

## 5.1.Actions taken based on the results of evaluation of each of the COs, POs & PSOs (30)

### 5.1.1. POs Attainment Levels and Actions for improvement (2018-19)

POs	Target Level	Attainment Level	Observations
PO1: Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.			
PO1	2.078	1.999	<p>Courses with attainment below Level 1 are: Strength of Material(CE-14304), Fluid Mechanics-I (CE-14302), Design of Steel Structures-I (CE-14501), Environmental Engineering – II (CE-14604), Elements of Earthquake Engineering (CE-14802)</p> <p>Observations: The said courses are highly numerical in nature, and it was found that students find it difficult to comprehend and apply engineering concepts in absence of a strong base in mathematics.</p>
<p>In the courses mentioned above, the students were not able to recall a few basic mathematical concepts because of which the threshold value of target has not been achieved.</p> <p>Extra classes of two hours will be conducted based on the mathematical problems.</p> <p>Faculties are advised to include Minute papers, Quizzes, Tutorials to ensure learning outcomes are met. Open hours are introduced for more interactions with faculty.</p>			
PO2: Problem analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.			
PO2	2.335	2.067	<p>Courses with attainment below Level 1 are: Fluid Mechanics (CE-14302), Numerical Methods in Civil Engineering (CE-14605), Elements of Earthquake Engineering (CE-14802), Structural Analysis-II (CE-14503)</p> <p>Observations: The given subject (CE-14605) is applicable in different fields of civil engineering (hydraulics, transportation etc.) and in absence of intricate knowledge of these fields, students were not able to comprehend the application of the subject properly.</p>
<p>In subjects CE-14302 and CE-14503, students find it difficult to connect with engineering problems. Hence, actual examples from engineering subjects are discussed and the students will understand where in Engineering, they will make use of analyzing complex engineering problems.</p> <p>Also, a course on Structure Analysis -II and Numerical Analysis will be introduced in curriculum for better learning. (Curriculum revision).</p> <p>The students find it difficult to understand Fluid Mechanics. Digital Books on Fluid Mechanics has been recommended. More assignments and tutorials are to be given to students for better understanding.</p>			
PO3: Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.			

PO3	2.459	2.048	<p>Courses with attainment below Level 1 are: Design of Concrete Structure-I (CE-14501), Professional Practice (CE-14603), Elements of Earthquake Engineering (CE-14802)</p> <p>Observations: In light of the fact that curriculum does not lay emphasis on making the students understand short- and long-term effects of civil engineering projects and the need to have sustainability aspects being probed, the students lack understanding of these important issues which is reflected in low attainment level. Also, the new developmental and research being carried out across the world has introduced new materials and technologies which need to be introduced to the students so that they can consider them while proposing design solutions.</p>
<p>The curriculum has been revised to include relevant subjects related to safety, societal and environmental considerations like (1) Civil Engineering - Introduction, Societal &amp; Global Impact (2) Disaster Preparedness &amp; Planning</p> <p>Considering the fact that lot many infrastructural and historical structures, at this point in time, have outlived their lives and need repair and rehabilitation to maintain, a course related to this aspect (Repairs &amp; Rehabilitation of Structures) has been introduced for the students.</p>			
PO4: Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.			
PO4	2.399	1.960	<p>Courses with attainment below Level 1 are: Design of Steel Structures-I (CE-14501), Numerical Methods in Civil Engineering (CE-14605), Elements of Earthquake Engineering (CE-14802), Ground Improvement Techniques (CE-14815), Hydrology and Dams (CE-14821)</p> <p>Observations: The undergraduate students are ill prepared to synthesize given data into structured form so as to deduce some well-meaning information. There are not enough courses in the curriculum to impart this skill.</p>
<p>It was found that, students have less interest on design based Civil Engineering and topics on allied areas.</p> <p>High BTL level assignments on the above courses provided.</p> <p>More Emphasis on Project Based Learning will be given</p>			
PO5: Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.			
PO5	2.430	1.980	<p>Courses with attainment below Level 1 are: Rock Mechanics &amp; Engineering Geology (CE-14303), Design of Steel Structures-I (CE-14501), Numerical Methods in Civil Engineering (CE-14605), Elements of Earthquake Engineering (CE-14802), Matrix methods of Structural Analysis (CE-14812)</p> <p>Observations: There is low component of automation and IT in the given subjects (CE-14605, CE-14812) which has resulted in lower attainment. More practical work and labs in the given subjects will help the cause.</p>

