor, Department of Management Studies, IIT Delhi – Chairman
- (2) Prof. Shailesh Gandhi, Former Dean – Programs and Chair – PGP, IIM Ahmedabad
- (3) Prof. Omkarprasad S Vaidya, Professor, IIM Lucknow
- (4) Dr. Praveen Ranjan Srivastava, Associate Professor, IIM, Rohtak
- (5) Dr.Hemantkumar P. Bulsara, Associate Professor of Management, DOMH, SVNIT, Surat
- (6) Dr. Ravi Kant, Associate Professor, DME, SVNIT, Surat
- (7) Dr.Dilip A. Patel, Associate Professor, DCE, SVNIT, Surat
- (8) Dr. Vaishali S. Dhingra, Assistant Professor of Management, DOMH, SVNIT, Surat

Three online meetings of the committee were conducted and committee has proposed the program structure.

## **Programme Structure**

MBA in Business Analytics & Digital Transformation program is divided into four semesters; first year (2 semesters) and Second year (2 semesters).

The first-year coursework comprises core courses that explain the fundamental concepts of management and analytics across functional areas. All the courses in the first year are mandatory. The first-year coursework is followed by a summer internship during which students are required to work on an industry project with an organization for 8 weeks.

The second-year coursework comprises mandatory analytics, management, dissertation, and elective courses.

The dissertation component is in the last Semester, along with the other courses. A dissertation intended to help students find their areas of interest and apply their knowledge in defining and solving a real industry /research problem.

## **Programme Objectives**

The objective of an MBA in Business Analytics & Digital Transformation program is to equip students with a deep understanding of how technology and data can be used to drive business success. The program aims to develop a strong foundation in business and management concepts while providing students with the skills to analyze complex data and make data-driven decisions. The program aims to help students develop the following:

Analytical and problem-solving skills: Students will learn to collect, analyse, and interpret data to identify problems and develop solutions to improve business performance.



Technical proficiency: Students will learn about various analytics tools and technologies, such as machine learning, data mining, and predictive modelling, and how to apply them to real-world business problems.

Digital Transformation: Students will be trained to develop and implement digital strategies for businesses that integrate digital technologies into all business operations.

Leadership and communication skills: Students will learn to effectively communicate data-driven insights and recommendations to senior management and other stakeholders to drive organizational change.

Global business perspective: Students will gain a global perspective on business analytics and digital transformation and be prepared to work in a global business environment.

In addition, the program aims to develop student's leadership skills and ability to communicate complex data and insights to different stakeholders effectively. By the end of the program, students should be able to lead digital transformation initiatives, make data-driven decisions, and effectively manage teams in a rapidly evolving digital landscape.

Overall, the program aims to prepare students to be business analytics and digital transformation leaders and make strategic decisions that drive organizational success.

## Admission Criteria

Graduation in any field with 60 % (6.5 CGPA) (55 % for SC/ST (6.0 CGPA)) and following criteria:

SN	Name of the Criteria	Weightage
1.	CAT / GMAT / GRE / XAT / CMAT / SVNIT's own test	45%
2.	Personal Interview*	30%
3.	Academic**	10%
4.	Gender Diversity***	05%
5.	Experience****	10%
Total		100%

\*Personal Interview consists of 5 parameters (Academic Knowledge, Communication, Leadership Skills, Socio Awareness & Attitude)

(Details sheet will develop once criteria approved by the committee)

\*\*(Graduation (5%), Class 12 (3%), Class 10 (2%))

\*\*\* (Gender Diversity)

Criteria	Male	Female
Engineer	0%(Weightage) Note: if from a national institute, then 10% maybe	05%(Weightage)
Non-Engineer	05%(Weightage)	05%(Weightage)

## **Experience\*\*\*\***

If the candidate has worked >12 months, then 10 % Weightage

If >6 Months, then 06 % Weightage

If >1 and <6, then 04% Weightage

Else zero % Weightage

**Intake: 60 (can be increased to 120 in future)**

## **Timeline**

1	Registration (July)
2.	Orientation (August first week) for five days
3.	Semester 1 <sup>st</sup> (August-December)
4.	Semester 2 <sup>nd</sup> (January –May)
4	June –July (Internship)
5.	Registration Second year and Orientation (August first week)
6.	Semester 3 <sup>rd</sup> (August-December)
7.	Placement week (November 1 <sup>st</sup> week)
8.	Semester 4 <sup>th</sup> (January –May)
9.	Convocation

### 3. Programme Curriculum Structure

L: Lecture hours; T: Tutorial hours; P: Laboratory/ Practical hours; C: Credits

Year	Course	Code	Schemes	Credits	Notional hours	Evaluation Scheme				Exit-Equivalence for awarding a degree	Entry-Requirement
						Th.	Tu.	P	Total		
1 <sup>st</sup> SEM	Business Statistics and Business Research Methods (Analytics Core)	MB 101	2-0-0	2	28	100	00	00	100	--	Graduation in any field with 60 % (6.5 CGPA) (55 % for SC/ST (6.0 CGPA)) and must have cleared CAT / GMAT / GRE / XAT / CMAT / SVNIT's own test.
	Marketing Management (Management Core)	MB XXX	2-0-0	2	28	100	00	00	100		
	Operations Management (Management Core)	MB XXX	2-0-0	2	28	100	00	00	100		
	Managerial Economics (Management Core)	MB XXX	2-0-0	2	28	100	00	00	100		
	Accounting and Financial Management (Management Core)	MB XXX	2-0-0	2	28	100	00	00	100		
	Organizational Behaviour and Human Resource Management (Management Core)	MB XXX	2-0-0	2	28	100	00	00	100		
	Business Computing (Analytics Core)	MB XXX	2-0-0	2	28	100	00	00	100		
	Descriptive Analytics and Data visualization	MB XXX	2-0-0	2	28	100	00	00	100		
	Foundation of Business Analytics and Digital	MB 114	2-0-0	2	28	100	00	00	100		

	Transformation										
	Business Communication	MB XXX	2-0-0	2	28	100	00	00	100		
		<b>TOTAL</b>		<b>20</b>	<b>280</b>						
2 <sup>nd</sup> SEM	Decision Support System	MB XXX	2-0-0	2	28	100	00	00	100		
	Business Considerations for Edge Computing &Transformation (Analytics Core)	MB XXX	2-0-0	2	28	100	00	00	100		
	Econometrics (Management Core)	MB XXX	2-0-0	2	28	100	00	00	100		
	Strategic Management for leadership & People Analytics (Management Core)	MB XXX	2-0-0	2	28	100	00	00	100		
	Business Analytics (Analytics Core)	MB XXX	2-0-0	2	28	100	00	00	100		
	Perspective Analytics & Optimization (Management Core)	MBXXX	2-0-0	2	28	100	00	00	100		
	Data Analytics (Analytic Core)	MBXXX	2-0-0	2	28	100	00	00	100		
	System Analysis and Design(Analytics Core)	MB XXX	2-0-0	2	28	100	00	00	100		
	Fintech (Management Core)	MB XXX	2-0-0	2	28	100	00	00	100		
	Project on Descriptive Analytics (Placement point of view)	MB XXX	2-0-0	2	28	100	00	00	100		
		<b>TOTAL</b>		<b>20</b>	<b>280</b>						

8 WEEK  INTER NSHIP				5	70						
										<b>PG Diploma in Management and Business Analytics</b>	
3 <sup>rd</sup> SEM	Advanced Business Analytics (Analytics Core)	MB XXX	2-0-0	2	28	100	00	00	100	--	<p>1. Graduation in any field with 60 % (6.5 CGPA) (55 % for SC/ST (6.0 CGPA)) and must have cleared CAT / GMAT / GRE / XAT / CMAT / SVNIT's own test.</p> <p>2. Candidate must have acquired 50% marks in the courses equivalent to the mandatory courses (Business Statistics and Business Research Methods, Marketing Management, Managerial Economics, Operations Management,</p>
	Big Data and Cloud Computing (Analytics Core)	MB XXX	2-0-0	2	28	100	00	00	100		
	Marketing Analytics	MB XXX	2-0-0	2	28	100	00	00	100		
	Supply Chain Analytics	MB XXX	2-0-0	2	28	100	00	00	100		
	Financial Analytics	MB XXX	2-0-0	2	28	100	00	00	100		
	Human Resource (HR) Analytics (Management Core)	MB XXX	2-0-0	2	28	100	00	00	100		
	Social Media Analytics (Analytics Core)	MB XXX	2-0-0	2	28	100	00	00	100		
	Capstone (Management Core)	MB XXX	2-0-0	2	28	100	00	00	100		
	Elective	MB XXX	2-0-0	2	28	100	00	00	100		
	Elective	MB XXX	2-0-0	2	28	100	00	00	100		
	<b>TOTAL</b>			<b>20</b>	<b>280</b>						

