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## **Event Report**

### **ISTE approved & GTU sponsored One Week FDP “Outcome Based Education and Accreditation”**

A CVM institution, MBIT organized ISTE approved & GTU sponsored One Week FDP “Outcome Based Education and Accreditation” as a part of Platinum Jubilee Celebration of CVM during 14<sup>th</sup> – 19<sup>th</sup> October, 2019.

Inaugural Ceremony was on 14<sup>th</sup> October, 2019 at 10:00 a.m. Prof. (Dr) Navin Sheth graced the inaugural ceremony as a chief guest. Prof. S. B. Rane from Sardar Patel College of Engineering Andheri, Mumbai; was invited as key note speaker. Dr. G. D. Acharya graced the function being key note speaker. Dr. Bhavesh Patel, Kulpati, CVM University remained present in inaugural function. Er. Bhikhubhai Patel, Chairman, CVM; presided over the function.

Renowned speakers like Dr. Sanjiv Dharwadkar from Shroff S. R. Rotary Institute of Chemical Technology; Dr. Kalpesh Wandra Principal, Gujarat Maritime Board’s Polytechnic, Rajula; Dr. Amit Ganatra, Professor and Head, Computer Department from CHARUSAT University, Changa; Dr. Neeraj K. Chavda, Associate Professor from ADIT; Dr. P. M. Gorge Head, Mechanical Department, BVM Engineering College; Dr. Mukesh Bulsara Professor and Head, Mechanical Department from GCET; Dr.R.K. Jain, Retired Principal ,ADIT; Dr Femina Patel, Professor, VGEC, Chandkheda; Dr.J.M. Rathod, Associate Professor from Electronics department, BVM; Dr. Narendrasinh C Chauhan, Professor and Head, IT Department from ADIT shared their expertise on topics like overview of NBA and its process, NBA requirement and accreditation procedure, NBA application and Evaluation Criteria, Vision, Mission and Program Educational Objectives, Program Curriculum and Teaching-Learning

Processes, Course Outcomes and Program Outcomes, Program and course articulation matrix of PO-CO, CO-PO Mapping, Direct and Indirect tools for assessment and Evaluation Guidelines were discussed.

Mr. Mayur D. Khunti State Teachers Co-ordinator from Art of Living, V. V. Nagar, Anand conducted a session on Art of Liiving. Dr. Sudhir Gupte, Mentor for NBA (AICTE) explained what changes are to be done so as to improve industry interactions with students and faculties. Prof. Shital Bhatt, Coordinator of this FDP conducted a written test on which basis certificates were given and collected feedback from all participants. Vote of Thanks was delivered by Prof. Dr. Archana Nanoty and she wished luck to all participants for applying accreditation for their respective institute.

| Date       | Time              | Speaker  | Topics                            | Subtopics |
|------------|-------------------|--|-----------------------------------|-----------|
| 14-10-2019 | 1:00 PM - 3:00 PM | Prof. S.B. Rane<br>Dean Academics<br>Sardar Patel College of<br>engineering<br>Andheri<br>Mumbai<br>9967505051<br>dean_acad@spce.ac.in | Overview of NBA & its<br>process. | -         |

Sir, gave an Overview of NBA & its process. In which he explained which Documents to be kept ready by Head OF The Department, How to write an SAR (SELF ASSESSMENT REPORT). He gave an understanding of Accreditation, its need, the Impact Of Accreditation, Policy of Accreditation, NBAs Accreditation Parameters Criteria and Processes. He explained how to prepare Vision, Mission, PEO, PO and CO. He stated the need of stake holders like students, management, faculties, parents, recruiters, nation, university, etc. He told about 3R: Respect, reward recognition. He explained about flipped classes and innovative teaching scheme. He told about 7 aims and their effect on NBA: Men, Machine, Material, Money, Market, Method and Management.

He stated Benefits and Significance of Accreditation such as:

- Helps the Institution to know its strengths, weaknesses and opportunities. [SWOT analysis]
- Initiates Institutions into innovative and modern methods of pedagogy.
- Gives Institutions a new sense of direction and identity.
- Provides society with reliable information on quality of education offered.
- Promotes intra and inter-Institutional interactions.

He also stated few advantages of Accreditation is market-driven and has an international focus. It assesses the characteristics of an Institution and its programmes against a set of criteria established by National Board of Accreditation, Students studying in NBA accredited Institutions can be assured that they will receive education which is a balance between high academic quality and professional relevance and that the needs of the corporate world are well integrated into programmes, activities and processes, It signifies that he has entered the portals of an Institution, which has the essential and desirable features of quality professional education, Accreditation assures prospective employers that

students come from a programme where the content and quality have been evaluated, and those are satisfying established standards, It also signifies that the students passing out have acquired competence based on well-established technical inputs, Accredited status represents the commitment of the programme and the Institution to quality and continuous improvement.

