

ಪ್ರೊ. ಎಸ್.ಸಿ. ಶರ್ಮ
ನಿರ್ದೇಶಕರು
ಪ್ರೊ. एस.सी. शर्मा
निदेशक
Prof. S.C. Sharma
Director



राष्ट्रीय मूल्यांकन एवं प्रत्यायन परिषद
विश्वविद्यालय अनुदान आयोग का स्वायत्त संस्थान
राष्ट्रीय मूल्यांकन एवं प्रत्यायन परिषद
NATIONAL ASSESSMENT AND ACCREDITATION COUNCIL
An Autonomous Institution of the University Grants Commission

NAAC/Seminar/LG /2022/24

30th May 2022

The Principal

Holy-Wood Academy Kolhapur's,
Sanjeevan Engineering and Technology Institute
Sanjeevan Knowledge City, Somwar Peth-Injole,
Panhala – 416201, Dist. Kolhapur, Maharashtra

Respected Sir/Madam,

Greetings from NAAC.

This is with reference to your proposal seeking NAAC financial assistance/academic support for organizing state/national level workshop/seminar/conference in your institution on the topic **Use of ICT tool for quality enhancement of higher education institutes; Post COVID situation**. After due consideration your proposal has been accepted for financial assistance of **Rs.30,000/-** (Rupees Thirty-Thousand only). Due to new Corona Virus Disease 2019 (COVID 19), NAAC encourages the HEIs organising seminars through online mode. Therefore, NAAC sponsorship for financial assistance under different heads has been revised. The balance amount required to organize this activity may kindly be mobilized at your end. The financial assistance is subject to the adherence to the enclosed procedures for release of sanctioned grants and settlement of the same. NAAC appreciates the initiative taken by your institution and hope that the institution will continue to strive for quality and excellence in Higher Education.

The seminar/workshop has to be conducted on the scheduled date(s) as mentioned in the seminar proposals sent to NAAC. In case of any change in scheduled date **due to COVID 19** the institution **should inform NAAC the exact date of the seminar**. The claims have to be received by NAAC **on or before a month after seminar/workshop**. In case of any delay in submission of the claims the reimbursement will not be made and NAAC will not be liable for the expenditure incurred.

Yours sincerely,


(Prof. S.C.Sharma)

Encl: a/a

Cc: Western Region Coordinator

(Dr. Devender S. Kawday, Adviser, NAAC; devender.kawday@naac.gov.in)

Member Convener, Seminar Committee, NAAC.

Dr. Leena Gahane, Deputy Adviser, NAAC; leenagahane.naac@gmail.com

A Brief Report on Two Day NAAC Sponsored National Seminar

On

“Use of ICT tool for quality enhancement of higher education Institutes; Post COVID situation”

Organized by IQAC, Sanjeevan Engineering & Technology Institute, Panhala,
Maharashtra

9th & 10th December, 2022

Convener: Dr. Sanjeev N. Jain, Principal Sanjeevan Engineering & Technology Institute,
Panhala

I am very happy to present the report of NAAC Sponsored National online Seminar on ‘Use of ICT tool for quality enhancement of higher education Institutes; Post COVID situation’.

Objectives of the seminar:

- To introduce ICT tools & its value in Post COVID situation.
- To extend awareness of ICT usage, in higher education institutes for Quality improvement.
- To create an awareness of Blended learning techniques.
- To integrate MOOC courses in the curriculum.
- To penetrate usage of online test & evaluation techniques.
- To emphasize OBE in Post COVID situation for accreditation.
- To get the evaluator’s perspectives in accreditation process.

With the encouragement and support from our Management, Principal the assistance of the coordinator and members of IQAC and my colleagues, it was possible for us to make all arrangements for the smooth and successful conduction of this online Seminar. I hope that the fruit of this Seminar will reach all the Participants and academicians in the field of Higher education. Brochures of the Seminar were sent to different colleges all over India through e-mail and WhatsApp. Total 144 participants from different colleges from different states in India responded and participated in the Seminar. The seminar had eight different Sessions by 08 different eminent resource persons.

The Seminar began at 10.00 a.m. as per the programme schedule. The seminar was conducted through Google meet online platform. The opening ceremony was inaugurated by the Dr. Sanjeev N. Jain, Principal, Sanjeevan Engineering & Technology Institute, Panhala, Maharashtra

In his inaugural speech, he spoke about the Post COVID situation and use of ICT tool in higher education institutes. Vote of thank given by Dr. G. C. Koli, IQAC co-ordinator.