<p>Students were encouraged to participate in Poster presentation on Innovative Construction Techniques and modern tools in the Department of Civil Engineering CAD &amp; BIM Laboratory has been established in the department so that students can learn new and advanced technologies. Similarly, another course namely 'Instrumentation &amp; Sensor Technologies for Civil Engineering Applications' has been introduced.</p> <p>The computational laboratory has been strengthened by introducing latest software like GT Strudal, Ansys, Geomatics, Plaxis (2D &amp; 3D) etc.</p>			
<p>PO6: The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.</p>			
PO6	2.397	1.790	<p>Courses with attainment below Level 1 are: Fluid Mechanics-I (CE-14302), Strength of Materials (CE-14304), Geomatics Engineering (CE-14401), Construction Machinery &amp; Works Management (CE-14402), Fluid Mechanics-II (CE-14404), Design of Steel Structures-I (CE-14501), Structural Analysis - II (CE-14503), Environmental Engineering – II (CE-14604), Numerical Methods in Civil Engineering (CE-14605), Elements of Earthquake Engineering (CE-14802), Major Project (PRCE-14701)</p> <p>Observations: The said subjects (except three - 'Construction Machinery &amp; Works Management', 'Environmental Engineering – II' and 'Elements of Earthquake Engineering') do not have a strong relationship with the given PO. But for these three subjects, regular updating needs to be done considering latest legal and safety norms.</p>
<p>Students are encouraged to participate in societal activities through NSS, Student Clubs to understand the problems in the society</p> <p>Students have been advised to identify and take up more and more projects involving societal, safety and legal framework.</p> <p>FDPs to strengthen the knowledge pool in the given areas are required.</p>			
<p>PO7: Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.</p>			
PO7	2.130	1.830	<p>Courses with attainment below Level 1 are: Strength of Materials (CE-14304), Geomatics Engineering (CE-14401), Design of Steel Structures-I (CE-14501), Design of Concrete Structures-II (CE-14601), Environmental Engineering – II (CE-14604), Numerical Methods in Civil Engineering (CE-14605), Elements of Earthquake Engineering (CE-14802)</p> <p>Observations: The curriculum lacks components to lay stress on sustainable options and solutions.</p>
<p>Educational tours organized for students to large infrastructural projects (Bhakra dam, Atal tunnel, STPs etc.) so that they can physically see and appreciate the impact of these engineering solutions on environment and local ecology.</p> <p>Need for Sustainable Engineering is sensitized among students through Seminars, Debates.</p> <p>Emphasis laid on discussing case studies in the class room to help students understand and appreciate the engineering solutions in light of environmental contexts.</p> <p>The curriculum has been strengthened by including focused courses on 'Ecology', 'Sustainability' and 'Environmental Impact Assessment'.</p>			
<p>PO8: Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.</p>			

PO8	2.235	1.610	<p>Courses with attainment below Level 1 are:  Rock Mechanics &amp; Engineering Geology (CE-14303), Strength of Materials (CE-14304), Surveying (CE-14305), Geomatics Engineering (CE-14401), Fluid Mechanics-II (CE-14404), Structural Analysis-I (CE-14406), Design of Steel Structures-I (CE-14501), Geotechnical Engineering (CE-14502), Design of Concrete Structures-II (CE-14601), Environmental Engineering – II (CE-14604), Elements of Earthquake Engineering (CE-14802), Transportation Engineering-II (CE-14804), Major Project (PRCE-14701)</p> <p>Observations: The given subjects are purely technical in nature and thus do not address the given PO. In fact, the curriculum does not address the 'Ethics' part (of engineering) strongly.</p>
<p>The curriculum has been strengthened to include a subject 'Constitution of India'.  Technical Societies like ISTE are started to ensure Ethical practices in Engineering are discussed in detail.  Department of Civil Engineering is planning to execute Plagiarism checking of Project reports.</p>			
PO9: Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.			
PO9	2.417	1.810	<p>Courses with attainment below Level 1 are:  Rock Mechanics &amp; Engineering Geology (CE-14303), Strength of Materials (CE-14304), Fluid Mechanics-II (CE-14404), Design of Concrete Structures-II (CE-14601), Foundation Engineering (CE-14602), Environmental Engineering – II (CE-14604), Numerical Methods in Civil Engineering (CE-14605), Elements of Earthquake Engineering (CE-14802), Transportation Engineering-II (CE-14804), Major Project (PRCE-14701)</p> <p>Observations: The subjects (except Major Project) lack an approach where students get an opportunity to work in multidisciplinary settings.</p>
<p>Small teams of student have been formed - not as per their choice but as per roll numbers - to assign them common 'Project assignment', so that they learn to work in a diverse team.  A subject has been introduced on 'Organizational Behavior' so that the students learn to iron out conflicting situations in a multidisciplinary setting.  All students are encouraged to present themselves for selection in an exclusive civil engineering club for students (ACES) whereby they organize various Technical and Cultural events all around the year.  Students are given opportunity to work with teachers in organizing various academic and curricular activities like conferences, seminars etc. They have been also included in various bodies like Board of Studies etc.</p>			
PO10: Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.			

PO10	2.392	1.820	<p>Courses with attainment below Level 1 are: Strength of Materials (CE-14304), Fluid Mechanics-II (CE-14404), Design of Steel Structures-I (CE-14501), Foundation Engineering (CE-14602), Environmental Engineering – II (CE-14604), Numerical Methods in Civil Engineering (CE-14605), Elements of Earthquake Engineering (CE-14802), Transportation Engineering-II (CE-14804), Ground Improvement Techniques (CE-14815), Major Project (PRCE-14701)</p> <p>Observations: ‘Communication’ is a trait that needs to be inculcated with conscious efforts like group activities, public speaking etc. The given subjects (except Major Project) did not provide an opportunity to the students to develop these points.</p>
<p>Teachers were advised to modify their pedagogy and induce better involvement of students by giving them opportunity to make presentations and to assign group activities.</p> <p>Students have been encouraged to participate in various intra and inter college events - both academic and extra-curricular (NCC/NSS/Sports).</p> <p>Soft skill workshop organized for the students.</p>			
<p>PO11: Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one’s own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.</p>			
PO11	2.265	1.750	<p>Courses with attainment below Level 1 are: Strength of Materials (CE-14304), Design of Steel Structures-I (CE-14501), Numerical Methods in Civil Engineering (CE-14605), Elements of Earthquake Engineering (CE-14802), Transportation Engineering-II (CE-14804), Ground Improvement Techniques (CE-14815), Major Project (PRCE-14701)</p> <p>Observations: Design subjects need to be taught not only from the perspective of safety concerns but should also involve the important aspect of economics. ‘Management of Projects’ need to be an intricate part of the syllabi. Both these aspects are lacking in the curriculum.</p>
<p>Students are skilled in Project Management through the following courses:</p> <p>Technical Training Course, Regular Site Visits, Internship Trainings, Industrial Training opportunities are there for all Civil Engineering students.</p> <p>Students are encouraged to do multidisciplinary projects through verticals</p> <p>Students were given to test their managerial skills through organizing various activities like academic, technical and cultural events.</p> <p>Students are sent to industry for industrial training where they smell the combined flavor of Technicality and Economics.</p>			
<p>PO12: Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.</p>			