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| 14-10-2019 | 3:15 PM - 5:00 PM | Dr. G. D. Acharya<br>Principal,<br>Atmiya Institute of Technology<br>and Science, Rajkot.<br>Mo: +91 – 9978922011<br>Email: <a href="mailto:principal@aits.edu.in">principal@aits.edu.in</a> | NBA requirement and<br>accreditation procedure<br>NBA application and<br>Evaluation criteria. | - |
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Sir, mentioned the 5P's for getting success in NBA they are: Purpose, Planning, Process, Problem solving, Performance. He explained about organizing various event under ISTE, IEEE, Mock interviews, Various clubs handled by students. Following points were discussed: Program Accreditation, Washington Accord, Branding & Bragging, Stakeholder Perception, No escape from statutory and regulatory bodies like AICTE, MCI etc irrespective of institutional rankings or status, Required for AICTE Approval, Extension of Approval, New programs and seat increase, UGC Deemed University regulations, Engineering knowledge – Curriculum revision, Faculty training, Problem analysis – Live industry problems, assignments, Design/development of solutions – Design thinking, Projects, Hackathons, Innovation cell., Investigation – Examination reforms, Blooms taxonomy, Modern tool usage – Mandatory software and hardware, MOUs for Centres of excellence by industry, The engineer and society – UBA, Internships, Environment and sustainability – UBA, mandatory courses, Ethics – Unique three-week student induction program, Individual and team work – Assignments, Quizzes, Projects, Communications – Soft skills, Life skills, Project management and Finance – Courses, Internships, Life-Long learning – MOOCs courses SWAYAM, Regular revision of curriculum by experts (academia, industry), Mandatory teacher training and certification : 8 modules on pedagogy, new technologies, student involvement, projects, exams etc, Mandatory 3-week student induction program : ethics, society, Mandatory internships : Website, Examination reforms : Website, model question papers, Promoting innovation and startups, Mandatory accreditation : workshops, mentoring ,Perspective plan : work in progress, Industry readiness : mandatory Industry Interaction cell, Selection of students: entrance exam NEETI, Smart India Hackathons, AICTE student Startup policy, Institution obtains the manuals of Accreditation along with the Application form, The institution responds to the two part Questionnaire. , Part I - About Institution and Part II - About Individual Programme, NBA's Secretariat scrutinises the application

for adequacy of information, relevance and eligibility for accreditation, seeks suitable dates for visit by the Accreditation Team, constitutes the Accreditation Team, prepares brief for the members of the team.

- ORGANISATION AND GOVERNANCE
- Accreditation Team visit's the institution and makes recommendations.
- Team Recommendations are presented to the Sectorial Committee.
- The NBA considers the recommendations of the Sectorial Committee
- The results are placed in the EC of AICTE for information.
- The results are notified and published in the Directory of Accredited Programmes of institutions.
- Planning and Monitoring
- Recruitment Procedure & its Effectiveness
- Promotional Policies/Procedure
- Leadership
- Motivational Initiatives
- Transparency
- Decentralization and Delegation & participation of faculty
- Constitution of GC/GB

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| 15-10-2019 | 10:00 AM – 12:00 Noon | Dr. Sanjiv Dharwadkar<br>Designation: Professor on retainer ship<br>Sroff S. R. Rotary Institute of Chemical Technology<br>Ankleswar - Valia Road<br>Email:<br><a href="mailto:sanjiv.dharwadkar@sriect.in">sanjiv.dharwadkar@sriect.in</a><br>9909990312 | Vision, Mission and Program Educational Objectives. |  |
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He discussed about Program Level Criteria 1. Vision, Mission and Program Educational Objectives whose weightage is 50 Marks. He explained Criterion is being divided into subtopics like: Vision and Mission of the Department and Institute where Vision statement typically indicates aspirations and Mission statement states the broad approach to achieve aspirations, Program Educational Objectives (PEOs) in which we have to State the PEOs of program seeking accreditation. Which should indicate where the Vision, Mission and PEOs are published and

disseminated among stakeholders We have to describe where (websites, curricula, posters etc.) the Vision, Mission and PEOs are published and detail the process which ensures awareness among internal and external stakeholders with effective process implementation. Internal stakeholders may include Management, Governing Board Members, faculty, support staff, students etc. and external stakeholders may include employers, industry, alumni, funding agencies, etc.

He stated how to process for defining the Vision and Mission of the Department, and PEOs of the program. In which we have to Articulate the process involved in defining the Vision and Mission of the department and PEOs of the program. Also, need of Establish consistency of PEOs with Mission of the Department and Generate a “Mission of the Department – PEOs matrix” with justification and rationale of the mapping.

He emphasized on: Observe where (websites, curricula, posters etc.) the Vision, Mission and PEOs are published • Observe the process which ensures awareness among internal and external stakeholders • Verify Effective process implementation including involvement of stakeholders Adequacy (2) + Process (2) + Extent of Awareness (6) • Availability on Institute website under relevant program link • Availability at department notice boards • HoD Chamber • Department website, if available • Availability in department level documents • Documentary evidence

He also explained how to do Listing and articulation of the vision and mission statements of the institute and department , Description of media (e.g. websites, curricula books) in which the vision and mission are published and how these are disseminated among stakeholders, Articulation of the process involved in defining the vision and mission of the department from the vision and mission of the institute

•Vision statement typically indicates aspirations and Mission statement states the broad approach to achieve aspirations •Should be written in a simple language, easy to communicate and should define objectives which are out of reach in the present context •Should be understood and shared by the people within the system •Department Vision and Mission statements shall be consistent with the Institute Vision and Mission statements Availability (1) + Appropriateness (2) + Consistency (2)

1. Student centric – learning not coverage oriented
2. Aligned with program and institution – need to reflect both objectives and outcomes that the academic program represents as well as the broader mission of the institution as a whole
3. Focus on abilities central to the discipline – help prepare the student on what is important to the discipline

4. Focus of aspects of learning – teaching students new modes of thinking – likely to impact their future – away from rote learning
5. Limited to manageable number - 4 to 6 that can be attained realistically in a semester
6. Specific enough to be measurable and assessable for attainment – this is most important for OBE