											Accounting and financial management, Organizational Behaviour and Human Resource Management, Business Computing, Descriptive Analytics and Data visualization, Foundation of Business Analytics and Digital Transformation, Business Communication, Decision support system, Business Considerations for Edge Computing & Transformation, Econometrics, Strategic Management for leadership & People Analytics, Business Analytics, Perspective Analytics & Optimization, Data Analytics, System Analysis and Design, Fintech, Project on Descriptive Analytics) and PG Diploma in Management and
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											Business Analytics
											<p>3. Candidate should clear the screening test with 50 % along with above mentioned courses as given in the criteria 2.</p> <p>4. Candidate must clear personal interview for final selection</p>
4 <sup>th</sup> SEM	Predictive Analytics (Analytics Core)	MB XXX	2-0-0	2	28	100	00	00	100		--
	Cyber and Crime Analytics	MB XXX	2-0-0	2	28	100	00	00	100		
	Deep Learning for Managers (Analytics Core)	MB XXX	2-0-0	2	28	100	00	00	100		
	Project Management for Business Analytics (Analytics Core)	MB XXX	2-0-0	2	28	100	00	00	100		
	Industry 4.0 (Analytics Core)	MB XXX	2-0-0	2	28	100	00	00	100		
	Growth Strategies for Digital Bazar and Management	MB XXX	2-0-0	2	28	100	00	00	100		



	(Management Core)										
	Managing Digital Transformation (Management Core)	MB XXX	2-0-0	2	28	100	00	00	100		
	Integrative Project and Dissertation	MB XXX	2-0-0	2	28	100	00	00	100		
	Elective	MB XXX	2-0-0	2	28	100	00	00	100		
	Elective	MB XXX	2-0-0	2	28	100	00	00	100		
		<b>TOTAL</b>		<b>20</b>	<b>280</b>						
		<b>Total of program</b>		<b>85</b>	<b>1190</b>						
										MBA in Business Analytics and Digital Transformation Degree	

## Pool of the subject:

○ Core Subjects Discipline-wise (Management)	○ Core Subjects Discipline-wise (Analytics)
Marketing Management Operations Management Managerial Economics Accounting and Financial Management Organizational Behaviour and HRM Descriptive Analytics and Data visualization Foundation of Business Analytics and Digital Transformation Business Communication Decision Support System Econometrics Strategic Management for leadership & People Perspective Analytics & Optimization Fintech Marketing Analytics Supply Chain Analytics Financial Analytics HR Analytics Cyber and Crime Analytics Growth Strategies for Digital Bazar and Management Managing Digital Transformation Integrative Project and Dissertation Capstone	Business Statistics and Business Research Methods Business Computing Business Considerations for Edge Computing & Transformation Business Analytics Data Analytics System Analysis and Design Project on Descriptive Analytics Advanced Business Analytics Big Data and Cloud Computing Social Media Analytics Predictive Analytics Deep Learning for Managers Project Management for Business Analytics Industry 4.0

## Elective Specialisation Courses

<b>HR</b>	<b>Finance</b>	<b>Operations &amp; Supply Chain</b>	<b>Marketing &amp; Strategy</b>	<b>IT &amp; Digital Transformation</b>
Legal Aspects of Business	Mergers and Acquisitions	Service Operation Management	Consumer Behaviour	Health Care Analytics
Recruitment & Selection: Analytical Prospective	Corporate Finance	Operations Strategy	Sales and Distribution Management	IT Strategy Management
Strategies and Skills for Successful Negotiation	Investment Analysis & Portfolio Management	Business Games & Decision Analysis	Digital Marketing & Innovation	Business Application of Blockchain
Management Lessons from Ramayan and Geeta	Management of Financial Institutions & Services	International Logistics Management	Pricing Strategy & Rural Marketing	Emerging Trends in Business
Performance and Compensation Management	Financial Modeling	Green Business Management	International Business & Strategy for Analytics	System Thinking and Business Dynamics
Personal Values, Goals and Career Options	Advanced Business Analytics for	Circular Economy and Green Supply chain management	Neuromarketing and Consumer Neuroscience	Cyber Management

	Finance			
Making and Transformation of a CEO	Quantitative Applications in Finance	Advanced Mathematical Modeling for Managerial Decisions	International Business Strategy	AI in Management
Business and Society	Futures Options & Risk Management	supply Chain Thinking: Value Creation and Adaptation	International Marketing and Analytics	IT Consultancy Management
Personal Competencies for International HRM	International Finance	QUALITY MANAGEMENT AND SIX SIGMA	Innovation and Entrepreneurship	Gamification for Managers
Leadership: Vision, Meaning and Reality	Current Economic Scenario; Indian Economy and Policy Matters for Business	Health Care Operations Management	Advertising and Sales Promotion Management	Managing Digital Transformation: Strategies, Leadership and Technology
Strategic Planning and Human Resource Management	Strategic Perspectives in Banking	Sustainable Supply Chain Management	Managing Luxury Business	Open AI: Innovation Management
		Safety Management	Advanced Marketing Research	

*Post Graduate Programme*

*M. Tech.*

*Power Electronics & Electrical Drives*

*Proposed Curriculum*



सरदार वल्लभभाई राष्ट्रीय प्रौद्योगिकी संस्थान, सूरत  
SARDAR VALLBHBHAI NATIONAL INSTITUTE OF TECHNOLOGY, SURAT  
विधुत इंजीनियरिंग विभाग  
DEPARTMENT OF ELECTRICAL ENGINEERING

**Teaching Scheme of M. Tech. (Power Electronics and Electrical Drives)**

**Semester – I**

Sl. No.	Subject	Code	Scheme	Credit
1.	Power Electronics- I	EEPE101	4-0-2	05
2.	Modeling of Electrical Machines and DC Drives	EEPE102	4-0-2	05
3.	Adaptive Control and Soft Computing	EEPE103	3-0-0	03
4.	Solar and Wind Energy Conversion and Control	EEPE104	3-0-2	04
5.	Core Elective – 1	EEPE1XX	3-0-0	03
6.	Core Elective – 2	EEPE1XX	3-0-0	03
7.	Real Time Simulation of Power Electronic Circuits	EEPE105	0-0-2	01
<b>Total Credit</b>				<b>24</b>

**Semester – II**

Sl. No.	Subject	Code	scheme	Credit
1.	Power Electronics- II	EEPE201	4-0-2	05
2.	AC Drives	EEPE202	4-0-2	05
3.	Digital Control of Power Converters	EEPE203	3-0-2	04
4.	Core Elective – 3	EEPE2XX	3-0-0	03
5.	Core Elective – 4	EEPE2XX	3-0-0	03
6.	Institute Elective - 1	EEPE2XX	3-0-0	03
7.	Real Time Simulation of Power Electronic Converter Applications	EEPE204	0-0-2	01
<b>Total Credit</b>				<b>24</b>

**Semester – III**

Sl. No.	Subject	Code	scheme	Credit
1.	Seminar	EEPE301	0-0-4	02
2.	Dissertation (Part-I)	EEPE302	0-0-12	06
<b>Total Credit</b>				<b>8</b>

**Semester – IV**

Sl. No.	Subject	Code	scheme	Credit
1.	Dissertation (Part-II)	EEPE401	0-0-24	12
<b>Total Credit</b>				<b>12</b>
<b>Grand Total Credit</b>				<b>68</b>