PO12	2.594	2.010	<p>Courses with attainment below Level 1 are: Design of Steel Structures-I (CE-14501), Foundation Engineering (CE-14602), Reinforced Earth and Geotextiles (CE-14607), Transportation Engineering-II (CE-14804), Ground Improvement Techniques (CE-14815)</p> <p>Observations: The class room courses alone cannot incite ‘lifelong learning’ habit. Thus, some strategy needs to be involved whereby the students can be put on self-learning mode so that he gets the required skills and motivation for ‘lifelong learning’.</p>
<p>Concept of earning grades through MOOCS courses has been introduced so that the student can not only broaden his/her horizon by selecting the courses that are not offered in the curriculum, but is also introduced to the concept of self-learning.</p> <p>Introduction of Minor/Major Projects gives an opportunity to the student to explore the technical spectrum by reviewing literature and deciding the problem in consultation with the teacher.</p>			

PSOs Attainment Levels and Actions for improvement (2019-20)

PSOs	Target Level	Attainment Level	OBSERVATIONS
PSO1: Understanding: Graduates shall demonstrate sound knowledge in analysis, design, laboratory investigations and construction aspects of civil engineering infrastructure, along with good foundation in mathematics, basic sciences and technical communication.			
PSO1	2.369	2.010	Courses with attainment below Level 1 are: Design of Steel Structures-I (CE-14501), Environmental Engineering – II (CE-14604), Numerical Methods in Civil Engineering (CE-14605), Elements of Earthquake Engineering (CE-14802)
<p>Training needs of the teachers were marked and they were sent to institutes of importance to hone their skills.</p> <p>A new course, namely ‘Mathematics-III’ has been introduced to help students overcome difficulty solving mathematical problems.</p> <p>The curriculum has been designed to separate various streams (structures, geo-tech, environment) so that the students can select the subjects as per their own interest which will help improve the attainment level.</p> <p>Component of lab courses has been increased to help the students.</p>			
PSO2: Broadness and Diversity: Graduates will have a broad understanding of economical, environmental, societal, health and safety factors involved in infrastructural development, and shall demonstrate ability to function within multidisciplinary teams with competence in modern tool usage.			
PSO2	2.267	1.830	Courses with attainment below Level 1 are: Design of Steel Structures-I (CE-14501), Structural Analysis - II (CE-14503), Environmental Engineering – II (CE-14604), Reinforced Earth and Geotextiles (CE-14607), Elements of Earthquake Engineering (CE-14802), Pavement Design (CE-14809)
<p>Various laboratories have been strengthened by including latest software.</p> <p>Component of ‘Training’ has been increased - to be included every second semester - so that the student remains in touch with the real world and understands the fast-changing requirements of the profession.</p> <p>Certain subjects that are the need of the hour and are based on latest technology like ‘BIM’, ‘Repair &amp; Retrofitting’, ‘Traffic Management’ etc. have been included in the curriculum.</p>			
PSO3: Self-Learning and Service: Graduates will be motivated for continuous self-learning in engineering practice and/or pursue research in advanced areas of civil engineering in order to offer engineering services to the society, ethically and responsibly.			
PSO3	2.461	2.030	Courses with attainment below Level 1 are: Geomatics Engineering (CE-14401), Design of Steel Structures-I (CE-14501), Environmental Engineering – II (CE-14604), Elements of Earthquake Engineering (CE-14802), Major Project (PRCE-14701)

Option of fulfilling the credits through MOOCs is a conscious step towards inculcating self-learning habits in the students.  
Components like ‘Seminars’ and ‘Projects’ have been included in the curriculum that will push the students towards reviewing technical literature and stimulate research needs in them.

### 5.1.2. POs Attainment Levels and Actions for improvement (2019-20)

POs	Target Level	Attainment Level	Observations
PO1: Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.			
PO1	1.96	1.71	<p>Courses with attainment below Level 1 are: Fluid Mechanics-I (CE-14302), Design of Steel Structures-I (CE-14501), Environmental Engineering – II (CE-14604), Elements of Earthquake Engineering (CE-14802)</p> <p>Observations: The said courses are highly numerical in nature, and it was found that students find it difficult to comprehend and apply engineering concepts in absence of a strong base in mathematics.</p>
<p>Action 1: Remedial classes in mathematics were recommended and held.</p> <p>Action 2: Students are advised and encouraged to seek teacher’s guidance in open hours as well.</p> <p>Action 3: Provision has been introduced in the curriculum for students to undergo multiple training programs in the field so that they understand the concepts in right perspective.</p>			
PO2: Problem analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.			
PO2	2.1	1.73	<p>Courses with attainment below Level 1 are: Numerical Methods in Civil Engineering (CE-14605), Elements of Earthquake Engineering (CE-14802)</p> <p>Observations: The given subject (CE-14605) is applicable in different fields of civil engineering (hydraulics, transportation etc.) and in absence of intricate knowledge of these fields, students were not able to comprehend the application of the subject properly.</p>
<p>Action 1: Senior faculty was appointed to teach the said subjects</p> <p>Action 2: New course (Traffic Engineering and Management) has been introduced to help students for better learning of the given subject. Also, a new laboratory course (Problem Analysis Laboratory) has been introduced to help students understand and analyze a given problem correctly.</p> <p>Action 3: Students are advised to conduct literature review for deciding project work and identify the areas where intervention can be made. The exercise is a step in aligning the under graduate students towards research. Further, a special course (Seminar and Technical Report Writing) has been introduced to help students generate good technical reports.</p>			
PO3: Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.			