Observe the process for defining the Vision and Mission of the department and PEOs of the program Vision and Mission process (10) + PEOs process (15) Process to ensure: • Effective participation of Stakeholders • Effective Process implementation Documentary evidence

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| 15-10-2019 | 1:00 PM - 3:00 PM | Dr. Kalpesh Wandra<br>Principal, Gujarat Maritime<br>Board's Polytechnic, Rajula.<br>Mo: +91 – 9825019080<br>Email:<br><a href="mailto:khwandra@rediffmail.com">khwandra@rediffmail.com</a> | Program Curriculum And<br>Teaching - Learning<br>Processes | Program Curriculum: Process of<br>designing curriculum for attaining the<br>Program Outcomes and Program<br>Specific Outcomes, Structure of the<br>curricular development and Teaching -<br>Learning Processes: Describe Processes<br>followed to improve quality of<br>Teaching & Learning |
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He stated and explained following points:

State the Program Educational Objectives (3 to 5) Availability & Correctness Indicative: Typically under the following five broad categories:  
1. Preparation – Employment/Higher studies 2. Core competence – Discipline knowledge 3. Breadth – ‘T’ Shaped Engineer 4. Professionalism – 3 Ps – Professional value-knowledge-development 5. Life long learning – Environment.

The purpose of the accreditation by NBA is to promote and recognize excellence in technical education in colleges and universities - at both the undergraduate and post graduate levels. Institutions, students, employers, and the public at large all benefit from the external verification of quality provided through the NBA accreditation process. They also benefit from the process of continuous quality improvement that is encouraged by the NBA's developmental approach to promote excellence in technical education. the following main purposes are served:

- support and advise technical institutions in the maintenance and enhancement of their quality;
- confidence and assurance on quality to various stakeholders including students;
- assurance of the good standing of an institution to government departments and other interested bodies; and

- enabling an institution to state publicly that it has voluntarily accepted assessment of its systems and processes by NBA and has satisfied all the requirements for operation and maintenance of quality in education.

#### Benefits and Significance of Accreditation

Accreditation is a tool that stakeholders use to monitor, assess and evaluate the standards and quality of the education a student receives at a college, university or other institution of higher learning. Some of the major benefits enrolled students receive by attending an accredited institution / program are as follows:

- Accredited institution / program offers the highest quality education available;
- Accredited institution / program strengthens consumer's confidence, employers value degrees of an accredited program the most;
- Accreditation helps institutions to know their strengths, weaknesses and opportunities, pushes them to continuously improve their programs and give them a new sense of direction, identity and targets; and
- Accredited institution / program demonstrates accountability to the public, commitment to excellence and continuous quality improvement.
- Accreditation Policy
  - i) NBA accredits selected technical Programs of institutions and not the Institutions or its Departments / Centres as a whole.
  - ii) Institutions are invited to apply for accreditation through eNBA portal as per norms prescribed by NBA from time-to-time.
  - iii) Programs to be accredited should be offered by an educational Institution, which has been formally approved by the AICTE or the concerned regulatory authority.
- Exhibits/Context to be Observed/Assessed:
  - Availability of Academic Calendar based on University academic calendar and its effective compliance
  - Documentary evidence to support implementation of pedagogical initiatives such as real life examples, collaborative learning, ICT supported learning, interactive class rooms etc.
  - Guidelines to identify weak and bright students; post identification actions taken; impact observed
  - Class room ambience; efforts to keep students engaged (also to be verified during interaction with the students)
  - Quality of laboratory experience with respect to conducting, recording observations, analysis etc.(also to be verified during interaction with the students)
  - Internal Semester examination and internal marks thereof, Practical record books, each experiment assessment, final marks based on assessment of all the experiments and other assessments; if any
  - Feedback format, frequency, analysis and actions taken (also to be verified during interaction with students)



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| 15-10-2019   | 3:15 PM - 5:00 PM | Dr. Amit Ganatra<br>Professor, M.E. C.E., Ph.D.<br>Chandubhai S Patel Institute of<br>Technology – Changa<br>Email:<br><a href="mailto:amitganatra.ce@charusat.ac.in">amitganatra.ce@charusat.ac.in</a> | Program Curriculum And<br>Teaching - Learning<br>Processes | Quality of internal semester Question<br>papers, Assignments and<br>Evaluation, Quality of student<br>projects, Initiatives related to industry<br>interaction, Initiatives related to<br>industry internship/summer training |
| <p>Sir Discussed following things:</p> <ul style="list-style-type: none"> <li>• Outcome mapping (program mapping) facilitates the alignment of course-level outcomes with program outcomes</li> <li>• It allows staff members to create a visual map of a program</li> <li>• It is also used to explore how students are meeting program-level outcomes at the course level</li> <li>• Outcomes mapping focuses on student learning</li> <li>• Program Outcomes (POs): Represents the knowledge, skills and attitudes the students should have at the end of a four year engineering program in India</li> <li>• The Course Outcomes(COs): They are the resultant knowledge skills the student acquires at the end of a course. It defines the cognitive processes a course provides</li> <li>• Program Educational Objectives: PEOs are broad statements that describe the career and professional accomplishments after graduation (in four years)that the program is preparing graduates to achieve</li> <li>• Program Specific Outcomes: PSOs are statements that describe what the graduates of a specific engineering program should be able to do</li> <li>• <b>BEST PRACTICES AND PEDAGOGICAL INNOVATION</b></li> <li>• Google Classroom/ Moodle/ Edmodo/Blogs</li> <li>• MOOC's</li> <li>• NPTEL SWAYAM online courses</li> <li>• Thinkers lab</li> <li>• Online tests</li> <li>• Group discussions</li> <li>• Internships</li> </ul> |                   |   |  |   |