Day 1, Friday 9th December 2022:

The first session was started at 10.30am by Dr. Sanjeev N. Jain, Principal, Sanjeevan Engineering & Technology Institute, Panhala, in the session he elaborated on Post COVID Scenario of higher education institutes - A Quality concerned. He continued to explain about impact of COVID over education system, different ICT tools in detail, challenges in use of ICT. He also described the comparison between ICT and quality education system nicely. The second session conducted by Prof. S.C. Borse, IQAC co-ordinator, Deogiri institute of Engineering & Management studies, Aurangabad. He systematically presented the preparation procedure of NAAC Cycle 2 by showing the case study of one college. The third session was presented by Dr. P. N. Tekwani, Director- Research & Innovation, Dean Faculty of Doctoral Studies and research, Nirma University, Ahemedabad. In the session he delivered Revised NAAC A&A framework criteria wise in detail. Fourth session was conducted by Dr. Suhas Deshmukh, Associate Professor, Government college of Engineering, Karad. He has explained the different ICT tools and use of Excel tool in achieving OBE mapping ad attainment.

Day 2, Saturday 10th December 2022:

On the second day, First session was addressed Dr. Suhas Patil, Professor, Bharati Vidyapeeth (Deemed to be University) College of Engineering, Pune. He elaborated in detail, regarding Concept, History of MOOC, Development of MOOC, and successful implementation of MOOC. Second session was conducted by Dr. Shashank Joshi, Dean Faculty of Engineering & Technology, Bharati Vidyapeeth (Deemed to be University), Pune. He clearly presented the procedures of NAAC how helps to complete procedures of NBA. Session three was delivered by Dr. Dhananjay Bagul, Director, Rajmata Jijau Shikshan Prasarak Mandal, ICMR, Pune. He enlightened over the NAAC criteria and different ranking procedures. In the last session of Seminar Dr. C. S. Rai, Professor, Guru Gobind Singh Indraprastha University, New Delhi thoroughly discussed the topic of Outcome Based Education in Post COVID situation.

Finally valedictory session started at 4.00pm in the presence of Dr. Sanjeev N. Jain, Principal and Vice Principal, Dr. S. G. Sapate, Sanjeevan Engineering & Technology Institute, Panhala. Dr. G. C. Koli presented a Seminar Report to the participants and feedback was enthusiastically shared by some participants of different states. Vote of Thank was offered by Dr. D.S. Bhosale, Dean, Sanjeevan Engineering & Technology Institute, Panhala.



Dr. G. C. Koli
IQAC



Dr. Sanjeev N. Jain
Convener

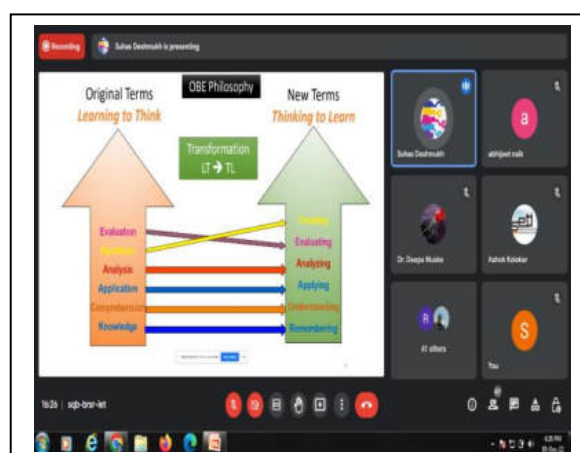
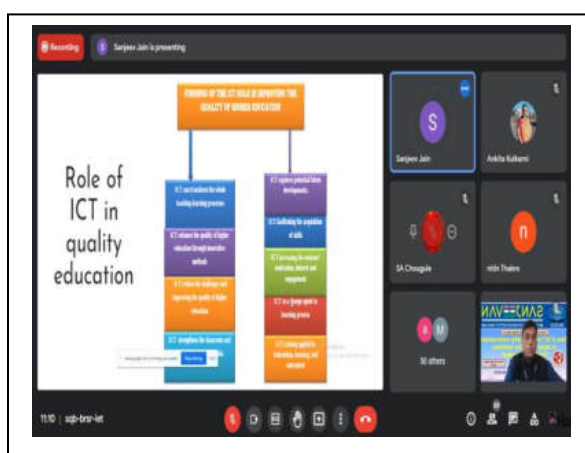
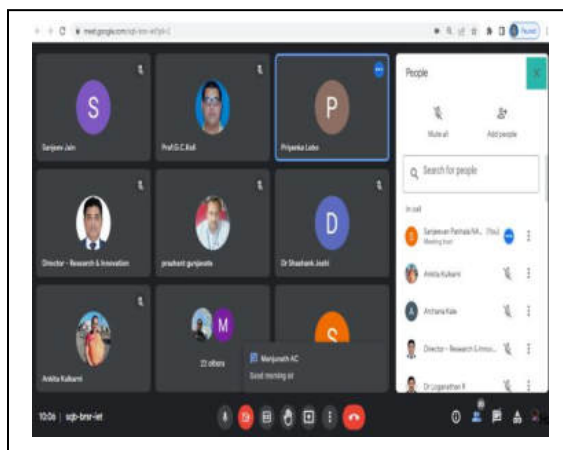
Recommendations / Suggestions / Action Points (Outcome of the Seminar)