*Handwritten signature*  
19/12/22

### **List of Elective Courses Offered**

<b>Core Elective – 1 (EEPE1XX)</b>		
S. No.	Code	Subject
(1)	EEPE111	Power Quality Disturbance and its Mitigation
(2)	EEPE112	High Power Converter Topologies and Control
(3)	EEPE113	Digital Signal Processing
(4)	EEPE114	Microcontroller-Based System Design
(5)	EEPE115	Physical Phenomena of Electrical Machines
<b>Core Elective – 2 (EEPE1XX)</b>		
S. No.	Code	Subject
(1)	EEPE121	Advanced Numerical Methods and Applications
(2)	EEPE122	System Theory
(3)	EEPE123	Control Techniques In Switch-Mode Power Converters
(4)	EEPE124	Design of Magnetic Components for Power Converters
(5)	EEPE125	Electric Vehicle Technology
<b>Core Elective – 3 (EEPE2XX)</b>		
S. No.	Code	Subject
(1)	EEPE211	Charging Infrastructure for Electric Vehicles
(2)	EEPE212	Special Electrical Machines and Drives
(3)	EEPE213	Advanced Power Converters for Renewable Applications
(4)	EEPE214	Distributed Power Generation and Micro-grid
(5)	EEPE215	HVDC Transmission
(6)	EEPE216	Condition Monitoring & Fault Diagnosis of Electrical Machines
<b>Core Elective – 4 (EEPE2E2XX)</b>		
S. No.	Code	Subject
(1)	EEPE221	Advanced Energy Storage Devices and Applications
(2)	EEPE222	Instrumentation for Drives
(3)	EEPE223	Application of Power Electronics to Power System
(4)	EEPE224	Model Predictive Control for Power Electronics Applications
(5)	EEPE225	Electrical Machines For Renewable Energy Generation
<b>Institute Elective – 1 (EEPE2IEXX)</b>		
S. No.	Code	Subject
(1)	EEPE231	Artificial Intelligence and Machine Learning
(2)	EEPE232	Modern Industrial Drives and Automation
(3)	EEPE233	Advanced Optimization Methods
(4)	EEPE234	Smart Grid Technology

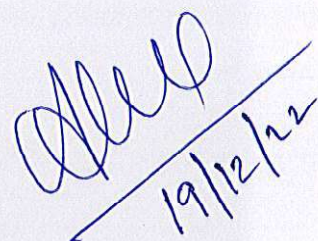


**M. Tech. (Power System)****Teaching Scheme of M. Tech.-I (Semester I & II)****SEMESTER – I**

Sr. No.	Subject	Code	Scheme	Credit
1	Computer Aided Power System Analysis	ELPS101	3-0-2	04
2	Power System Protection	ELPS102	3-0-2	04
3	Power Electronics	ELPS103	3-0-2	04
4	Restructuring in Power Systems	ELPS104	3-0-0	03
5	Core Elective-1	ELPS1XX	3-0-0	03
6	Core Elective-2	ELPS1XX	3-0-0	03
		<b>Total</b>	<b>18-0-6=24</b>	<b>21</b>

**Semester – II**

Sr. No.	Subject	Code	Scheme	Credit
1	Power System Dynamics and Control	ELPS201	3-0-2	04
2	High Voltage Engineering & EHV AC Transmission	ELPS202	3-0-2	04
3	Application of Power Electronics in Power Systems	ELPS203	3-0-2	04
4	Renewable Energy Sources	ELPS204	3-0-2	04
5	Core Elective-3	ELPS2XX	3-0-0	03
6	Institute Elective-4	ELPS2XX	3-0-0	03
		<b>Total</b>	<b>18-0-8=26</b>	<b>22</b>



19/12/22



**M. Tech.-II (Semester III & IV)****SEMESTER – III**

<b>Sr. No.</b>	<b>Subject</b>	<b>Code</b>	<b>Scheme</b>	<b>Credit</b>
1	Seminar	ELPS301	0-0-4	02
2	Dissertation : Part I	ELPS302	0-0-16	08
		<b>Total</b>	<b>0-0-20</b>	<b>10</b>

**SEMESTER – IV**

<b>Sr. No.</b>	<b>Subject</b>	<b>Code</b>	<b>Scheme</b>	<b>Credit</b>
1	Dissertation : Part II	ELPS401	0-0-24	12
		<b>Total</b>	<b>0-0-24=24</b>	<b>12</b>

**(Total Credits: 65)****Electives****Core Elective-1**

<b>Sr. No.</b>	<b>Subject</b>	<b>Code</b>	<b>Scheme</b>	<b>Credit</b>
1	Digital Signal Processing	ELPS110	3-0-0	03
2	Energy Audit	ELPS111	3-0-0	03
3	Distributed Generation	ELPS112	3-0-0	03
4	Power Quality	ELPS113	3-0-0	03
5	Microcontroller Based System Design	ELPS114	3-0-0	03

**Core Elective-2**

Sr. No.	Subject	Code	Scheme	Credit
1	Operation and Analysis of Distribution System	ELPS120	3-0-0	03
2	Power System Transients	ELPS121	3-0-0	03
3	Forecasting and Planning Methods	ELPS122	3-0-0	03
4	Electrical Machines for Renewable Energy Generation	ELPS123	3-0-0	03
5	System Theory	ELPS124	3-0-0	03

**Core Elective-3**

Sr. No.	Subject	Code	Scheme	Credit
1	HVDC Transmission	ELPS210	3-0-0	03
2	Insulation Engineering	ELPS211	3-0-0	03
3	Electric Vehicle Technology	ELPS212	3-0-0	03
4	Cryptography and Cyber Security	ELPS213	3-0-0	03
5	Advance Power Converters for Renewable Energy Applications	ELPS214	3-0-0	03

**Institute Elective-4**

Sr. No.	Subject	Code	Scheme	Credit
1	Advanced Optimization Methods	ELPS220	3-0-0	03
2	Advanced Numerical Methods	ELPS221	3-0-0	03
3	Artificial Intelligence and Machine Learning	ELPS222	3-0-0	03
4	Reliability Evaluation of Electrical Systems	ELPS223	3-0-0	03
5	Energy Storage and Management	ELPS224	3-0-0	03

*Practical will be in line with the theory topics.*

### PSOs for B. Tech. in Electrical Engineering

At the end of the program, students will have the ability to:

1.	Develop models, analyze and assess the performance of different types of generation, transmission, distribution and protection mechanisms in power systems
2.	Design, develop, analyze and test electrical systems; deploy control strategies for various applications.
3.	Measure, analyze, model and control the behavior of electrical quantities associated with constituents of energy or allied systems.

3/3

Cmy  
25/11/22

25/11/22



## **Joint Doctoral Degree Program**

Between

**Indian Institute of Technology Mandi**

and

**Sardar Vallabhbhai National Institute of  
Technology, Surat (SVNIT)**

**AGREEMENT FOR JOINT DEGREE PROGRAM:  
DOCTOR OF PHILOSOPHY**

**Between**

**Sardar Vallabhbhai National Institute of  
Technology, Surat (SVNIT)**

**and**

**INDIAN INSTITUTE OF TECHNOLOGY MANDI**

**AGREEMENT FOR JOINT DEGREE PROGRAM: Doctor of Philosophy**

**THIS AGREEMENT is made on DD/MM/YY (Effective Date)**

**BETWEEN:**

**1. SVNIT, Surat**, an educational institution created by an Act of Parliament and having its principal address at **Surat**.

**And**

**2. INDIAN INSTITUTE OF TECHNOLOGY MANDI**, an educational institution created by an Act of Parliament and having its principal address at The Indian Institute of Technology Mandi, Kamand, Himachal Pradesh, 781075, India ("IIT Mandi").

The expression Institution shall mean either IIT Mandi or SVNIT, Surat **Party** means a party to this Agreement and **Parties** means both parties to this Agreement.

**WHEREAS:**

1. On **DD/MM/YY** the Parties entered into this Agreement to develop academic and student exchange through a Joint Degree Program (JDP) of Doctor of Philosophy (PhD) whereby students who successfully complete the JDP will be awarded a joint degree for the one thesis with the testamurs/certificates from each Institution clearly indicating the joint nature of the degrees as outlined in Clause 13.
2. By entering into this Agreement, the Parties agree to offer Joint Degree Programs at PhD level in all areas of research in accordance with the terms and conditions set out in this Agreement.