PO3	1.95	1.62	<p>Courses with attainment below Level 1 are: Professional Practice (CE-14603), Elements of Earthquake Engineering (CE-14802)</p> <p>Observations: In light of the fact that curriculum does not lay emphasis on making the students understand short- and long-term effects of civil engineering projects and the need to have sustainability aspects being probed, the students lack understanding of these important issues which is reflected in low attainment level. Also, the new developmental and research being carried out across the world has introduced new materials and technologies which need to be introduced to the students so that they can consider them while proposing design solutions.</p>
<p>Action 1: The curriculum has been revised to include relevant subjects related to safety, societal and environmental considerations like (1) Civil Engineering - Introduction, Societal &amp; Global Impact (2) Disaster Preparedness &amp; Planning</p> <p>Action 2: Considering the fact that lot many infrastructural and historical structures, at this point in time, have outlived their lives and need repair and rehabilitation to maintain, a course related to this aspect (Repairs &amp; Rehabilitation of Structures) has been introduced for the students.</p>			
PO4: Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.			
PO4	1.92	1.59	<p>Courses with attainment below Level 1 are: Design of Steel Structures-I (CE-14501), Numerical Methods in Civil Engineering (CE-14605), Elements of Earthquake Engineering (CE-14802), Ground Improvement Techniques (CE-14815), Hydrology and Dams (CE-14821)</p> <p>Observations: The undergraduate students are ill prepared to synthesize given data into structured form so as to deduce some well-meaning information. There are not enough courses in the curriculum to impart this skill.</p>
<p>Action 1: A special course, namely 'Analytical Methods for Environmental Monitoring' has been introduced.</p> <p>Action 2: Students are divided in small groups and individual teacher is assigned to each group to guide and monitor them for 'Project' work which is formatted on the pattern of thesis. Thus, more emphasis has been laid on Project Based Learning.</p>			
PO5: Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.			
PO5	1.78	1.48	<p>Courses with attainment below Level 1 are: Rock Mechanics &amp; Engineering Geology (CE-14303), Design of Steel Structures-I (CE-14501), Numerical Methods in Civil Engineering (CE-14605), Elements of Earthquake Engineering (CE-14802), Matrix methods of Structural Analysis (CE-14812)</p> <p>Observations: There is low component of automation and IT in the given subjects (CE-14605, CE-14812) which has resulted in lower attainment. More practical work and labs in the given subjects will help the cause.</p>

<p>Action 1: CAD &amp; BIM Laboratory has been established in the department so that students can learn new and advanced technologies. Similarly, another course namely 'Instrumentation &amp; Sensor Technologies for Civil Engineering Applications' has been introduced.</p> <p>Action 2: The computational laboratory has been strengthened by introducing latest software like GT Strudal, Ansys, Geomatics, Plaxis (2D &amp; 3D) etc.</p> <p>Action 3: Model making competition (bridges) for the students organized and evaluated in the department.</p>			
<p>PO6: The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.</p>			
PO6	1.28	1.24	<p>Courses with attainment below Level 1 are:            Fluid Mechanics-I (CE-14302), Strength of Materials (CE-14304), Geomatics Engineering (CE-14401), Construction Machinery &amp; Works Management (CE-14402), Fluid Mechanics-II (CE-14404), Design of Steel Structures-I (CE-14501), Structural Analysis - II (CE-14503), Environmental Engineering – II (CE-14604), Numerical Methods in Civil Engineering (CE-14605), Elements of Earthquake Engineering (CE-14802), Major Project (PRCE-14701)</p> <p>Observations: The said subjects (except three - 'Construction Machinery &amp; Works Management', 'Environmental Engineering – II' and 'Elements of Earthquake Engineering') do not have a strong relationship with the given PO. But for these three subjects, regular updating needs to be done considering latest legal and safety norms.</p>
<p>Action 1: Students have been advised to identify and take up more and more projects involving societal, safety and legal framework.</p> <p>Action 2: FDPs to strengthen the knowledge pool in the given areas are required.</p>			
<p>PO7: Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.</p>			
PO7	1.26	1.28	<p>Courses with attainment below Level 1 are:            Strength of Materials (CE-14304), Geomatics Engineering (CE-14401), Design of Steel Structures-I (CE-14501), Design of Concrete Structures-II (CE-14601), Environmental Engineering – II (CE-14604), Numerical Methods in Civil Engineering (CE-14605), Elements of Earthquake Engineering (CE-14802)</p> <p>Observations: The curriculum lacks components to lay stress on sustainable options and solutions.</p>
<p>Action 1: Educational tours organized for students to large infrastructural projects (Bhakra dam, Atal tunnel, STPs etc.) so that they can physically see and appreciate the impact of these engineering solutions on environment and local ecology.</p> <p>Action 2: Emphasis is laid on discussing case studies in the class room to help students understand and appreciate the engineering solutions in light of environmental contexts.</p> <p>Action3: The curriculum has been strengthened by including focused courses on 'Ecology', 'Sustainability' and 'Environmental Impact Assessment'.</p>			
<p>PO8: Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.</p>			