Recommendations received by all the experts are as below

- At every institute IQAC should be strengthened to implement the Quality concern parameters at each stage
- After Cycle 1, every institute has to focus over the less scored metrics and key indicators to imitate work of Cycle 2 rigorously
- Increase use of ICT in the curriculum to create effective learning environment
- Take in consideration the incorporation of MOOC like NPTEL etc. to improve the teaching learning process
- Each higher education institute has to go for ranking procedures like NIRF etc.
- Implementation of OBE to check attainment of the program is most important quality aspect

Follow up Action the institution proposes to undertake

- The delegates demanded the PPTs of the resource person and they were distributed as per their demand.
- Some delegates suggested the institution to organize more such seminars.
- As per the suggestion received by the resource people, IQAC will enhance the use of ICT, MOOC in curriculum and will initiate the preparation of Cycle 2.
- Also IQAC will start to follow the procedures of NIRF registration.



Two day National level NAAC Sponsored online seminar over the theme
“Use of ICT tool for quality enhancement of higher education Institutes; Post COVID situation”.

9th and 10th Dec. 2022

Organised by IQAC

Sanjeevan Engineering & Technology Institute, Panhala

Program Schedule

Day 1

9th December, 2022



Duration	Resource Person	Content	Mode of conduction
10:00 am to 10:30 am	Inaugural Program		Online
10:30 am to 11:30 am	Dr. Sanjeev Jain Principal, Sanjeevan Engineering & Technology Institute, Panhala	Post COVID Scenario of higher education institutes - A Quality concerned	
12:00 pm to 01:00 pm	Prof. S. C. Borse IQAC, Deogiri Institute of Engineering, Aurangabad	Preparation of Cycle 2 in Post COVID environment & Evaluator's Perspective	
02:00 pm to 03:00 pm	Dr. P. N. Tekwani Dean, Nirma University Ahmedabad, Gujarat	Revised NAAC A&A framework	
03:30 pm to 04:30 pm	Dr. Suhas Deshmukh Associate Professor, Government College of Engineering, Karad	Blended learning mode of Teaching & learning, Different online tools for Test conduction & its evaluation.	

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Program Schedule

Day 2

10th December, 2022



Duration	Resource Person	Content	Mode of conduction
10:00 am to 11:00 am	Dr. Suhas Patil Professor, Bharati Vidyapeeth Deemed University, Pune	The advantages of MOOC courses incorporation in the curriculum	Online
11:30 am to 12:30 pm	Dr. Shashank Joshi Dean, Bharati Vidyapeeth Deemed University, Pune	How NAAC documentation helps to accomplish NBA accreditation	
01:00 pm to 02:00 pm	Dr. Dhanajay Bagul Director, Rajmata Jijau Shikshan Prasarak Mandal ICMR, Dudulgaon, Pune	How NAAC documentation helps to NIRF and ATAL Ranking.	
03:00 pm to 04:00 pm	Dr. C. S. Rai Professor of Information Technology, Guru Gobind Singh Indraprastha University, New Delhi	Outcome Based Education in Post COVID environment	
04:00 pm to 04:30 pm	Feedback & Valedictory Function		



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HOLY-WOOD ACADEMY'S
SANJEEVAN ENGINEERING AND TECHNOLOGY
INSTITUTE

PANHALA, KOLHAPUR. AFFILIATED TO DBATU LONERE.

Two days National level online seminar over the theme
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9th and 10th Dec. 2022

Sponsored by

National Assessment and Accreditation
Council (NAAC) Bangalore



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Shri. P. R. Bhosale
Chairman
Holy-wood Academy, Kolhapur

Patron
Shri. N. R. Bhosale
Joint Secretary
Holy-wood Academy, Kolhapur

Convener
Dr. Sanjeev N. Jain
Principal
Sanjeevan Engineering And Technology
Institute, Panhala

Co- Convener
Dr. S. G. Sapate
Vice Principal
Sanjeevan Engineering And Technology
Institute, Panhala

About SETI

Sanjeevan Engineering & Technology Institute group of schools Kolhapur, is an establishment of Sanjeevan, meets the needs of technology driven modern 21st Century. The Institute is approved by All India Council for Technical Education, New Delhi, recognized by Directorate of Technical Education, Govt. of Maharashtra and affiliated to DBATU, Lonere.

Sanjeevan Engineering and Technology Institute, Panhala offers B.Tech. Degree courses in Civil, Computer Science, Electrical and Mechanical Engineering. Institute also offers M.Tech. in Mechanical Engineering (Design).

Sanjeevan is long cherished dream of Founder-Chairman Shri. P. R. Bhosale, an educationalist having experience more than two decades. His aim is to impart quality education to the students from nook and corner of the country. No doubt, Sanjeevan Engineers will be the best professionals with added values of Indian heritage.