**ABBREVIATIONS**

ERP: External Registration Program

JDP: Joint Degree Program

PhD: Doctor of Philosophy

DC: Doctoral Advisory Committee

HoD: Head of the Department

JASC: Joint Admissions Sub-committee

**NOW IT IS HEREBY AGREED AS FOLLOWS:**

**1. JOINT DEGREE PROGRAM STRUCTURE:**

1.1. The program offers PhD students enrolled in both institutions the chance to collaborate on a multidisciplinary research project with faculty members and research teams from IIT Mandi and SVNIT, Surat as well as to take advantage of the facilities and professional development opportunities offered by both institutions.

1.2. Candidates have a “Home Institution” where they begin their studies and spend the majority of time. The expectation is that candidates will spend a minimum of 12 months at the other, “Host” Institution; the timing and duration of this will depend on the program of research but in general will be in the second or third year of the degree. Travel to and study at the Host Institution will be subject to the usual requirements of the institute.

1.3. As a condition of enrolment on the PhD JDP, candidates are required to:

- Spend a minimum of one year\* (two semesters) enrolled at each institution
  - \*Candidates registered as part-time PhD or under External Registration program need to spend the minimum residential requirement criteria of both the institute as mentioned in their ordinances and regulations.
- Undertake a program of progress monitoring and examination that meets the requirements of both institutions
- Comply with the rules, regulations, policies, codes and procedures of both institutions



- Write and submit a thesis for defense by oral examination at the home institution

1.4. Candidates for the PhD JDP will be enrolled in a PhD program in parallel at both institutions. The supervisory team will comprise academics from both institutions who will provide guidance and support throughout the doctoral program. Candidates will benefit from the research community, networking, and collaborations of the IIT Mandi – SVNIT, Surat. Through enrolment at both institutions, candidates will have access to services and support provided at IIT Mandi and SVNIT, Surat including a variety of professional and personal development opportunities for researchers.

1.5. Candidates may have already commenced a PhD at their Home Institution prior to converting in the joint PhD program through enrolment at the Host Institution. In this case, the candidate will be counted from the start date of the original enrolment at the home institution.

1.6. The primary supervisor shall be from the Home Institution. There must be a Joint supervisor from the Host Institution.

1.7. The PhD JDP includes a tailored program of progress monitoring to fulfil the requirements of both institutions. On successful completion of the program requirements, candidates will be awarded a PhD degree jointly by both the Institutions.

## **2. PROGRAM GOVERNANCE**

2.1. The Program is governed by Deanery of Academics of both the institute. The Dean (Academics) will ensure the Program requirements of each institution are upheld and advise on candidature related matters.

2.2. The Program will be operationalized and managed on a day-to-day basis by the office of the Office of Dean, Academics at IIT Mandi and the Office of Dean, Academic Affairs at SVNIT, Surat

- IIT Mandi – Associate Dean (Research) (Email: [adresearch@iitmandi.ac.in](mailto:adresearch@iitmandi.ac.in))
- SVNIT Surat-

### **3. APPLICATION AND ADMISSIONS**

3.1. The admissions process will be managed by the IIT Mandi–SVNIT Surat Joint Admissions Sub-committee (JASC) constituted at the School/Department/Centre level and according to each Institution's admissions procedure. Candidates must meet the admissions requirements of both institutions. The eligibility criteria for enrolling in a joint PhD program will be same as that of a regular PhD program/ERP of the individual institute. The details of the same can be found in the PhD ordinance of the individual institute.

- IIT Mandi: [https://iitmandi.ac.in/academics/files/Ordinances\\_phd\\_mtech.pdf](https://iitmandi.ac.in/academics/files/Ordinances_phd_mtech.pdf)
- SVNIT Surat

3.2. JASC will release a call for PhD research projects from prospective supervisors (typically in February and August each year, for the August and January intakes, respectively).

3.3. The projects will be selected on a competitive review basis by the Dean (Academics), based on criteria such as project funding, expected outcomes, supervision capacity and expertise and industry support/involvement.

3.4. Each project on the PhD JDP will have a formal project agreement in place between the two institutions. The format for this agreement is attached as Annexure A.

3.5. The project agreement needs to be signed by the joint supervisors, endorsed by the respective School/Centre/Department Chairs/HoDs and approved by both the

institute

3.6. Successful projects will be advertised on both the institute's website to attract potential PhD candidates.

3.7. All applicants will be expected to apply through an online admissions portal. Applicants will be directed to this portal from both the Institute's academic affairs/Admissions website.

3.8. As part of the applications process, applicants may choose up to  $N$  projects (where  $N$  is normally 2 or 3). Supervisors from both IIT Mandi and SVNIT Surat will be provided access to this portal to view applications. Each project will specify the base location (IIT Mandi or SVNIT Surat) where funding is available for the project and applicants would also be able to provide their preference for the project.

3.9. Detailed applications from the selected applicants (and aligned with specific projects that have been chosen) will then be reviewed by project supervisors. Based on their own assessments, some (or all) of these applicants for each project will be interviewed by the IIT Mandi and SVNIT Surat supervisors of the project. This interview can be telephonic, *via* videoconferencing, or through a face-to-face meeting, as decided by the supervisors. Supervisors will rank candidates and provide a recommendation of a maximum of  $M$  preferences (where  $M$  is usually 2 or 3) for their projects to the JASC.

3.9. Shortlisted applicants will undergo either a written test or a joint interview or both with the JASC. Note that JASC will look at applicant project preferences and also comments from the supervisors subsequent to their conversations with the applicants.

3.10. This admissions process will be reviewed periodically on recommendations that JASC makes to Dean (Academics) for its consideration and approval.

3.11. After each selection round, JASC will submit its recommendations to the Dean

## Annexure 6.1 of 61<sup>st</sup> IAAC

(Academics) who will consider these recommendations and forward the recommendations to the Chairman (Senate) of both the institute for approval. Successful applicants will be issued an offer letter by the Host institute, which will be based on the standard offer letters from IIT Mandi or SVNIT Surat. The offer letter should include information on the JDP and the project title/area for which the candidate is recruited, as well as comply with all requirements set forth by the two institutes.

3.12. Offers will always be “conditional offers of candidature”. These conditional offers will only be confirmed subject to receipt of original certified transcripts and further documentary evidence as requested by JASC. Students will be required to accept their offer in line with deadlines noted in their offer letter. It is not possible for students to defer commencement of their program; if they are unable to commence on the date stated in their offer letter, they must decline the offer and apply in a future round.

3.13. **Lateral Entry:** For students already at IIT Mandi or SVNIT Surat, they should be enrolled for at least 6 months prior to registration and should include in their submission an approved NOC from IIT Mandi or SVNIT Surat respectively. These candidates do not need to face the JASC for interview. Their applications will be directly put to the Dean (Academics) for consideration and approval.

### 3. PROJECT AGREEMENTS

3.1. Both the institutes shall enter into a ‘Research Project Title agreement’ for each individual project/student. This must be completed and signed before an unconditional offer of enrolment into the joint PhD program is made to each applicant under joint supervision. These agreements should detail the financial and resource requirements and intellectual property arrangements for each research project title. This should usually be initiated by the Home Institution using the template in the joint PhD agreement (Annexure A) at the time of releasing advertisement.

3.2. A risk assessment must be undertaken for each project by the supervisory team at each institution, according to their own requirements. In case, any of the supervisor leaves the parent institution due to any reason whatsoever, it will be the responsibility of that institution to arrange the replacement of supervisor from their own faculty. The outgoing faculty member (earlier supervisor) may act co-guide to the maximum possible extent.

#### **4. FEES, SCHOLARSHIPS AND FUNDING**

4.1. The JDP Scholar shall pay tuition fees only to their Home Institution throughout the duration of the JDP including the duration of study at the Partner Institution as per its fee structure.