PO8	1.61	1.19	<p>Courses with attainment below Level 1 are:  Rock Mechanics &amp; Engineering Geology (CE-14303), Strength of Materials (CE-14304), Surveying (CE-14305), Geomatics Engineering (CE-14401), Fluid Mechanics-II (CE-14404), Structural Analysis-I (CE-14406), Design of Steel Structures-I (CE-14501), Geotechnical Engineering (CE-14502), Design of Concrete Structures-II (CE-14601), Environmental Engineering – II (CE-14604), Elements of Earthquake Engineering (CE-14802), Transportation Engineering-II (CE-14804), Major Project (PRCE-14701)</p> <p>Observations: The given subjects are purely technical in nature and thus do not address the given PO. In fact, the curriculum does not address the ‘Ethics’ part (of engineering) strongly.</p>
<p>Action 1: The curriculum has been strengthened to include a subject ‘Constitution of India’.</p> <p>Action 2: The teachers have been advised to discuss this part informally during Mentoring and Professional Development class. Also, the teachers assigned for evaluating the ‘Project Work’ are advised to ensure ‘Plagiarism checking’ of technical report.</p>			
<p>PO9: Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.</p>			
PO9	1.32	1.28	<p>Courses with attainment below Level 1 are:  Rock Mechanics &amp; Engineering Geology (CE-14303), Strength of Materials (CE-14304), Fluid Mechanics-II (CE-14404), Design of Concrete Structures-II (CE-14601), Foundation Engineering (CE-14602), Environmental Engineering – II (CE-14604), Numerical Methods in Civil Engineering (CE-14605), Elements of Earthquake Engineering (CE-14802), Transportation Engineering-II (CE-14804), Major Project (PRCE-14701)</p> <p>Observations: The subjects (except Major Project) lack an approach where students get an opportunity to work in multidisciplinary settings.</p>
<p>Action 1: Small teams of student have been formed - not as per their choice but as per roll numbers - to assign them common ‘Project assignment’, so that they learn to work in a diverse team.</p> <p>Action 2: A subject has been introduced on ‘Organizational Behavior’ so that the students learn to iron out conflicting situations in a multidisciplinary setting.</p> <p>Action 3: All students are encouraged to present themselves for selection in an exclusive civil engineering club for students (ACES) whereby they organize various Technical and Cultural events all around the year.</p> <p>Action 4: Students are given opportunity to work with teachers in organizing various academic and curricular activities like conferences, seminars etc. They have been also included in various bodies like Board of Studies etc.</p>			
<p>PO10: Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.</p>			

PO10	1.75	1.28	<p>Courses with attainment below Level 1 are:  Strength of Materials (CE-14304), Fluid Mechanics-II (CE-14404), Design of Steel Structures-I (CE-14501), Foundation Engineering (CE-14602), Environmental Engineering – II (CE-14604), Numerical Methods in Civil Engineering (CE-14605), Elements of Earthquake Engineering (CE-14802), Transportation Engineering-II (CE-14804), Ground Improvement Techniques (CE-14815), Major Project (PRCE-14701)</p> <p>Observations: ‘Communication’ is a trait that needs to be inculcated with conscious efforts like group activities, public speaking etc. The given subjects (except Major Project) did not provide an opportunity to the students to develop these points.</p>
<p>Action 1: Teachers were advised to modify their pedagogy and induce better involvement of students by giving them opportunity to make presentations and to assign group activities.</p> <p>Action 2: Students have been encouraged to participate in various intra and inter college events - both academic and extra-curricular (NCC/NSS/Sports).</p> <p>Action 3: Soft skill workshop organized for the students.</p>			
<p>PO11: Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one’s own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.</p>			
PO11	1.42	1.42	<p>Courses with attainment below Level 1 are:  Strength of Materials (CE-14304), Design of Steel Structures-I (CE-14501), Numerical Methods in Civil Engineering (CE-14605), Elements of Earthquake Engineering (CE-14802), Transportation Engineering-II (CE-14804), Ground Improvement Techniques (CE-14815), Major Project (PRCE-14701)</p> <p>Observations: Design subjects need to be taught not only from the perspective of safety concerns but should also involve the important aspect of economics. ‘Management of Projects’ need to be an intricate part of the syllabi. Both these aspects are lacking in the curriculum.</p>
<p>Action 1: The curriculum has been strengthened by introducing subjects like ‘Engineering Economics’, ‘Estimation and Costing’, ‘Construction Engineering &amp; Management’ and ‘Highway Construction and Management’.</p> <p>Action 2: Students were given to test their managerial skills through organizing various activities like academic, technical and cultural events.</p> <p>Action 3: Students are sent to industry for industrial training where they smell the combined flavor of Technicality and Economics.</p>			
<p>PO12: Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.</p>			
PO12	1.45	1.47	<p>Courses with attainment below Level 1 are:  Design of Steel Structures-I (CE-14501), Foundation Engineering (CE-14602), Reinforced Earth and Geotextiles (CE-14607), Transportation Engineering-II (CE-14804), Ground Improvement Techniques (CE-14815)</p> <p>Observations: The class room courses alone cannot incite ‘lifelong learning’ habit. Thus, some strategy needs to be involved whereby the students can be put on self-learning mode so that he gets the required skills and motivation for ‘lifelong learning’.</p>

Action 1: Concept of earning grades through MOOCS courses has been introduced so that the student can not only broaden his/her horizon by selecting the courses that are not offered in the curriculum, but is also introduced to the concept of self-learning.

Action 2: Introduction of Minor/Major Projects gives an opportunity to the student to explore the technical spectrum by reviewing literature and deciding the problem in consultation with the teacher.