About Seminar

This Seminar gives a glimpse of light over the different scenario developed in post COVID environment. The teaching learning process has been drastically changed by incorporating new ICT tools due to COVID. This seminar will surely help to all academicians, administrators to understand new techniques of ICT & to strengthen the teaching learning process. Sanjeevan Engineering Technology Institute, Panhala tries to develop this seminar by involving highly reputed academicians & administrators to speak to make a right impact over the conventional education system after COVID. The seminar will also talk about the quality enhancement parameters and processes in higher education system.

Objectives

- To introduce ICT tools & its value in Post COVID situation.
- To extend awareness of ICT usage, in higher education institutes for Quality improvement.
- To create an awareness of Blended learning techniques.
- To integrate MOOC courses in the curriculum.
- To penetrate usage of online test & evaluation techniques.
- To emphasize OBE in Post COVID situation for accreditation.

Sub Themes

- Post COVID Scenario of higher education institutes - A Quality concerned.
- Blended learning mode of Teaching & learning.
- Different online tools for Test conduction & its evaluation.
- The advantages of MOOC courses incorporation in the curriculum.
- Preparation of Cycle 2 in Post COVID environment & Evaluator's Perspective changes in procedure.
- Outcome Based Education in Post COVID environment.
- How NAAC documentation helps to accomplish NBA accreditation & NIRF Ranking

Expected outcomes

In Post COVID environment most of the higher education institutes are striving hard to have the knowledge about the ICT tools to achieve effective teaching learning process. This seminar will be the sincere effort towards bringing the exposure of ICT tools to faculty of most of the higher education institutes.

The faculty who attend this seminar will get awareness in the concern of ICT usage for the improvement in quality education. Also attending faculty of the different institutes will avail the knowledge about conduction procedure of various modes of learning. This seminar will push the institutes to initiate the use of MOOC courses within the curriculum. All participates will get the clarity in Evaluator's Perspective for cycle 2 & Post COVID accreditations.

Organizing members

Prof. R. S. Nejkar
H.O.D.
Computer Engineering

Prof. P. P. Kulkarni
H.O.D.
Electrical Engineering

Prof. S. B. Deshmukh
H.O.D.
Mechanical Engineering

Prof. J. S. Mevekari
H.O.D.
Civil Engineering

Online link for Registration

<https://forms.gle/uWmjDH9HKX8NnMqN6>

The Last date of registration is 5th Dec 2022

Dr. G.C. Koli
IQAC Co-ordinator
Mo: 7722076379 Email: gajanan.koli@seti.edu.in



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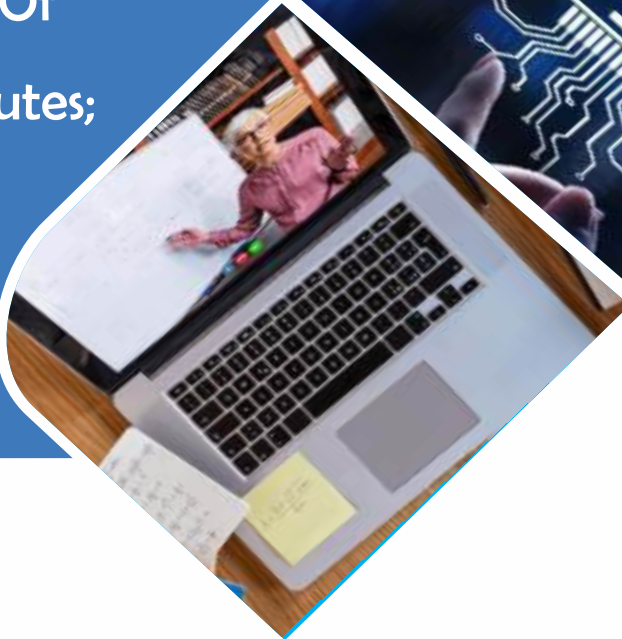


National Assessment
& Accreditation Council,
Bengaluru

Proceedings of the
National Seminar on

"Use Of ICT Tool For
Quality Enhancement Of
Higher Education Institutes;
Post Covid Situation"

09th, 10th December 2022



SANJEEVAN

ENGINEERING & TECHNOLOGY INSTITUTE, PANCHALA



SANJEEVAN

ENGINEERING & TECHNOLOGY INSTITUTE, PANHALA

(Degree, PG, & Diploma)

EN 6315



Approved by AICTE, New Delhi, Recognized by DTE,
Affiliated to DBATU, Lonere & MSBTE, Maharashtra.

VISION

- SETI to Educate to Excel in Social Transformation.

MISSION

- To inculcate academic excellence in pursuit of technical education & to strive hard for good academic Result & Placements.
- To attract, nurture and to retain the best faculty and technical Manpower.
- To develop the holistic personality of students to be a responsible citizen with ethical values and lifelong learning.
- To Promote industry institute interaction for employability and entrepreneurship.

 **SANJEEVAN GROUP OF SCHOOLS**

Somwar Peth, Panhala, Dist. Kolhapur-416201 (Maharashtra-India)

 www.seti.edu.in  admission@seti.edu.in

 www.sanjeevan.edu.in  9158893049, 7769042033, 9421975403, 9673748282, 9765922586. 