4.2. Unless otherwise indicated, candidates who wish to be admitted onto the PhD JDP are entitled to receive fellowship meeting the eligibility criteria. The cost of fellowship will be borne by the Home Institute even during the candidate's stay in the Host Institute. No tuition fee will be charged by the host institution. However, the student needs to bear the boarding and lodging charges. Scholarships are awarded based on merit, and the value and conditions of any scholarship awarded will be in accordance with the terms and conditions of the awarding institution.

4.3. Applicants for the PhD JDP may hold any scholarship normally awarded by either institution, subject to the terms and conditions of that scholarship. The number of scholarships available each year and their eligibility may vary.

4.4. In accordance with the Memorandum of Understanding (MoU), both institutions agreed to support up to 15 PhD Joint Degree Program (JDP) scholarships from each university (2023-24). Each academic year's figures could be different. These scholarships are in addition to each institution's regular scholarship cycles and will not count toward a PhD students' specific faculty cap.

4.5. Regardless of the scholarship awarded, students on the joint PhD program will be personally responsible for the following expenses unless otherwise advised:

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- Incidental fees and charges at either institution
- Accommodation and living expenses at either institution
- All personal expenses and non-compulsory additional fees at the host institution
- All debts incurred by candidates during their stay at either institution
- Any other debts incurred by candidates during the Joint PhD Program

### 5. PROGRAM MANAGEMENT

5.1. A Doctoral Advisory Committee (DC) shall be set up for each JDP Scholar to support and monitor progress of the JDP Scholar throughout the candidature until the thesis has been submitted. The DC shall consist of the following members

1. Chair/Head of the School/Department of the Home Institute or his/her nominee	Chairperson
1. Supervisor from the Home institute	Member
2. Supervisor from the Host institute	Member
3. Co-supervisor (s), if any with justification	Member (s)
4. Subject Expert from the Home Institution	Member
5. Additional members may be appointed to meet the requirements	Members

5.2. In case any DC member goes on leave exceeding one-year duration, or resigns or retires from the respective Institution, the respective School/Department/Centre Chair/HoD shall nominate another member following their respective procedures.

5.3. The DC shall meet once a year through video conferencing/ electronic communication. Beyond four years from the time of registration in the program, the DC shall meet every six months until the JDP Scholar's thesis has been submitted in accordance with the rules and regulations of both the Institutions.

### 6. COURSEWORK REQUIREMENTS

The JDP Scholar shall satisfy the minimum academic coursework requirements of the Home Institution. Additional courses may be taken when recommended by the DC. If a JDP scholar credits a course in one institution, the credits will be automatically transferred to the other institution and will be counted towards the degree requirement.

## **7. COMPREHENSIVE EXAMINATION AND CONFIRMATION OF PHD CANDIDATURE**

The JDP Scholar shall be required to meet the confirmation requirements at the end of the first year of the probationary PhD period (where applicable), and in addition, qualify the comprehensive examination satisfactorily to continue with the JDP. Otherwise, they shall no longer be eligible to participate in the JDP. The comprehensive examination will be as per the prevailing guidelines of the Home Institution.

## **8. PROGRESS MEETING / SYNOPSIS / THESIS**

8.1. JDP Scholars shall normally follow the regulations stipulated by the Home Institution for monitoring their progress. However, submission of synopsis and submission and evaluation of the thesis shall be in line with the requirements of the home Institutions.

8.2. JDP Scholar shall present at least two open seminars in the Home as well as Host Institution. A joint seminar (*via* video conferencing) will also be acceptable.

## **9. TIME DURATION**

9.1. The JDP regular scholar shall spend a minimum of one year at the Host Institution working under the supervision of the joint-supervisor(s). They may take additional courses at the Host Institution as recommended by the DC. The JDP part-



## **Annexure 6.1 of 61<sup>st</sup> IAAC**

time/ERP scholar must fulfil home institution guidelines for ERP student at individual institute. Candidates registered as part-time PhD or under External Registration program need to spend the minimum residential requirement criteria of both the institute as mentioned in their respective ordinances and regulations.

9.2. As far as possible, the minimum and maximum (if applicable) duration of the program will be governed by the rules of both Institutions. In the event of an inconsistency in the durations, the longer duration will apply.

9.3. The JDP Scholar shall be entitled to the leave benefits (if any) that relate to the Institution at which the JDP Scholar is physically located when the leave is requested.

9.4. The JDP scholar is expected to complete their thesis within a maximum duration as prescribed in the ordinance and regulations of the home institute from the date of registration.

### **10. Ethics approval**

All candidates must gain all necessary human, animal and biosafety ethics approvals from both institutions. If either institution does not have the necessary approvals processes, the other institution's approvals process will be used. Candidates will also need to be appropriately inducted in terms of Occupational Health and Safety and any other requirements necessary.

### **11. WITHDRAWAL AND TERMINATION OF CANDIDATURE**

The prevailing regulation for withdrawal including cancellation and termination (for any approved reason, including unsatisfactory progress) of candidature at the JDP Scholars Home Institution shall normally apply in consultation with the Partner Institution. The Home Institution shall notify the Host Institution if the Home Institution intends to terminate the candidature under its policies or if the JDP Scholar has advised the Home Institution of their intention to withdraw from the JDP. In any

event, the DC shall advise the JDP Scholar on an appropriate course of action to take, which would be in the best interest of the JDP Scholar.

## **12. THESIS REVIEW REPORTS & VIVA VOCE EXAMINATION**

12.1. Evaluation of thesis by external examiners and conducting of the final *viva-voice* examination shall, in general, follow the processes and procedures of the Home Institution.

12.2. The language of the thesis and the *viva voce* examination shall be English.

## **13. AWARD OF DEGREE**

Two separate degree certificates shall be awarded for the one-degree by the respective Institutions in line with their respective protocols/styles. The wording in both degree certificates must indicate unambiguously that the degree is being awarded jointly with the Partner Institution (by name) for the same thesis. Sample certificates are attached as Annexure B to this Agreement/document.

## **14. INTELLECTUAL PROPERTY, INVENTIONS AND INNOVATIONS**

14.1. All intellectual property held by a Party prior to, or outside of, entering into this Agreement that is disclosed or introduced in connection with this Agreement and all materials in which such intellectual property is held, disclosed or introduced ("background intellectual property") shall remain the property of the Party introducing or disclosing it. However, that Party grants the JDP Scholar and/or the other Party a licence to use such intellectual property for any purpose associated with the JDP.

14.2. All rights, titles and interests in any studies, reports or materials, graphic or otherwise, prepared by the Home Institution or by the Partner Institution respectively, that is not background intellectual property or intellectual property

created under clause 14.3, will belong to that Institution and may not be made use of except with that Institution's prior written consent.

14.3. Where the Institutions jointly develop intellectual property, inventions and innovations as a result of the research work of the JDP Scholar working under the supervision of the joint supervisors the terms with respect to title and exploitation of such intellectual property, inventions and innovations (including but not limited to trademarks and service marks, copyright, patents, know-how designs and confidential information on the subject of such intellectual property, inventions and innovations) will be negotiated on a case-by-case basis having due regard for each Institutions policies and governance requirements and the terms and conditions imposed by any individual funding agencies or grant-making organizations. The Parties preference for such case-by- case agreements will be that the intellectual property rights created in the course of the JDP will vest in each Institution in equal shares and that each Party may use such jointly-owned intellectual property for internal, non-commercial research and educational purposes. Save as aforesaid, nothing in this agreement shall be construed as a license or transfer or an obligation to enter into any further agreement with respect to intellectual property currently licensed to or belonging to either Institute.

14.3. Nothing in this Agreement will inhibit the right of a JDP Scholar to have their thesis examined and a copy of their thesis lodged in the library of each Institution (including a digital copy).

14.4. Notwithstanding anything to the contrary in clause 14.3, each JDP Scholar shall own the copyright in his/her thesis.

14.5. The provisions of this clause 14 will survive beyond the termination of this Agreement

## **15. CONFIDENTIALITY**

15.1. When receiving confidential information, the receiving Party must ensure that all employees, students or agents to whom the confidential information is disclosed

are bound to keep the confidential information confidential and not to use the confidential information except for the JDP.

15.2. The obligations of confidentiality in this clause 15 do not apply to information which may be required to be disclosed by law, is in the public domain other than by breach of this Agreement or has been independently developed or obtained by the receiving Party.