- Case studies
- Open book tests
- Industrial visits
- PowerPoint Presentations
- Remedial Coaching
- Challenging Assignments for Fast Learners
- Self learning and Self Development
- Reflexive Learning
- Open source tools
- Co-operative Learning- Two teachers
- Flip Class Room Based Learning
- Virtual Class room and Virtual Lab
- GATE Question Papers Solutions
- The assessments are designed in a relevant manner in order to ensure that the learner achieves the intended learning outcomes
  1. The evaluation of assessment tasks with regards to both content and form is necessary
  2. Institution has well-defined guidelines for question paper setting and preparing key points for answers with mark distribution
  3. While setting question papers the guidelines are kept in mind and strictly adhered to enhance quality
  4. Blooms Taxonomy: Bloom's taxonomy provides a common language for teachers to discuss and exchange learning and assessment methods. Specific learning objectives can be derived from the taxonomy.
  5. Internal and external Question Papers must meet all the six components of Blooms Taxonomy
  6. Active learning is a process in which the students will be engaged in hands-on activities rather than passively receiving knowledge.
  7. Mode of Exam : Online Quiz, Presentations, Group Discussions, Project Based, Assignments, Task Completion, written or oral exam, viva, open book exam etc, any method can adapted.
  8. Use of LMS should be promoted for online assignment submission. LMS like Google Class Room, Edmodo .. To be used.
  9. It is imperative to promote the spirit of inquiry among young graduates since Lifelong learning is a synergy between teaching and research
  10. The knowledge through lectures in class rooms, practical in laboratories and reference work in libraries do not expose students to real life situations
  11. The adoption of participatory approach in learning, whereby the students involve themselves in identifying a problem, analyzing the causes and finding the solution objectively will have a positive impact on the students and will make the learning process more meaningful and interesting

12. Involvement of Industry expert for study and discussions on moulding students' project to comply with industrial standard.
13. To promote Industry Institute Interaction the following initiatives are being undertaken:
14. Organizing Workshops, International & National conferences with joint participation of the faculty and the industries.
15. Value added courses in collaboration with Industries.
16. Arranging Expert lectures by professionals from industry.
17. Participation of experts from industry in BoS for curriculum development.
18. Arranging Industry visits of staff members to various industries.
19. Consultancy work rendered to industries.
20. Providing technical support to the industrial consultants for various industrial processes.
21. Extending academic support to the industrial consultants using real time application software's.

#### Company-College Collaboration Platforms

- \* Training via online tests including company question papers
- \* Excellent reporting module to monitor the student progress
- \* Video profile to assess communication skill
- \* Career portal having several article on campus interview tips written by industry experts
- \* Upload own online test (or use ours) questions and conduct mock tests
- \* Words a day; helping your students to improve vocabulary
- \* Video training
- \* Aptitude Test Training.
- \* Group Discussions
- \* Mock Interviews

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| 16-10-2019 | 10:00 AM – 12:00<br>Noon | Dr. Neeraj K. Chavda<br>Associate Professor<br>ADIT<br>New V. V. Nagar<br>Anand<br>9427494599 | Course Outcomes And<br>Program Outcomes | Establish the correlation between the<br>courses and the Program Outcomes<br>(POs) and Program Specific Outcomes<br>(PSOs) |
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Points discussed:

- Understand the nature of outcome based education
- Understand the importance of & Strength (Level) of Correlation (Mapping)
- Understand the process of correlating Courses with POs/PSOs and attainment of POs/PSOs
- As per OBE, student learn well when,
  - They are clear about what they should be able to do (Outcome) at the end of the course.
  - Instructional activities are designed and conducted to facilitate them to acquire what they are expected to achieve (Outcome).
  - Assessment is in alignment with what they are expected to do (Outcome).
- PEOs are broad statements that describes the career and professional achievement of students within 4 to 5 years of completing the program.
- POs are the statements that describe what the students should be able to do at the time of graduation from an engineering program.
- They are identified by NBA & 12 in number.
- They are in alignment of Graduate Attributes of Washington Accord.
- PSOs are the statements that describe what the graduates of a specific engineering program should be able to do.
- A department can differentiate its program from similar programs through its PSOs.
- COs are the statements that describe what students should be able to do at the end of a course.
- COs should be observable and measurable.
- A CO addresses a subset of POs and PSOs.
- COs are identified by Instructor or BOS.
- COs are the statements that describe what students should be able to do at the end of a course.
- COs should be observable and measurable.
- Structure of a CO Statement
  - Action
  - Knowledge
  - Condition
  - Criterion
- Importance
  - Attainment of POs and PSOs are mainly through Core Courses.
  - Each CO addresses a sub-set of POs & PSOs.
  - Each CO may have different level of correlation (mapping strength) with POs & PSOs.
- Importance