Theme

National Seminar on
"Use Of ICT Tool For
Quality Enhancement Of
Higher Education Institutes;
Post Covid Situation"

Theme

Use of ICT tool for quality enhancement of higher education Institutes; Post COVID situation

Objectives

- 1) To introduce ICT tools & its value in Post COVID situation.
- 2) To extend awareness of ICT usage, in higher education institutes for Quality improvement.
- 3) To create an awareness of Blended learning techniques.
- 4) To integrate MOOC courses in the curriculum.
- 5) To penetrate usage of online test & evaluation techniques.
- 6) To emphasize OBE in Post COVID situation for accreditation.
- 7) To get the evaluator's perspectives in accreditation process.

Sub themes

- 1) Post COVID Scenario of higher education institutes - A Quality concerned.
- 2) Blended learning mode of Teaching & learning.
- 3) Different online tools for Test conduction & its evaluation.
- 4) The advantages of MOOC courses incorporation in the curriculum.
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- 6) Outcome Based Education in Post COVID environment.
- 7) How NAAC documentation helps to accomplish NBA accreditation & NIRF Ranking.

Outcome

In Post COVID environment most of the higher education institutes are striving hard to have the knowledge about the ICT tools to achieve effective teaching learning process. This seminar will be the sincere effort towards bringing the exposure of ICT tools to faculty of most of the higher education institutes. This seminar will aware the concern of ICT usage for the improvement in quality education. Also attending faculty of the different institutes will avail the knowledge about conduction procedure of various modes of learning. The seminar will push the institutes to initiate the use of MOOC courses within the curriculum. All participants will get the clarity in Evaluator's Perspective for cycle 2 & Post COVID accreditations.

About College

Sanjeevan Engineering and Technology Institute (SETI), a self financing engineering college established in the year 2009 by the Founder-Chairman of Holy-Wood Academy, Mr. P. R. Bhosale. He is an educationalist having an experience of more than two decades and his aim is to impart quality education to the students from nook and corner of the country. The SETI is approved by All India Council for Technical Education, New Delhi, recognized by Directorate of Technical Education, Mumbai, Govt. of Maharashtra. The institute affiliated to Dr. Babasaheb Ambedkar Technological University, Lonere. The institute offers four UG programmes in engineering Viz. Civil Engineering, Computer Science & Engineering, Electrical Engineering and Mechanical Engineering. In addition, it offers PG Mechanical (Design Engineering) Programme.

The lush green campus is spread across 5.16 hectars with built up area of 27,125.44 sq.m. and is situated in rural and green atmosphere with hilly area near to the Historical Panhala Fort. It is about 25 kilometers away from Kolhapur, Maharashtra, India. The state-of-the-art infrastructure includes spacious and well equipped classrooms. All classrooms are equipped with ICT facilities for effective teaching and learning process, adequate laboratories with state of art equipments, modern workshop, digital library and 24x7 Wi-Fi enabled campus. Other amenities of the institute include canteen, mess and separate hostels for boys and girls, gymnasium, playgrounds, swimming pool etc. Sanjeevan family is committed for its environment policy statement of the institute i.e. "Green Sanjeevan and Clean Sanjeevan"



Organizing Committee

Chief Patron

Shri. P. R. Bhosale

Chairman

Holy-wood Academy, Kolhapur

Patron

Shri. N. R. Bhosale

Joint Secretary

Holy-wood Academy,
Kolhapur

Convener

Dr. Sanjeev N. Jain

Principal

Sanjeevan Engineering & Technology Institute,
Panhala

Co- Convener

Dr. S. G. Sapate

Vice Principal

Sanjeevan Engineering & Technology Institute,
Panhala

Dr. G.C. Koli

IQAC Co-ordinator

Members

Prof. R. S. Nejkar

H.O.D. Computer Engineering

Prof. S. B. Deshmukh

H.O.D. Mechanical Engineering

Prof. S. A. Babar Member

IQAC

Prof. S. K. Pisal

Member IQAC

Prof. P. P. Kulkarni

H.O.D. Electrical Engineering

Prof. J. S. Mevekari

H.O.D. Civil Engineering

Prof. N. B. Tharkar

H.O.D., Basic Sciences & Humanities

Prof. J. J. Gavade

Member IQAC

Prof. C. R. Dongarsane

Member IQAC

Dr. Devender S. Kawday

NAAC Advisor NAAC, Bangalore

Resource Persons

National Seminar on
"Use Of ICT Tool For
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Two day National level online seminar over the theme
"Use of ICT tool for quality enhancement of higher education Institutes; Post COVID situation".