PSOs Attainment Levels and Actions for improvement (2019-20)			
PSOs	Target Level	Attainment Level	OBSERVATIONS
PSO1: Understanding: Graduates shall demonstrate sound knowledge in analysis, design, laboratory investigations and construction aspects of civil engineering infrastructure, along with good foundation in mathematics, basic sciences and technical communication.			
PSO1	1.61	1.68	Courses with attainment below Level 1 are: Design of Steel Structures-I (CE-14501), Environmental Engineering – II (CE-14604), Numerical Methods in Civil Engineering (CE-14605), Elements of Earthquake Engineering (CE-14802)
<p>Action 1: The curriculum has been designed to separate various streams (structures, geo-tech, environment) so that the students can select the subjects as per their own interest which will help improve the attainment level.</p> <p>Action 2: A new course, namely ‘Mathematics-III’ has been introduced to help students overcome difficulty solving mathematical problems.</p> <p>Action 3: Component of lab courses has been increased to help the students.</p> <p>Action 4: Training needs of the teachers were marked and they were sent to institutes of importance to hone their skills.</p>			
PSO2: Broadness and Diversity: Graduates will have a broad understanding of economical, environmental, societal, health and safety factors involved in infrastructural development, and shall demonstrate ability to function within multidisciplinary teams with competence in modern tool usage.			
PSO2	1.67	1.51	Courses with attainment below Level 1 are: Design of Steel Structures-I (CE-14501), Structural Analysis - II (CE-14503), Environmental Engineering – II (CE-14604), Reinforced Earth and Geotextiles (CE-14607), Elements of Earthquake Engineering (CE-14802), Pavement Design (CE-14809)
<p>Action 1: Component of ‘Training’ has been increased - to be included every second semester - so that the student remains in touch with the real world and understands the fast-changing requirements of the profession.</p> <p>Action 2: Certain subjects that are the need of the hour and are based on latest technology like ‘BIM’, ‘Repair &amp; Retrofitting’, ‘Traffic Management’ etc. have been included in the curriculum.</p> <p>Action 3: Various laboratories have been strengthened by including latest softwares.</p> <p>Action 4: ‘Environment &amp; Sustainability’ has been included in the curriculum by including many relevant subjects.</p>			
PSO3: Self-Learning and Service: Graduates will be motivated for continuous self-learning in engineering practice and/or pursue research in advanced areas of civil engineering in order to offer engineering services to the society, ethically and responsibly.			

PSO3	1.84	1.51	Courses with attainment below Level 1 are: Geomatics Engineering (CE-14401), Design of Steel Structures-I (CE-14501), Environmental Engineering – II (CE-14604), Elements of Earthquake Engineering (CE-14802), Major Project (PRCE-14701)
<p>Action 1: Components like ‘Seminars’ and ‘Projects’ have been included in the curriculum that will push the students towards reviewing technical literature and stimulate research needs in them.</p> <p>Action 2: Option of fulfilling the credits through MOOCs is a conscious step towards inculcating self-learning habits in the students.</p>			

### 5.1.3. POs Attainment Levels and Actions for improvement (2020-21)

POs	Target Level	Attainment Level	Observations
PO1: Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.			
PO1	2.19	2.37	<p>Courses with attainment below Level 2 are: Fluid Mechanics-I (CE-14302), Rock Mechanics &amp; Engineering Geology (CE-14303), Professional Practice (CE-14603), Transportation Engineering – II (CE-14804)</p> <p>Observations: Although the overall target has been attained, certain courses (indicated above) did not achieve level two. The given courses are more or less theoretical and the it was observed that students lack good writing skills to explain the things properly.</p>
<p>Action 1: The feedback was shared with the applied science department so that emphasis can be laid on improving writing skills of the students.</p> <p>Action 2: Soft skill workshop organized for the students.</p> <p>Action 3: Students are advised and encouraged to seek teacher’s guidance in open hours as well.</p>			
PO2: Problem analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.			
PO2	2.32	2.29	<p>Courses with attainment below Level 2 are: Building Materials &amp; Construction (CE-14306), Numerical Methods in Civil Engineering (CE-14605), Design of Steel Structures-II (CE-14801)</p> <p>Observations: The given target was almost attained but certain courses (indicated above) did not achieve level two. The students faced problem in understanding highly mathematical subject ‘Numerical Methods in Civil Engineering’.</p>
<p>Action 1: A new course, namely ‘Mathematics-III’ has been introduced to help students overcome difficulty solving mathematical problems.</p> <p>Action 2: Senior faculty was appointed to teach Design of Steel Structures-II.</p>			
PO3: Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.			

PO3	2.32	2.29	<p>Courses with attainment below Level 2 are: Strength of Materials (CE-14304), Irrigation Engineering-I (CE-14405), Structural Analysis-I (CE-14406), Professional Practice (CE-14603), Infrastructure Development and Management (CE-14608), Design of Steel Structures-II (CE-14801), Transportation Engineering-II (CE-14804), Disaster Management (CE-14822)</p> <p>Observations: The given target was almost attained but certain courses (indicated above) did not achieve level two. No specific reason was observed to explain low attainment in a mix of subjects that involve not only analytical skills but also ethical and sustainability understanding.</p>
<p>Action 1: Students are advised and encouraged to seek teacher's guidance in open hours as well. Action 2: The curriculum has been revised to include relevant subjects related to safety, societal and environmental considerations like (1) Civil Engineering - Introduction, Societal &amp; Global Impact (2) Disaster Preparedness &amp; Planning.</p>			
<p>PO4: Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.</p>			
PO4	2.29	2.35	<p>Courses with attainment below Level 2 are: Geomatics Engineering (CE-14401), Irrigation Engineering-I (CE-14405), Design of Concrete Structures-II (CE-14601), Professional Practice (CE-14603), Numerical Methods in Civil Engineering (CE-14605), Design of Steel Structures-II (CE-14801), Ground Improvement Techniques (CE-14815), Hydrology and Dams (CE-14821), Disaster Management (CE-14822)</p> <p>Observations: Although the overall target has been attained, certain courses (indicated above) did not achieve level two. Since some of these courses are based on knowledge imparted in preceding courses, it was observed that the students need to refurbish those preliminary courses to do good in the advanced courses.</p>
<p>Action 1: The students are encouraged to go for on line data analytic courses offered by other universities so that they are able to comprehend and draw meaningful information from a set of given data. A special course, namely 'Analytical Methods for Environmental Monitoring' has also been introduced.</p>			
<p>PO5: Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.</p>			
PO5	2.23	2.27	<p>Courses with attainment below Level 2 are: Rock Mechanics &amp; Engineering Geology (CE-14303), Strength of Materials (CE-14304), Design of Concrete Structures- I (CE-14403), Irrigation Engineering-I (CE-14405), Structural Analysis-I (CE-14406), Design of Steel Structures-I (CE-14501), Professional Practice (CE-14603), Numerical Methods in Civil Engineering (CE-14605), Irrigation Engineering-II (CE-14803)</p> <p>Observations: Although the overall target has been attained, it was felt that there is low component of software and automation in certain subjects which has resulted in lower attainment. More exposure and practical work are required in the given subjects.</p>