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| <ul style="list-style-type: none"> <li>○ Attainment of a POs/PSOs depends both on the attainment level associated COs and the strength to which they are correlated (mapped).</li> <li>○ Attainment of a PO/PSO depends both on the attainment level associated COs and the strength to which they are correlated (mapped)</li> </ul>  |                   |   |   |   |
| 16-10-2019   | 1:00 PM - 3:00 PM | Dr. P. M. Gorge<br>Head of Mechanical<br>Department<br>Birla Vishwakarma<br>Mahavidyalaya Engineering<br>College<br>Vallabhvidyanagar<br>9427312116 | Program and course<br>articulation matrix of PO-<br>CO, CO-PO Mapping | Attainment of Course Outcomes:<br>Attainment of Program Outcomes and<br>Program Specific Outcomes |
| <ul style="list-style-type: none"> <li>● Outcome based education (OBE) is a student-centered instruction model that focuses on measuring student performance through outcomes. Outcomes include knowledge (Cognitive), skills (psychomotor) and attitudes (affective/ behaviour).</li> <li>● Its focus is on evaluation of outcomes of the program by stating the knowledge, skill and behaviour a graduate is expected to attain upon completion of a program and after 4 – 5 years of graduation.</li> <li>● In the OBE model, the required knowledge and skill sets for a particular engineering degree is predetermined and the students are evaluated for all the required parameters (Outcomes) during the course of the program.<br/>Implication:- an Engineering graduate from India can be employed in any one of the other countries who have signed the accord.</li> <li>● For Indian Engineering Institutions to get accredited by NBA according to the pacts of the accord, it is compulsory that engineering institutions follow the Outcome Based Education (OBE) model.</li> <li>● Detail study of program outcomes (PO's). PO's represent the Expected Graduate Attributes (EGA) .</li> <li>● Develop course outcomes (CO's) for each of the courses in the curriculum.</li> <li>● Create a mapping matrix between CO &amp; PO, indicating which courses contribute to which program outcomes.</li> <li>● Decide attainment tools used to assess the course and measure performance in terms of levels i.e 1-low, 2medium, 3-high. These levels indicate the extent to which a student achieves the CO's for each course.</li> <li>● Calculate overall program outcome using the CO-PO mapping matrix</li> <li>● PO's give useful guidance at program level for the curriculum design, delivery and assessment of student learning</li> </ul> |                   |   |   |   |

- The connection of high level learning PO's with low level CO's can be achieved through a two-step process: Identifying (1) Competencies (2) Performance Indicators (PI)
- Competencies
- Demonstrate an ability to define a complex open-ended problem in engineering terms.
- Demonstrate an ability to generate a diverse set of alternative design solutions
- Demonstrate an ability to select the optimal design scheme for further development
- Demonstrate an ability to advance an engineering design to define end state
- It is advisable to formulate assessment plans for each of the course in the program that brings clarity to the following:
- Alignment of assessment with learning outcome of the course
- Level of learning (cognitive) student is expected to achieve
- Assessment method to be adapted
- When developing CO, the CO should be:
- Real and understandable
- Defined in terms of behaviour of the learner
- Based on the educational need of the learner
- Measurable, and
- Achievable
- The CO should not:
- Describes the learning process
- Contains more than one outcome

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| 16-10-2019 | 3:15 PM - 5:00 PM | Dr. Mukesh Bulsara<br>Professor,<br>Mechanical Department,<br>G H Patel College of<br>Engineering & Technology,<br>VallabhVidyangar.<br>Mo: +91 – 9426260866<br>Email:<br><a href="mailto:mukeshbulsara@gcet.ac.in">mukeshbulsara@gcet.ac.in</a> | Direct and Indirect tools<br>for assessment and<br>Evaluation Guidelines |  |
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Sir, Focused on following things to consider: Who can apply for Accreditation? Individuals, courses, and institutions are not accredited. NBA only accredits programs in Engineering, Computer Application, Pharmacy, Management etc. Institution category for award of Accreditation?

- for any change in curriculum, its implementation and to examine the enrolled students for award of Degree e.g. Government Colleges, Government Aided Colleges, Private/Self Financing Colleges. Program Outcomes (PO), Program Specific Outcomes (PSO) and Course Outcomes (CO)
- Program Outcomes are already defined by NBA and are available as Annexure – I in SAR.
- Program Specific Outcomes are to be defined by the Head of each program. References are easily available from Google.
- Course Outcomes are defined by GTU can be used, alternatively FMs can define their own CO for the subject. Define 4-6 CO for each course. (Tip: Lesser the better). One course each from 3rd to 8th semester may be crucially examined for CO by the NBA team. Tools for assessment of CO, PO, PSO. Assessment tools that can be used: Direct tools: • Marks of end semester exam, • Mid-semester exam marks, • End semester Viva marks, • Tutorial/ Practical/Assignment/Quiz marks • ALA/OEP/DE marks, • Placement through campus or Off-campus or pursuing higher studies. Indirect tools: • Alumni feedback, • Student feedback, • Parent feedback, • Employer feedback, • Teacher feedback, • Student portfolio, • Marks in competitive exams (GRE/TOEFL/GATE/CA. Attainment CO, PO & PSO. Attainment of CO by Direct assessment tools: Steps: 1. Decide the assessment tools to be considered, e.g. End sem. exam, End sem. viva, Mid sem. exam, Internal marks (others like ALA, OEP, DE, Assignment) 2. Collect the record of grades or marks of each students in given subject in given Academic Year for each of the above components. 3. Reduce the marks of each student in scale of 0 to 3 with some philosophy. 4. Count no. of students falling in each score 0 to 3 5. Find percentage of students securing same score. 6. Obtain weighted average attainment Level of CO of each assessment tool. 7. Mapping of each CO with different selected assessment tool. 8. Calculate Attainment of each CO in each assessment tool. 9. Decide the weightage of each assessment tools considered based on some logic, e.g. End sem. exam -70, End sem. viva -30, Mid sem. exam -30, Internal marks-20. 10. Calculate Attainment of each CO A. Attainment of CO, PO and PSO by Indirect method • Feedback forms needs to be prepared (Hard forms or Google doc) and feed back must be taken academic year wise. • Proper record of the feed back has to be maintained year wise • Feed back may be taken in scale of 0 to 10 and subsequently reduced to scale of 0 – 3 • Relative Weightage of Direct and Indirect methods is to be decided. • Assess the suitability of each Indirect tool for CO, PO and PSO. Quality of internal semester Question papers, Assignments and Evaluation (20) • The internal test consists of 20 Marks of subjective as well as short logical questions. • Each question is mapped with Blooms taxonomy (BT) levels. • The key words to classify the question into various Bloom Taxonomy levels are adopted from AICTE guidelines. • Four Bloom taxonomy levels are considered to evaluate the question paper viz BL1- Remembering, BL2- Understanding, BL3- Applying, BL4- Analysing. • Each Bloom Taxonomy level is given a weightage on scale of 1 to 4 as shown in table.