9th and 10th Dec. 2022

Sr. No.	Resource Person Name	Contact No.	Email ID	Photo
1	Dr. Sanjeev Jain Principal, Sanjeevan Engineering & Technology Institute, Panhala	9422289908	principal@seti.edu.in	
2	Prof. S. C. Borse IQAC, Deogiri Institute of Engineering & Management Studies (DIEMS), Aurangabad	9420929365	sachinborse@dietms.org	
3	Dr. Suhas H. Patil Professor, Ph.D(Computer Engineering) Bharati Vidyapeeth Deemed University	8767600568	shpatil@bvucoep.edu.in	
4	Dr. Shashank Joshi Dean, Faculty of Engineering and Technology, Bharati Vidyapeeth Deemed University, Pune	9423222621	shashank.joshi@bharativedyapeeth.edu, sdj@live.in	
5	Dr. Dhanajay Bagul Director, Rajmata Jijau Shiksha Prasarak Mandal ICMR, Dudulgaon, Pune	9850716430	dhananjaybagul@rediffmail.com	
6	Dr. Suhas Deshmukh Associate Professor, Government College of Engineering, Karad	9657795507	suhas.deshmukh@gmail.com	
7	Dr. C. S. Rai Professor of Information Technology, Guru Gobind Singh Indraprastha University, New Delhi	9899315983	csrai@ipu.ac.in	
8	Dr. P. N. Tekwani Dean, Nirma University, Ahmedabad, Gujarat	9327071751	director.ri@nirmauni.ac.in	

National Seminar on
"Use Of ICT Tool For
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9th and 10th Dec. 2022

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Sanjeevan Engineering & Technology Institute, Panhala

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Principal's Message

The pandemic of Covid'19 has affected severely & globally in everyday life, and every sector be it industry, business, or education due to the widespread of the virus. At the same time, this period has opened immense opportunities especially in the education sector, by virtue of the use of various electronic/technological applications. The discontinuation of teaching learning process in the institutions had deep impact on the education sector in India. Assessing the Covid 19 situation, the role of teachers got changed suddenly in post covid scenario. The Education Sector has been forced by the pandemic to shift dramatically to virtual and blended modes of teaching and learning using various Information and Communication Technology (ICT) tools and has radically accelerated the pace and urgency of various ongoing technology-driven educational initiatives. Students and teachers are now relying on various online platforms to adopt new instructive methods to learn and teach. Educational communities across the world have come together to figure out various ways to support students and teachers with innovative platforms and strategies. The crisis has helped in the stimulation of innovation in the education field. India has also seen various ICT led initiatives to reach out to everyone in such difficult times, the government & various bodies have taken up this task & launched several initiatives to deal with the situation.

The NAAC sponsored national webinar on 'Use of ICT tool for quality enhancement of higher education Institutes; Post COVID situation' covered a relevant theme which provided a platform for an open discussion about the shifting paradigm of teaching & learning methodology. The objective of this course is to offer a general exposure to important Teaching – Learning methodologies to upkeep the quality of educational system. The Pandemic had everlasting effect on the scenario of educational world & it has gone through various challenges & modifications, eyeing on the quality of education system, this webinar targeted key areas where the quality improvement is possible & can be enhanced swiftly. Some of the key areas concerned with NBA & NIRF activities were highlighted by the resource persons. The excellent initiative and zeal shown by IQAC of Sanjeevan Engineering & technology institute, Panhala, Kolhapur (MS) to conduct the webinar and to give an insight use of ICT tool for quality enhancement of higher education Institutes was well appreciated. The net impact created by the program has been enormous and will be transformative for many of the stakeholders. The feedback from the participants is highly encouraging and many more such programs shall be conducted for improving the quality of HEIs.

I thank all the persons involved for organizing, participating & delivering to make the event a highly successful one.

Dr. Sanjeev N. Jain
Principal,
Sanjeevan Engineering & Technology Institute,
Panhala



IQAC Co-ordinator's Message

National Seminar on
"Use Of ICT Tool For
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Dr. G.C. Koli
IQAC Co-ordinator



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National Seminar on
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OUTCOME BASED EDUCATUIION IN POST COVID ENVIORNMENT

Prof. C. S. Rai
Guru Gobind Singh Indraprastha University
Delhi

OUTCOMES BASED EDUCATION

Every aspect of education is conceptualized, designed and implemented towards outcomes (goals) such as

- a) conceptualization of a program
- b) Design of scheme and syllabus
- c) Assessment methods
- d) Course delivery methods
- e) Evaluation of the outcomes achieved by the students

VISION AND MISSION OF THE DEPARTMENT

Vision: Long term expectations and goals of the Department that will transform it to the global standards

Mission: Statement indicating actionable approaches to achieve the Vision

CORRECTED VISION AND MISSION STATEMENTS

Vision:

To emerge as one of the leading Institutions of higher learning in the field of Technical Education and to develop professionals who are technically competent, ethical, environment friendly for betterment of the society

Mission

Statements indicating achieving the vision through quality teaching, research and outreach activity by providing state of the art facilities, industry exposure and guidance of dedicated faculty