15.3. Each Party agrees that personal information about JDP Scholars will be collected, managed, held, used, disclosed and transferred in accordance with the relevant privacy laws and policies applicable to that Party.

## **16. AMENDMENTS**

This Agreement may be amended and supplemented in writing at any time by the mutual consent of the Parties in writing.

## **17. TERM OF AGREEMENT**

17.1. This Agreement shall commence on the Effective Date and shall remain in force for a period of five (5) years. Thereafter, it shall renew itself automatically for successive periods of five (5) years unless either Party gives the other Party not less than six (6) months' notice in writing of its desire to terminate this Agreement, at any time during the initial or the relevant extended period.

17.2. Both Parties agree that in the event this Agreement is terminated for any reason, the Parties shall use their best endeavors to allow all JDP Scholars already enrolled in the JDP who are eligible to complete their candidature, to continue and complete the requirements for the JDP in which they are enrolled, and to be awarded the joint degree upon successful completion of the JDP. If it is not possible for a JDP Scholar to satisfy the requirements of and complete the JDP, the Parties shall endeavor to allow that JDP Scholar, at their election, to complete the

requirements for a single PhD degree at the Home Institution subject to the requirements of the relevant Institution. The Parties agree that such a JDP Scholar shall be given credit for all relevant units previously undertaken by the JDP Scholar at the other Institution as part of the JDP in accordance with the policies and protocols of the Institution where the JDP Scholar will complete the requirements of their PhD.

17.3. If the Agreement is terminated and if the JDP Scholar continues their candidature either on a Joint degree basis or as a single PhD degree at one or other of the institutions, the Parties agree that the JDP Scholar shall continue to have access to the background intellectual property as described in clause 14.1 and confidential information to the extent *necessary for* the student to complete the JDP or a PhD at either Institution.

## **18. DISPUTE RESOLUTION**

Any dispute arising under or in connection with this Agreement which cannot be resolved by amicable discussions between the Parties shall be referred to the Director of the respective Parties or their nominees for resolution.

***IN WITNESS WHEREOF*** the parties hereto have caused this Agreement to be duly executed on the day and year first above mentioned.

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**Annexure A: A1-**Project Agreement-IIT Mandi

**A2-** Project Agreement- SVNIT Surat

**Annexure B:** Degree certificate format from both the Parties for JDP

## **Annexure 6.1 of 61<sup>st</sup> IAAC**

Director,  
SVNIT, Surat

Director,  
Indian Institute of Technology Mandi

In presence of:

Dean (Academics)  
SVNIT Surat

Dean (Academics)  
Indian Institute of Technology Mandi

# **MEMORANDUM OF UNDERSTANDING** **(MoU)**

**BETWEEN**



**SARDAR VALLABHBHAI  
NATIONAL INSTITUTE OF TECHNOLOGY  
SURAT**

**&**



**INDIAN INSTITUTE OF TECHNOLOGY  
JAMMU**

**FOR**

**ACADEMIC, RESEARCH COLLABORATIONS &  
STUDENTS EXCHANGE PROGRAMMES**



**MEMORANDUM OF UNDERSTANDING**  
**BETWEEN**  
**SARDAR VALLABHBHAI NATIONAL INSTITUTE OF TECHNOLOGY,**  
**SURAT**  
**AND**  
**INDIAN INSTITUTE OF TECHNOLOGY, JAMMU**

This is a Memorandum of Understanding (MoU) dated 20<sup>th</sup> February, 2023

between

Sardar Vallabhbhai National Institute of Technology, Surat (SVNIT, Surat), a premier academic institution of Repute, incorporated under National Institute of Technology Act, 2007, having its permanent campus and office at **SVNIT, Ichchhanath, Dumas Road, Surat - 395007 Gujarat**

and

The Indian Institute of Technology Jammu is recognized as an “Institute of National Importance” under the “Institutes of Technology Act” of 1961. IIT Jammu is an autonomous public higher education Institute funded by the Government of India, and functions under the governance of the IIT Council. IIT Jammu was inaugurated on 6<sup>th</sup> August 2016 having its permanent campus and office at **IIT Jammu, Jagti, NH-44 , PO Nagrota, Jammu - 181 221 J&K**

Sardar Vallabhbhai National Institute of Technology, Surat (SVNIT, Surat) and Indian Institute of Technology Jammu (IIT Jammu) have agreed to the following protocols governing their collaboration on academic and research activities.

**1.Scope**

The scope of collaboration on academic and research activities in this Memorandum of Understanding includes the following categories.

- (i) Academic and Research collaboration in the areas of mutual interest. It is expected that this collaboration will in due course lead to collaborative research projects, joint supervision of PhD students, organization of joint workshops and seminars, etc.
- (ii) Exchange of students and faculty, exchange of academic information, scholarly information, materials and publications;
- (iii) Admission of SVNIT, Surat students for direct PhD /early PhD at IIT Jammu / Joint PhD/PG, subject to the existence of the policy approved by the appropriate body of the host institution. The applicable rules and regulations shall be as per a separate Memorandum of Agreement to be approved by the respective Senates of both the institutes.
- (iv) Creating a shared pool of faculty members in each basic discipline at IIT Jammu and the SVNIT Surat. Such a shared pool is aimed to allow the expertise of the faculty members at one institute to be used for teaching courses, joint research, joint project proposal submission and other academic activities at the other institute. The modalities to be followed for the purpose shall be laid out as per a separate Memorandum of Agreement to be approved by both the institutes.

## **2. Research Collaboration**

Faculty from both Institutions will collaborate in the supervision of exchange students and in joint research in discipline of mutual interest. All such joint research activities will be governed by the terms as given below:

- 2.1** Proposals for collaborative research work under this Memorandum will be submitted with the prior approval of the Head of each institution, or his/her nominee.
- 2.2** Each institution will nominate one of its members as its representative in charge of the cooperative programme. Individual programme of work under this Memorandum will be jointly planned and conducted by the nominees of both Institutes.
- 2.3** Progress of work of any individual programme will be reviewed and approved by designated authorities of both Institutes.
- 2.4** The final approval of any project will depend on the availability of guaranteed support funds.
- 2.5** Neither SVNIT, Surat nor IIT Jammu will be held responsible for any liability to the other party, and neither party shall be required to purchase any insurance against loss or damage to any property due to activities to which this agreement relates.
- 2.6** Every collaboration will have its own agreement/contract which addresses issues such as IPR, funding pattern, usage policies of research facilities, disclosure of information etc.

## **3. Students and Faculty Exchange**

Both the Institutes will encourage exchange of B.Tech, M.Tech students, and faculty according to the terms laid out here. It is desired by both the parties that there will be significant flow of students/faculty in both directions.

- 3.1** Students under the exchange programme will be classified as special exchange students. Special exchange students will be permitted to take courses on credit/audit, as well as participate in research activities/internships/project work.
- 3.2** In any case, the consent of the teacher/project supervisors/research supervisors is required. Such consent will take into account among other things whether the student has pre-requisites for the course/project.
- 3.3** Neither institution will require admission nor tuition fees of exchange students for short duration; however, they will have to pay the lodging and boarding charges. The exchange visit of students for a semester or beyond will be decided based on the terms and conditions mutually decided by both the parties.
- 3.4** Course credits and grades earned will be determined by the home institution based on the grade report from the host institution.
- 3.5** The number of students and duration of stay will be worked out on a case to case basis.
- 3.6** Participants may not spend more than one year normally in the exchange programme.
- 3.7** Participants will be subjected to the rules and regulations of the host institution and availability of the resources.
- 3.8** The faculty of SVNIT, Surat may also apply for suitable postdoc positions/any other opportunities available at IIT Jammu subject to other terms and conditions of SVNIT, Surat for relieving the faculty.

### Selection and Nomination

The selection and nomination of students is open throughout the academic year. The student nomination should be accompanied by

- (i) Curriculum vitae
- (ii) Statement of aptitude from a member of the student's school/faculty.
- (iii) A specific outline of the programme of study at the host institution and a statement of objectives of the students.

When a nomination is forwarded by the home institution, it is presumed that the sending Institution considers the students suitable for the proposed program and consents to send the students if selected by the host institution.