<p>Action 1: CAD &amp; BIM Laboratory has been established in the department so that students can learn new and advanced technologies. Similarly, another course namely 'Instrumentation &amp; Sensor Technologies for Civil Engineering Applications' has been introduced.</p> <p>Action 2: The computational laboratory has been strengthened by introducing latest software like GT Strudal, Ansys, Geomatics, Plaxis (2D &amp; 3D) etc.</p> <p>Action 3: The training component has been increased to be included every year for the students to take up both site and software trainings.</p>			
<p>PO6: The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.</p>			
PO6	1.98	2.01	<p>Courses with attainment below Level 1.5 are: Fluid Mechanics-I (CE-14302), Strength of Materials (CE-14304), Geomatics Engineering (CE-14401), Construction Machinery &amp; Works Management (CE-14402), Irrigation Engineering-I (CE-14405), Design of Steel Structures-I (CE-14501), Structural Analysis - II (CE-14503), Numerical Methods in Civil Engineering (CE-14605), Design of Steel Structures-II (CE-14801), Traffic Engineering (CE-14810)</p> <p>Observations: The said target has been attained but extra component related to latest legal and safety norms is required to be included in certain subjects so that they students understand the current expectations of the society.</p>
<p>Action 1: Students have been advised to identify and take up more and more projects involving societal, safety and legal framework.</p> <p>Action 2: FDPs to strengthen the knowledge pool in the given areas are required.</p>			
<p>PO7: Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.</p>			
PO7	1.94	2.17	<p>Courses with attainment below Level 1.5 are: Strength of Materials (CE-14304), Geomatics Engineering (CE-14401), Irrigation Engineering-I (CE-14405), Design of Steel Structures-I (CE-14501), Professional Practice (CE-14603), Numerical Methods in Civil Engineering (CE-14605), Irrigation Engineering-II (CE-14803), Hydrology and Dams (CE-14821)</p> <p>Observations: The target has been attained but it was observed that the given curriculum needs to be further strengthened to include sustainable options and solutions.</p>
<p>Action 1: Educational tours organized for students to large infrastructural projects (Bhakra dam, Atal tunnel, STPs etc.) so that they can physically see and appreciate the impact of these engineering solutions on environment and local ecology.</p> <p>Action 2: Emphasis laid on discussing case studies in the class room to help students understand and appreciate the engineering solutions in light of environmental contexts.</p> <p>Action3: The curriculum has been strengthened by including focused courses on 'Ecology', 'Sustainability' and 'Environmental Impact Assessment'.</p>			
<p>PO8: Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.</p>			



PO8	1.88	2.06	<p>Courses with attainment below Level 1.5 are: Fluid Mechanics-I (CE-14302), Strength of Materials (CE-14304), Surveying (CE-14305), Geomatics Engineering (CE-14401), Structural Analysis-I (CE-14406), Geotechnical Engineering (CE-14502), Transportation Engineering-II (CE-14804)</p> <p>Observations: The given subjects are purely technical in nature and thus do not address the given PO. In fact, the curriculum does not address the 'Ethics' part (of engineering) strongly.</p>
<p>Action 1: Discussions on NEP2020 has been conducted (informally) to draw its advantage, especially in the area of ethics and societal responsibilities.</p> <p>Action 2: The curriculum has been strengthened to include a subject 'Constitution of India'.</p> <p>Action 3: The teachers have been advised to discuss this part informally during Mentoring and Professional Development class. Also, the teachers assigned for evaluating the 'Project Work' are advised to ensure 'Plagiarism checking' of technical report.</p>			
PO9: Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.			
PO9	2.09	2.16	<p>Courses with attainment below Level 1.5 are: Fluid Mechanics-I (CE-14302), Strength of Materials (CE-14304), Building Materials &amp; Construction (CE-14306), Transportation Engineering-II (CE-14804), Disaster Management (CE-14822)</p> <p>Observations: In spite of achieving the target, it is observed that students do not get enough opportunities to work in multidisciplinary settings leading to difficulty in accepting such jobs that come their way.</p>
<p>Action 1: Small teams of student have been formed - not as per their choice but as per roll numbers - to assign them common 'Project assignment', so that they learn to work in a diverse team.</p> <p>Action 2: A subject has been introduced on 'Organizational Behavior' so that the students learn to iron out conflicting situations in a multidisciplinary setting.</p> <p>Action 3: All students are encouraged to present themselves for selection in an exclusive civil engineering club for students (ACES) whereby they organize various Technical and Cultural events all around the year.</p> <p>Action 4: Students are given opportunity to work with teachers in organizing various academic and curricular activities like conferences, seminars etc. They have been also included in various bodies like Board of Studies etc.</p>			
PO10: Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.			