PROGRAM EDUCATIONAL OBJECTIVE-PEO

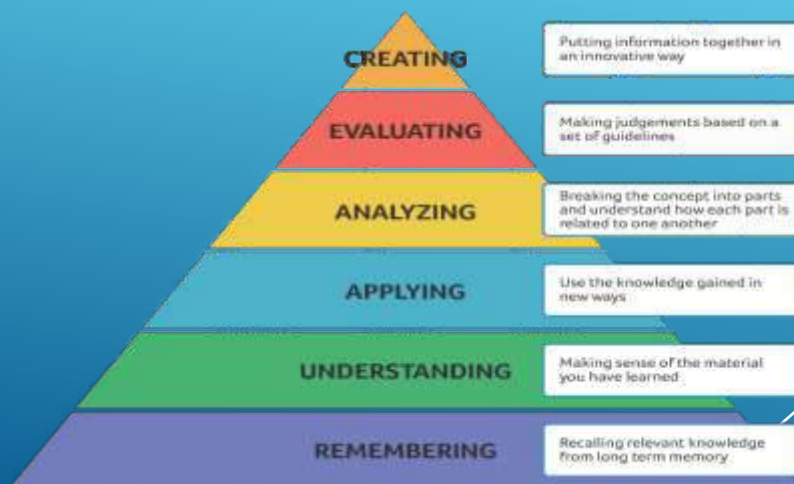
- How we want to see the graduate after few years of graduation
- The PEOs are guided by global and local needs and long term goals
- For defining the PEOs the faculty members of the program must continuously work with all the stakeholders

Stakeholders: Local Employers, Industry, Students and the Alumni

PROGRAM OUTCOMES

POs define basic objectives that engineering graduates will achieve after completion of the program in respect of knowledge, skills, ability to work in team, leadership qualities, ethical and moral values etc.

BLOOMS TAXONOMY



PROGRAM OUTCOMES (DEFINED BY NBA)

PO1 –PO12

- **PO1: Engineering Knowledge** Apply the knowledge of mathematics, science, engineering fundamentals and an engineering specialization to the solution of complex engineering problems
- **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
- **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
- **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

CONTI...

- **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 The Engineer and Society
- **PO6: 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**
- **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
- **PO8: mEthics** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice

- **PO9: Individual and Team Work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings
- **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
- **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
- **PO12: Life-long Learning** Recognize the need for, and have the preparation and ability to engage in independent and lifelong learning in the broadest context of technological change

PROGRAM SPECIFIC OUTCOMES (PSO)

- ▶ **PSO1:** To be proficient in basic programming languages and data structures
- ▶ **PSO2:** Able to analyse and design Algorithms and H/W.
- ▶ **PSO3:** Understand and apply machine learning algorithms.

COURSE OUTCOMES (COS)

- “Statements regarding expected outcomes from the students with respect to Knowledge, Skills and Attitudes”.
- Each course may have 4-6 Course Outcomes
- The Course Outcomes are stated in such a way that they can be actually measured
- POs are attained through COs

Assessment:

IT IS ONE OR MORE PROCESSES THAT IDENTIFY, COLLECT, AND PREPARE DATA TO EVALUATE THE ACHIEVEMENT OF COURSE OUTCOMES AND PROGRAM OUTCOMES

PO/Course Assessment Tool Types	PO/ Course Assessment Tool	1	2	3	4	5	6	7	8	9	10	11	12
Direct Tools	Tests	√	√	√	√								
	Assignments	√	√	√	√		√		√			√	√
	Lab/Seminars/Industrial Training/ Projects (Rubrics)	√	√	√	√	√		√	√	√	√	√	√
Indirect Tools	Course End Survey	√	√	√	√	√	√	√	√	√	√	√	√
	Exit Survey	√	√	√	√	√	√	√	√	√	√	√	√
	Faculty Survey	√	√	√	√	√	√	√	√	√	√	√	√
	Alumni Survey		√			√					√		
	Programme Statistics	√	√					√		√		√	√

CO-PO RELATIONSHIP

- Each CO is mapped to a subset of POs
- Based on the number of COs and the sessions dedicated to them it is possible to identify the strength of mapping (1, 2 or 3) to POs
- Based on the strength of selected POs a CO matrix can be established

CO ATTAINMENT

- The assessment should be in alignment with the COs
- Question papers should be set to assess all COs
- The average marks obtained in assessment against items for each CO will indicate the CO attainment
- Instructors can set targets for each CO of his/her course
- Attainment gaps can therefore be identified
- Instructors can plan to reduce the attainment gaps or enhance attainment targets

PO ATTAINMENT – EXAMPLE..