The host institution will evaluate the nominations and determine their suitability for selection under the student Exchange Programme.

Where the exchange student is pursuing a research or implementation project as part of the UG/PG/PhD, (or equivalent) degree programme, the host institution will provide a suitable faculty member to jointly assist (along with supervisor in the parent Institution) the exchange student in formulating research project or jointly supervising the exchange student in the event that a research project has already been identified.

The host institution will inform the home institution of any academic or other problems that may arise during the period of student's residence in the host institution. The host institution with the home institution will deal with such problems.

### 4. Direct Ph.D Admission

Providing an opportunity to the students currently pursuing Bachelor of Technology (B.Tech.) to explore the option to undertake courses in IIT Jammu and be considered for early admission to the PhD programme at IIT Jammu.

This scheme is intended to enable meritorious Sardar Vallabhbhai National Institute of Technology, Surat (SVNIT, Surat) B.Tech students to carry out part of their studies including project work at IIT Jammu and offer an opportunity for direct admission to PhD without the need to qualify GATE or any other national level examination. This will enable **"early admission" to PhD for SVNIT, Surat** B.Tech students as early as at the end of their 6<sup>th</sup> semester. It is envisaged that this scheme will also help SVNIT, Surat students to enhance their chances for qualifying for the PMRF fellowship for PhD at IIT Jammu.

- 4.1. Under this scheme, SVNIT, Surat students who have a CGPA of 7.5 at the end of their sixth semester (three years), will be eligible to apply for a project in summer and complete their fourth year (7<sup>th</sup> and 8<sup>th</sup> semesters), at IIT Jammu, and then be considered for an early admission into the PhD program at IIT Jammu, subject to maintaining an overall CGPA of 7.5 in UG degree.
- 4.2. All applications will be received through a portal set up for this purpose. They will submit their transcript, and other academic records and achievements, and documentary evidence of any research or internship experience.
- 4.3. Upon selection, through a selection committee set up for the purpose, the students will have an offer of admission to the PhD program. The students are expected to demonstrate sufficient merit in course work, project work and/or research during their 7<sup>th</sup> and 8<sup>th</sup> semesters of B.Tech to continue, to join the PhD program. If the performance of the students is not up to the mark as per the guidelines of IIT Jammu, the students will be sent back to SVNIT, Surat with the credits earned.
- 4.4. Students will actually join the PhD program only after completion of all graduation requirements at SVNIT, Surat which would be typically in the month of July. All shortlisting criteria and admission

criteria must be satisfied by the student at the time of joining as well. Requirement of GATE is waived off, since the student will enter IIT Jammu with a minimum CGPA of 7.5.

- 4.5. During the stay in IIT Jammu, the student will have the status of Visiting Student, and will enjoy all the privileges of a full-time student in IIT Jammu.
- 4.6. During the stay in IIT Jammu, the student may take courses to satisfy the credit requirements for their B.Tech registration in their parent institution (SVNIT, Surat). IIT Jammu will certify the completion of the courses and the grades obtained in them including project work done at IIT Jammu.
- 4.7. In all academic/project work undertaken in IIT Jammu, transcript will be provided with relevant credits, however, consideration of these credits and mapping to the letter grades will be up to SVNIT, Surat as per their grading system. Students may also undertake additional credits as Pre-Ph.D. courses for their PhD program, during their stay (in a regular semester) at IIT Jammu.
- 4.8. During their stay in IIT Jammu as a Visiting Student, IIT Jammu will not be charging any academic fees to the student, except fixed charges as applicable, since these students will be paying their regular academic fees in their parent institution. Being B.Tech degree students, IIT Jammu will be providing either on-campus or off-campus hostel accommodation during the one-year period. Hostel fees will be charged at regular rates.
- 4.9. Students coming under this program will not be entitled for participation in the Training & Placement process in IIT Jammu or SVNIT, Surat, once they register as full-time PhD students. This will be clearly stated in their offer of admission.

**5. Commencement, renewal, termination and amendment**

This MoU will come into force upon affixing of the signatures of the representatives of the partner institutions and will remain in effect for five (5) years. This MoU may be renewed upon its expiry, with the agreement of both the partner institutions. If either partner institution wishes to terminate the MoU at the end of five years, it must notify the other institution not less than six months prior to the expiry of the MoU.

This MoU or its renewal and the actions taken under it may be reviewed at any time. Modifications may be made by mutual agreement and any amendment or extension to the agreement may be formalized by the exchange of letters between the two parties.

**Signed by**

**Signed by**

**Director  
Indian Institute of Technology, Jammu  
J&K**

**Director  
Sardar Vallabhbhai National Institute of  
Technology, Surat  
Gujrat**

**Date:**

**Date:**



સરદાર વલ્લભભાઈ રાષ્ટ્રીય પ્રૌદ્યોગિકી સંસ્થા, સુરત  
સરદાર વલ્લભભાઈ રાષ્ટ્રીય પ્રૌદ્યોગિકી સંસ્થાન, સુરત

**SARDAR VALLABHBHAI NATIONAL INSTITUTE OF TECHNOLOGY, SURAT**

(An Institute of National Importance, Established under NITSER Act by Ministry of Education, Govt. of India)



No: A/Cs /2022-23/867

Date: - Jan. 05<sup>th</sup>, 2023

To,  
M/s. Saumya Gupta,  
Joint Secretary (NIT's),  
Ministry of Education,  
Department of Higher Education,  
C-Wing, Shastri Bhawan,  
New Delhi-110 001,

Sub: Increasing students intake in IITs/NITs/IIITs.

Ref: Email dated 04.01.2023.

Dear Madam,

With reference to Ministry email dated 4.1.2023 regarding information for Increasing students intake in IITs/NITs/IIITs. following information is submitted regarding SVNIT Surat:

- i) Year wise increase in take at various level (UG/PG/PhD) during 2022-23 to 2027-28 of SVNIT Surat is enclosed at Annexure-I.
- ii) The Scholarship & Fellowship (PG/PhD) is paid from Grant-in-Aid General (OH-31). The increased expenditure over & above the budgetary support, will be compensated from Fees from Students, IRG and HEFA loan for infrastructure development.
- iii) No structural changes will be required for increased student strength.

Thanking you,

*[Signature]*  
Registrar

**SARDAR VALLABHBHAI NATIONAL INSTITUTE OF TECHNOLOGY****ACADEMIC SECTION**

No. Acad/577

Date : 09/01/2023

With reference to email dated: 06/01/2023 of MoE, NITs Division for Increasing student's intake in IITs/NITs/ IIITs. The proposed increasing at SVNIT, Surat is as under;

Name of the Institute : Sardar Vallabhbhai National Institute of Technology, Surat

(i) **year-wise increase in intake at various levels (UG/PG/PhD);**

Academic Year	UG	PG	Ph.D. *	Total Intake
2022-23	866	475		1341
2023-24	1190	630		1820
2024-25	1270	630		1900
2025-26	1340	630		1970
2026-27	1360	630		1990
2027-28	1360	630		1990

**Five Years beyond aforesaid period**

Academic Year	UG	PG	Ph.D. *	Total Intake
2028-29	1435	735		2170
2029-30	1510	735		2245
2030-31	1585	735		2320
2031-32	1585	735		2320
2032-33	1585	735		2320

- \* Total Ph.D. students' strength at every point of time is (4 FIR students per Faculty) 900. Ph.D. intake will very deepening upon the total strength of the faculty member in the Institute.