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| 17-10-2019 | 10:00 AM – 12:00<br>Noon | Dr. R.K. Jain<br>Retired Principal<br>ADIT<br>New V. V. Nagar<br>8153990157 | Governance, Institutional<br>Support and Financial<br>Resources | Organization, Governance and<br>Transparency, Budget Allocation,<br>Utilization, and Public Accounting at<br>Institute level, Program Specific<br>Budget Allocation, Utilization |
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Sir explained Criterion 10: VISION AND MISSION STATEMENT

- Process: Preparation of Vision and Mission Statement
  - Most difficult task as it is linked with everything,
  - Teaching learning process, budget and purchase
  - Recruitment, Research, STTPS, Workshops and so on.
- Plan: On the basis Global requirement but meeting local needs
- Faculty: Number, Qualification, Commitments and
  - Entrepreneurial attitude
- Infra structure: State of art to meet the local needs,
  - Staff can handle, use and
  - Find solutions of real-life problems
- Finances: Adequate to meet the present needs and
  - Sustainable in emergencies
- APPROPRIATENESS / RELEVANCE OF THE STATEMENT
- Every activities Institute plan should be linked with it. i.e.
- Recruitment: Staff should be competent to produce engineers to visualize real life problem, may by having industrial experience, time commitments, innovation oriented
- Purchases: Latest, versatile in applications ease in operation and maintenance by local people
- Projects: Connection with real world, scope of scaling up
- STTP, Workshop: On actual strength or virtual need
- Members of different bodies like Governing, Board of Management, Research Activities, Academic Council, Internal Quality Assurance Cell, Patenting and Technology Release Committee, Administrative setup should be as per AICTE norms and frequency of meeting should be planned and regular held.
- Representation of Management, Faculty, Students, Industry personal, Employers, Social workers and Parents must be as per norms.



- Each member must be proactive. Their attendance and participation must be recorded. They should be present when they are called and also interact even though they're not called.
- DELEGATED POWER AND ADMINISTRATIVE DECISIONS
- Faculty members, Heads of departments and other In charges, whom power has been delegated, their documentation, records activities and responsibilities are to be well defined.
  - SELECTION MECHANISM AND COMPOSITION
- The procedure of staff selected for Grievance Redressal Cell and various In-charges, including Heads of departments is to be documented
- DELEGATION OF FINANCIAL POWERS
- Record of delegation of financial powers to Principal, Heads of department, Various in-charge like Training and Placements, Academic section; Sports, Cultural; Library etc. for last three years.
- DEMONSTRATIONS OF THE FINANCIAL POWERS
- Proof of using the delegated financial powers by the concerned staff in last three years
- INFORMATION OF THE POLICIES, RULES, PROCESSES
- All the information of policies, rules, processes must be in reach of every stake holders, published on Institute website, and hard copy with Office, Library and Principal
- DISSEMINATION OF THE INFORMATION
- Information of Vision - Mission statements,
- Students and Faculty strength of last (Minimum) three years, Details of students of International, Jammu and Kashmir should be displayed.
- Students and Faculty achievements (academic and other)
- BUDGET ALLOCATION AND UTILIZATION
- Justification of budget allocated for last three years,
- Planning
- Reasoning,
- Approval,
- Sanctioning and
- Utilization

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| 17-10-2019  | 1:00 PM - 3:00 PM | <u>DR. FEMINA PATEL</u><br>PROFESSOR<br>CHEMICAL ENGINEERING<br>Vishwakarma Government<br>Engineering College<br>9898538809 | Students' Performance | Enrolment Ratio, Success Rate in the stipulated period of the program, Academic Performance in second and third year, Professional Activities, Improvement in the quality of students admitted to the program, Improvement in Placement, Higher Studies and Entrepreneurship |
| <p>Madam gave a brief of NBA and what committee expects. She also discussed which files to be prepared and had brought 2 files with her.</p> <p>Following points were discussed:<br/> Credible System of Accreditation</p> <ul style="list-style-type: none"> <li>• Strength and credibility of accreditation process largely lies in the integrity, honesty, expertise and professionalism.</li> <li>• Evaluators – face of NBA.</li> <li>• Transparency- <ul style="list-style-type: none"> <li>○ Report discussed in the meetings of EAC in presence of all team chair</li> <li>○ Recommendations of EAC are considered in Sub-committee of AAC chaired by Chairman, NBA</li> <li>○ Copy of the report is sent to the Institution</li> <li>○ Change in decision communicated to the institution with reasons</li> <li>○ 360-degree feedback</li> </ul> </li> <li>• General Policy on Accreditation</li> <li>• The following general policies are the guiding principles for the accreditation of programs:</li> <li>• Programs, and not Educational Institutions, are considered for accreditation.</li> <li>• Programs from which at least two batches of students have graduated are considered for accreditation</li> <li>• Knowledge and competencies profiles</li> <li>• Graduate attributes which form the student learning outcomes: <ul style="list-style-type: none"> <li>○ Engineering knowledge</li> <li>○ Problem analysis</li> <li>○ Design/development of solutions</li> </ul> </li> </ul> |                   |   |                       |  |