PO10	2.02	2.11	<p>Courses with attainment below Level 1.5 are: Strength of Materials (CE-14304), Building Materials &amp; Construction (CE-14306), Design of Concrete Structures– I (CE-14403), Irrigation Engineering-I (CE-14405), Foundation Engineering (CE-14602), Numerical Methods in Civil Engineering (CE-14605), Design of Steel Structures-II (CE-14801), Transportation Engineering-II (CE-14804)</p> <p>Observations: ‘Communication’, both oral and written, was observed to be an area which encompasses maximum scope of improvement. Lack of multi linguistic groups among students was identified to be one of the primary reasons for this.</p>
<p>Action 1: Teachers were advised to modify their pedagogy and induce better involvement of students by giving them opportunity to make presentations and to assign group activities.</p> <p>Action 2: Students have been encouraged to participate in various intra and inter college events - both academic and extra-curricular (NCC/NSS/Sports).</p> <p>Action 3: Soft skill workshop organized for the students.</p>			
<p>PO11: Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one’s own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.</p>			
PO11	1.95	2.11	<p>Courses with attainment below Level 1.5 are: Strength of Materials (CE-14304), Design of Concrete Structures– I (CE-14403), Numerical Methods in Civil Engineering (CE-14605), Transportation Engineering-II (CE-14804), Ground Improvement Techniques (CE-14815)</p> <p>Observations: The attainment of given target does not indicate lacking managerial and financial needs of the students related to civil engineering projects. ‘Management of Projects’ need to be an intricate part of the syllabi.</p>
<p>Action 1: The curriculum has been strengthened by introducing subjects like ‘Engineering Economics’, ‘Estimation and Costing’, ‘Construction Engineering &amp; Management’ and ‘Highway Construction and Management’.</p> <p>Action 2: Students are sent to industry for industrial training where they smell the combined flavor of Technicality and Economics.</p>			
<p>PO12: Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.</p>			

PO12	2.32	2.29	<p>Courses with attainment below Level 2 are: Strength of Materials (CE-14304), Surveying (CE-14305), Geomatics Engineering (CE-14401), Construction Machinery &amp; Works Management (CE-14402), Design of Concrete Structures– I (CE-14403), Irrigation Engineering-I (CE-14405), Foundation Engineering (CE-14602), Professional Practice (CE-14603), Reinforced Earth and Geotextiles (CE-14607), Irrigation Engineering-II (CE-14803), Transportation Engineering-II (CE-14804), Ground Improvement Techniques (CE-14815), Hydrology and Dams (CE-14821)</p> <p>Observations: The onset of Covid-19 restrictions and subsequent online teaching mode have played a positive role for the students to acquire self-learning capability which is an important component of lifelong learning habit.</p>
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Action 1: Concept of earning grades through MOOCS courses has been introduced so that the student can not only broaden his/her horizon by selecting the courses that are not offered in the curriculum, but is also introduced to the concept of self-learning.

Action 2: Introduction of Minor/Major Projects gives an opportunity to the student to explore the technical spectrum by reviewing literature and deciding the problem in consultation with the teacher.

PSOs Attainment Levels and Actions for improvement (2020-21)

PSOs	Target Level	Attainment Level	OBSERVATIONS
PSO1: Understanding: Graduates shall demonstrate sound knowledge in analysis, design, laboratory investigations and construction aspects of civil engineering infrastructure, along with good foundation in mathematics, basic sciences and technical communication.			
PSO1	2.32	2.36	<p>Courses with attainment below Level 2 are: Strength of Materials (CE-14304), Structural Analysis - II (CE-14503), Professional Practice (CE-14603), Numerical Methods in Civil Engineering (CE-14605), Transportation Engineering-II (CE-14804), Hydrology and Dams (CE-14821)</p>
<p>Action 1: The curriculum has been designed to separate various streams (structures, geo-tech, environment) so that the students can select the subjects as per their own interest which helps achieve the attainment levels.</p> <p>Action 2: Component of lab courses has been increased to help the students.</p> <p>Action 3: Training needs of the teachers were marked and they were sent to institutes of importance to hone their skills.</p>			
PSO2: Broadness and Diversity: Graduates will have a broad understanding of economical, environmental, societal, health and safety factors involved in infrastructural development, and shall demonstrate ability to function within multidisciplinary teams with competence in modern tool usage.			

PSO2	1.99	2.09	Courses with attainment below Level 1.5 are: Building Materials & Construction (CE-14306), Irrigation Engineering-I (CE-14405), Structural Analysis - II (CE-14503), Transportation Engineering-I (CE-14504), Environmental Engineering – II (CE-14604), Numerical Methods in Civil Engineering (CE-14605), Reinforced Earth and Geotextiles (CE-14607), Design of Steel Structures-II (CE-14801), Pavement Design (CE-14809), Hydrology and Dams (CE-14821)
<p>Action 1: Component of ‘Training’ has been increased - to be included every second semester - so that the student remains in touch with the real world and understands the fast-changing requirements of the profession.</p> <p>Action 2: Certain subjects that are the need of the hour and are based on latest technology like ‘BIM’, ‘Repair &amp; Retrofitting’, ‘Traffic Management’ etc. have been included in the curriculum.</p> <p>Action 3: Various laboratories have been strengthened by including latest softwares.</p> <p>Action 4: ‘Environment &amp; Sustainability’ has been included in the curriculum by including many relevant subjects.</p>			
PSO3: Self-Learning and Service: Graduates will be motivated for continuous self-learning in engineering practice and/or pursue research in advanced areas of civil engineering in order to offer engineering services to the society, ethically and responsibly.			
PSO3	2.21	2.25	Courses with attainment below Level 2 are: Surveying (CE-14305), Geomatics Engineering (CE-14401), Construction Machinery & Works Management (CE-14402), Irrigation Engineering-I (CE-14405), Design of Steel Structures-I (CE-14501), Design of Concrete Structures-II (CE-14601), Design of Steel Structures-II (CE-14801), Elements of Earthquake Engineering (CE-14802), Ground Improvement Techniques (CE-14815), Hydrology and Dams (CE-14821), Disaster Management (CE-14822)
<p>Action 1: Components like ‘Seminars’ and ‘Projects’ have been included in the curriculum that will push the students towards reviewing technical literature and stimulate research needs in them.</p> <p>Action 2: Option of fulfilling the credits through MOOCs is a conscious step towards inculcating self-learning habits in the students.</p>			