*M. K. Kulkarni*  
9/1/23  
Dean (Academic)

*अनुपम ११/१/२३*  
Director



Expected UG Strengths for the future successive academic years after the increase in intake

		Current Academic Year 2022-2023					Academic Year 2023-2024					Academic Year 2024-2025					Academic Year 2025-2026					Academic Year 2026-2027					Academic Year 2027-2028			
		JoSAA	DASA	GOI	Total	Increase in Intake	JoSAA	DASA	GOI	Total	Increase in Intake	JoSAA	DASA	GOI	Total	Increase in Intake	JoSAA	DASA	GOI	Total	Increase in Intake	JoSAA	DASA	GOI	Total	Increase in Intake	JoSAA	DASA	GOI	Total
		866	130	21	1017	324	1190	179	21	1390	80	1270	191	21	1482	70	1340	201	21	1562	20	1360	204	21	1585	0	1360	204	21	1585
1	Chemical	115	15	1	131	15	130	17	1	148	10	140	21	1	162	10	150	23	1	174	0	150	23	1	174	0	150	23	1	174
2	Civil	116	10	5	131	14	130	11	5	146	10	140	21	5	166	10	150	23	5	178	0	150	23	5	178	0	150	23	5	178
3	Computer	115	34	1	150	15	130	38	1	169	10	140	21	1	162	10	150	23	1	174	0	150	23	1	174	0	150	23	1	174
4	Electrical	116	10	4	130	14	130	11	4	145	10	140	21	4	165	10	150	23	4	177	0	150	23	4	177	0	150	23	4	177
5	Electronics	172	20	4	196	28	200	23	4	227	10	210	32	4	246	10	220	33	4	257	0	220	33	4	257	0	220	33	4	257
6	Mechanical	232	41	6	279	28	260	46	6	312	10	270	41	6	317	0	270	41	6	317	0	270	41	6	317	0	270	41	6	317
7	Other-1 - AI/IT	0	0		0	120	120	9	0	129	10	130	20	0	150	10	140	21	0	161	10	150	23	0	173	0	150	23	0	173
8	Other-2 - Duel Degree Maths	0	0		0	90	90	5	0	95	10	100	15	0	115	10	110	17	0	127	10	120	18	0	138	0	120	18	0	138

Reference Increasing students intake in IITs/NITs/ IIITs, an Email of date 31st December 2022 at 10:25:35 PM IST, ashe-mhrd@gov.in attached

*Plunk*  
Associate Dean (Academic)  
*Acad*

*ASW*  
Dean (Academic)  
*5/1/2023*

*31/12/22 21:40*  
*5/1/23*  
Director

- To
- ✓ 1. Account Section for the calculation of finance part
  - 2. Registrar for compilation and transmisson onward

*Time - 4:35*  
Account Section  
Inward No. *1722*  
Outward No.  
Date: *05/01/2023*

DEAN ACADEMIC  
S.V.N.I.T., SURAT-7  
INWARD No. ....  
OUTWARD No. *353*  
Date *05/01/2023*

$\left(\frac{1}{3}\right)$



Expected PG Strengths for the future successive academic years after the increase in intake

				Academic Year 2023-2024			Academic Year 2024-2025			Academic Year 2025-2026			Academic Year 2026-2027			Academic Year 2027-2028		
		CCMT	Increase in Intake	CCMT	Increase in Intake	Total	CCMT	Increase in Intake	Total	CCMT	Increase in Intake	Total	CCMT	Increase in Intake	Total	CCMT	Increase in Intake	Total
		475	155	630	0	630	630	0	630	630	0	630	630	0	630	630	0	630
1	Construction Technology and Management	25	5	30	0	30	30	0	30	30	0	30	30	0	30	30	0	30
2	Environmental Engineering	25	5	30	0	30	30	0	30	30	0	30	30	0	30	30	0	30
3	Geotechnical Engineering	25	5	30	0	30	30	0	30	30	0	30	30	0	30	30	0	30
4	Structural Engineering	25	5	30	0	30	30	0	30	30	0	30	30	0	30	30	0	30
5	Transportation Engineering & Planning	25	5	30	0	30	30	0	30	30	0	30	30	0	30	30	0	30
6	Urban Planning	25	5	30	0	30	30	0	30	30	0	30	30	0	30	30	0	30
7	Water Resource Engineering	25	5	30	0	30	30	0	30	30	0	30	30	0	30	30	0	30

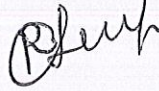


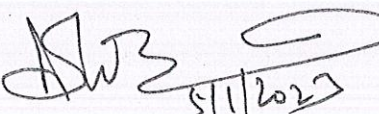
				Academic Year 2023-2024			Academic Year 2024-2025			Academic Year 2025-2026			Academic Year 2026-2027			Academic Year 2027-2028		
		CCMT	Increase in Intake	CCMT	Increase in Intake	Total	CCMT	Increase in Intake	Total	CCMT	Increase in Intake	Total	CCMT	Increase in Intake	Total	CCMT	Increase in Intake	Total
15	CAD-CAM	25	5	30	0	30	30	0	30	30	0	30	30	0	30	30	0	30
16	Mechanical Engineering	25	5	30	0	30	30	0	30	30	0	30	30	0	30	30	0	30
17	Manufacturing Engineering	25	5	30	0	30	30	0	30	30	0	30	30	0	30	30	0	30
18	Thermal Systems Design	25	5	30	0	30	30	0	30	30	0	30	30	0	30	30	0	30
19	Turbo Machines	25	5	30	0	30	30	0	30	30	0	30	30	0	30	30	0	30
20	Data Science	0	30	30	0	30	30	0	30	30	0	30	30	0	30	30	0	30
21	Information Security and Privacy	0	30	30	0	30	30	0	30	30	0	30	30	0	30	30	0	30

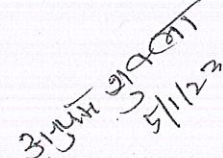
## Ph.D. Programmes

(B) Total Ph.D. students strength at every point of time is (4 FIR students per Faculty) 900.

Reference Increasing students intake in IITs/NITs/ IIITs, an Email of date 31st December 2022 at 10:25:35 PM IST, ashe-mhrd@gov.in attached

  
Associate Dean (Academic)  
Acad

  
Dean (Academic)  
5/1/2023

  
Director  
31/12/22  
5/1/23

To

1. Account Section for the calculation of finance part
2. Registrar for compilation and transmission onward

$\left(\frac{3}{3}\right)$





**सरदार वल्लभभाई राष्ट्रीय प्रौद्योगिकी संस्थान, सूरत**  
**SARDAR VALLABHBHAI NATIONAL INSTITUTE OF TECHNOLOGY, SURAT**  
**સરદાર વલ્લભભાઈ રાષ્ટ્રીય પ્રૌદ્યોગિકી સંસ્થા, સુરત**

**SVNIT**

No. D/SEC/2107/2022-23

Date: 5 March 2023

The minutes of 14<sup>th</sup> meeting of Standing Executive Committee (SEC) of the Senate held on 5 March, 2023 at 5:30 pm onwards in the Director's Cabin

The following were present in the SEC meeting

1. Prof. Anupam Shukla, Director – Chairman
2. Dr. Mukesh A. Zaveri, Dean Academic, Member
3. Dr. C. D. Modhera, Dean Faculty Welfare, Member
4. Dr. Ravi Kant, Dean Student Welfare, Member

Item 1:

Subject: Consideration of submission of XX grade for the B.Tech. First year ODD semester 2022-23

With reference to the current semester, the short attendance reports have been submitted by the faculty members in various subjects and based on these reports the number of students will be awarded XX grade and they are not eligible for the end semester examination. There is a presentation by the students at various levels regarding the awarding XX grade which effect their career in a long run. In this connection Standing Executive Meeting was called on 5 March 2023 in the Director's office.

Reso. 1:

The issues are discussed and the following points are resolved for further approval of the competent authority.

1. As students are not eligible for appearing in the end semester examination, the students have to register for the respective subjects in which XX grade is awarded in the next even semester, and the students have to attend the classes of the subjects either with regular subjects of even semester if the same subject is also offered in the even semester.
2. The subjects which are not part of regular even semester for those subjects the evening classes will be conducted. The student has to pay 20% of fee for each subject as per the institute norm.
3. The examination of the regular subjects will be conducted with end semester examination and for the remaining subjects the examination will be conducted in the next week after the end semester.
4. The honorarium will be paid to the faculty members for conducting the evening classes as per the institute norm.

This is for the necessary approval of the competent authority.

*P. A. Shukla*  
05.03.2023  
Dean SW

*M. D. Zaveri*  
05.03.23  
Dean FW

*M. A. Zaveri*  
5/3/23  
Dean Academic

*સામુઅલ ગુપ્તા*  
5/3/23  
Director