- Investigation
- Modern tool usage
- The engineer and society
- Environment and sustainability
- Ethics
- Individual and team work
- Communications
- Project management and finance
- Life-long learning

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| 17-10-2019 | 3:15 PM - 5:00 PM | <b>Dr. J. M. Rathod</b><br>Associate Professor<br>Electronics department<br>BVM<br>9106862274<br>jmr.bvm@gmail.com | Facilities and Technical Support |  |
|------------|-------------------|--|----------------------------------|--|

**Dr. J. M. Rathod explained** Benefits of Accreditation like • Helps the institution to know its strengths, weaknesses and opportunities; • Initiates institutions into innovative and modern methods of pedagogy; • Gives institutions a new sense of direction and identity; • Provides society with reliable information on quality of education offered; • Students studying in NBA accredited programs can be assured that they will receive education which is of high academic quality and professional relevance and that the needs of the corporate world are well integrated into programs, activities and processes; Accreditation assures prospective employers that students come from a program where the content and quality have been evaluated, satisfying established standards. • It also signifies that the students passing out have acquired competence based on well-established technical inputs; and • Accreditation helps in gaining confidence of stakeholders and in giving a strong message that as a country, • our technical manpower is of international standards and can be very useful in enhancing the global mobility of our technical manpower.

He stated Imperatives of Accreditation like • Funding decisions; • Accountability of institutions to stakeholders; • Quality assurance of educational programs. • Encouraging self-improvement initiatives by institutions; and • State recognition of qualification/ certification of professionals.

He explained Adequate and well equipped laboratories, and technical manpower, Additional facilities created for improving the quality of learning experience in Laboratories, Laboratories: Maintenance and overall ambiance, Safety measures in laboratories.

He also stated Availability of the following Exhibits: – Profile of faculty involved in the program; – Evidence that the results of assessment of course outcomes and program outcomes are being applied to the review and ongoing improvement of program effectiveness; – List of publications, consultancy and sponsored/funded research projects by the program faculty; – Sample materials for theory and laboratory courses; – Sample test/semester examination question papers for all courses; – Sample of test/semester examination answer scripts projects, assignments, (including at least one excellent, one good and one marginal pass for each examination) question papers and evidences related to assessment tools for COs and POs; – Student records of three immediate batches of graduates; Sample project and design reports (excellent, good and marginal pass) by students; – Sample student Feedback Form; – Sample for industry-institution interaction; – Results of quality assurance reviews; – Records of employment/higher studies of graduates; – Records of academic support and other learning activities; and – Any other document that the Evaluation Team/NBA may require.

He briefly stated Criterion-VI file • Lists of equipments / computers / printers / servers in each lab – one list for each lab • Name of technical staff and faculty in-charge for each lab (may be, in above list), with their designation and qualification.

Other Possible Evidences to be kept:

Machines / equipments in each lab – highlighting attractive facilities • Evidences of utilization of different equipments • • In the Laboratories: Working and well tagged equipments in each laboratory, Relevant posters, Vision, Mission, PEOs, and PO/PSOs, Lab utilization registers, System to resolve repair / complaints • Personal file of the Technical Staff containing copies of certificates showing their qualifications • Evidences showing additional facilities created for improving the quality of learning experience in labs • Evidence of appropriate Safety Measures existing in laboratories: e.g., fire extinguisher equipments, maps showing emergency exits, etc.

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| 18-10-2019 | 10:00 AM – 12:00 Noon | Dr. Narendrasinh C Chauhan<br>Professor and Head<br>IT department<br>ADIT<br>9377559385<br>narendracchauhan@gmail.com | Continuous Improvement | Actions taken based on the results of evaluation of each of the POs & PSOs, Academic Audit and actions taken thereof during the period of Assessment |
|------------|-----------------------|---|------------------------|--|

Sir, Started with What is Continuous Improvement?, Action Taken based on Result of Evaluation of CO, PO and PSO, Improvement in Placement, Higher Studies and Entrepreneurship, Improvement in the quality of students admitted to the program, Actions taken based on the results of evaluation of each of the COs, POs & PSOs (20) • Identify the areas of weaknesses in the program based on the analysis of evaluation of COs, POs & PSOs attainment levels. • Measures identified and implemented to improve POs & PSOs attainment levels for the assessment year including curriculum intervention, pedagogical initiatives, support system improvements, etc. OBJECTIVES OF ACADEMIC AUDITING: • To ensure academic accountability. • To define quality of each component of the functionalities and to ensure quality of technical education throughout the system. • To safeguard functionalities of technical education. Documents Made Available to the Auditor: • 1. Class Time Table & Faculty Time Table • 2. Students Roll List • 3. Students Batch List ( for practical courses, projects) • 4. Course Diary for all the courses including practical, seminar, project etc. • 5. Course File • 6. Equipment Log register used in Laboratories • 7. Consolidated Attendance statement of students • 8. Consolidated statement of marks of internal tests • 9. Seminar presentation details • 10. Project (Mini project/Design project/Final semester project) progress review reports • 11. Register of internal evaluation marks • 12. Register of Remedial/Bridge/Language Lab classes • 13. Result Analysis, 7.3 Improvement in Placement, Higher Studies and Entrepreneurship, Assessment is based on improvement in: • Placement: number, quality placement, core industry, pay packages etc. • No. of students placed • No. of companies visited • Highest Package • Average Package • No. of students placed in core company (MNC) • Higher studies: • Performance in GATE, GRE, GMAT, CAT etc., and • Admissions in premier institutions • Entrepreneurs, 7.4 Improvement in the quality of students admitted to the program, Assessment is based on – improvement in terms of – ranks/score in qualifying state level/national level entrances tests, – percentage marks in Physics, Chemistry and Mathematics in 12th Standard and – percentage marks of the lateral entry students.

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| 18-10-2019  | 1:00 PM - 3:00 PM        | <b>Dr. J. M. Rathod</b><br>Associate Professor<br>Electronics department<br>BVM<br>9106862274<br>jmr.bvm@gmail.com | Faculty Performance<br>Appraisal and<br>Development System |  |
| <p><b>Dr. J. M. Rathod explained</b> Benefits of Accreditation like • Helps the institution to know its strengths, weaknesses and opportunities; • Initiates institutions into innovative and modern methods of pedagogy; • Gives institutions a new sense of direction and identity; • Provides society with reliable information on quality of education offered; • Students studying in NBA accredited programs can be assured that they will receive education which is of high academic quality and professional relevance and that the needs of the corporate world are well integrated into programs, activities and processes; Accreditation assures prospective employers that students come from a program where the content and quality have been evaluated, satisfying established standards.</p> <p>Sir, briefly explained what things should be included in file for appraisal and what improvements need to be done in it.</p> |                          |  |  |  |
| 18-10-2019  | 3:30 PM – 4:30 PM        | Prof. Shital Bhatt<br>Asst. Prof.<br>IT Dept.<br>MBIT<br>New V. V. Nagar   | Test   |  |
| <p>A written test was conducted. The paper was prepared by experts from ADIT College, New V. V. Nagar. The paper consists of 10 questions each of 2 Marks.</p>  |                          |  |  |  |
| 19-10-2019  | 10:00 AM – 12:00<br>Noon | Mr. Mayur D. Khunti<br>State Teachers Co-ordinator<br>Organization- Art of Living<br>V. V. Nagar<br>Anand          | Art of Living  |  |

Sir stated the importance of brining mind where it should be. He also explained how we can be attentive. He made us do meditation and thereby explained importance of meditation. He made us play games giving importance of life and happiness.

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| 19-10-2019 | 1:00 PM - 3:00 PM | Dr. Sudhir K. Gupte<br>Mentor for NBA<br>All India Council for Technical<br>Education (AICTE) |  | Initiatives related to industry<br>interaction,Initiatives related to<br>industry internship/summer training |
|------------|-------------------|---|--|--|

Sir explained what changes are to be done so as to improve industry interactions with students and faculties

We follow University Syllabus:

- Syllabus is made looking at available books.
- Books are required for teaching Fundamentals / basics.
- Fundamentals are very well covered in OLD books (considered as Bibles / Kuran / Bhagvad Geeta).
- When a new program is started at any institute they follow what is available in old institutes
- Laboratory Equipment supplier decides what equipment should we have...
- Generally bare minimum equipment are purchased.
- Cost of commercial equipment is very high
- Laboratory Equipment:
  - They get out dated soon, because of Technology disruptions.
  - At time they are so simple (either students have experienced during school days OR in life).
  - At times, We the Teachers also, are very casual in conducting experiments
  - We know how the syllabus is prepared (as a syllabus committee coordinator).
  - Latest updated Technological improvements are not included. Because there are no books published on such topics. (e.g. BRTS, Autonomous Vehicles).
- Why Practical Exposure:
  - We all know that Hands on Practice / Out of class room Learning is required.
  - It builds confidence, develops ability of problem solving, Team building, able to compete in the outside world.
  - Danger: They have developed habit of learning on U-Tube, Not in Laboratory.
    - Bridge Gaps (Industry & Academia):

- Industrial Trainings during Vacation.
- Industry defined projects
- Encourage Innovations and filing Patents (Gujarat is on 9<sup>th</sup> Position in India in Innovative Index-as per data published by NITI Ayog)
- Research Project from Industry.
- State & Central Govt. funded Projects
- Participation in Techfest And Industry supported Competitions (BAJA, SUPRA, EffiCycle, ETWDC, Hackathone, AI, IOT, Robotics, Renewable Energy etc.)
- What does Industry Expect:
- Knowledge of Fundamentals (with application relevance to the Industry specific).
- They do not expect students to be experts on all topics, but should be able to apply basics learnt in class room.
- Arranging Lecture of Industry Expert (even Alumni students whenever they visit your Institute).
- Industry Training for students.
- Industry defined Research Projects.
- Develop acquaintance with one senior person from Industry. Networking is very Important.
- Govt. Funded Research Projects.
- Try for undergoing Training/exposure in Industry as many times as possible.
- There is no Age OLD enough for Learning OR Entrepreneurship.
- “Life Long Learning” is stated as per NBA documents. It’s not only for student’s, it’s also for Faculty.

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| 19-10-2019 | 3:15 PM – 4:15 PM | Prof. Shital Bhatt<br>Asst. Prof.<br>IT Dept.<br>MBIT | Feedback and Vote of<br>thanks |  |
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Feedback form were filled by participants. The Principal of MBIT Dr. Archana Nanoty gave vote of thanks to everyone.



Pictures of Events