Example Weightages for PO Attainment




PO No.	Method of Assessment	Direct Assessment (CIE)	Direct Assessment (SEE)	Student Exit Survey	Course End Survey	Faculty Survey	PO Attainment, %
	Weightage	50%	30%	10%	5%	5%	
	PO Description						
PO 1	Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.	30%	28%	9%	5%	5%	77%
PO 2	Identify, formulate, research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.	35%	25%	8%	4%	4%	76%
PO 3	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.	35%	25%	6%	3%	3%	72%
PO 4	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.	45%	21%	8%	5%	3%	80%

PO ATTAINMENT


- All POs can be adequately addressed through the selection of core courses and their COs
- Attainable targets can be selected for each of the CO.
- If assessments in alignment with COs the performance of the students indicates the CO attainment
- These measurements provide the basis for continuous improvement in the quality of learning

CONTINUOUS IMPROVEMENT

- Attainment analysis is made to provide continuous improvement through either in course delivery, Assessment and curriculum
- Taking steps to improve Cos and POs



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**POST PANDEMIC
NAAC ASSESSMENT**

Prof.S.C.Borse
IQAC CORDINATOR, DIEMS, Aurangabad

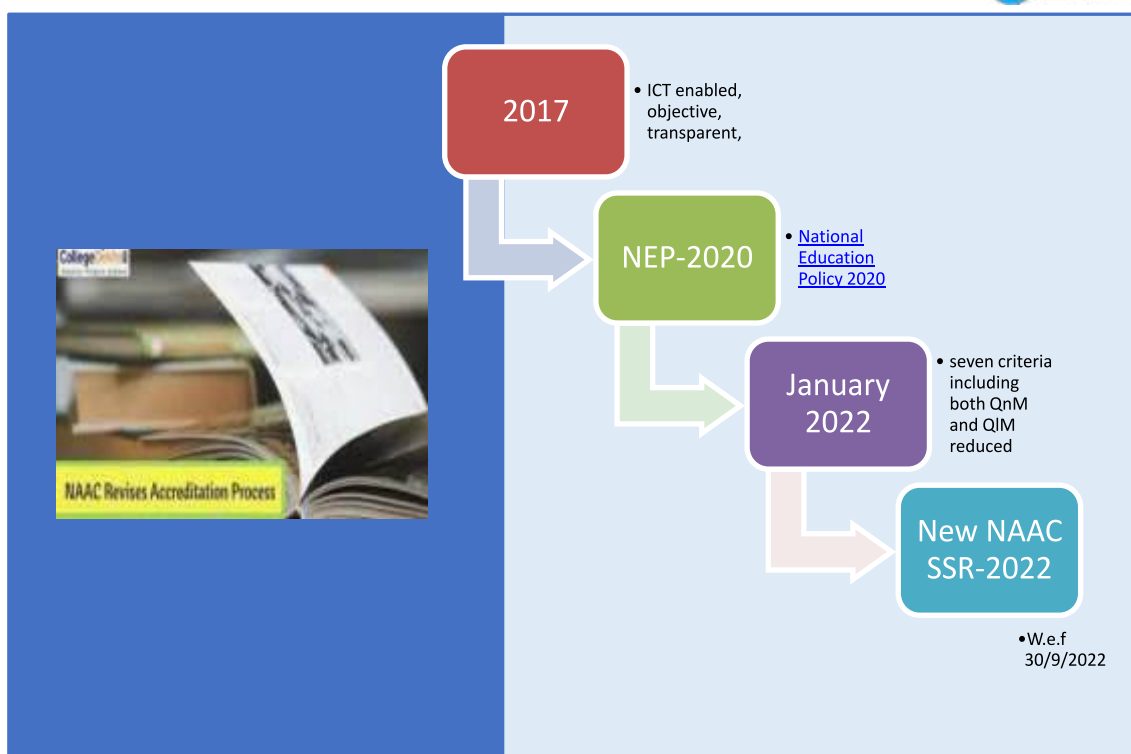
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REVISED ASSESSMENT AND ACCREDITATION (A&A) FRAMEWORK





CRITERION – I CURRICULAR ASPECTS

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CRITERION – I CURRICULAR ASPECTS



1.1	Curriculum Planning and Implementation
1.2	Academic Flexibility
1.3	Curriculum Enrichment
1.4	Feedback System

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CRITERION – II TEACHING LEARNING AND EVALUATION

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CRITERION – II TEACHING LEARNING AND EVALUATION



2.1	Student Enrolment and Profile
2.2	Student Teacher Ratio
2.3	Teaching Learning Process
2.4	Teacher Profile and Quality
2.5	Evaluation Process and Reforms
2.6	Student Performance and Learning Outcomes
2.7	Student Satisfaction Survey

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CRITERION – III RESEARCH, INNOVATIONS & EXTENSION

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CRITERION – III RESEARCH, INNOVATIONS & EXTENSION



3.1	Resource Mobilization for Research
3.2	Innovation Ecosystem
3.3	Research Publications and Awards
3.4	Extension Activities
3.5	Collaboration

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CRITERION – IV

Infrastructure and Learning Resources

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CRITERION – IV

Infrastructure and Learning Resources



4.1	Physical Facilities
4.2	Library as a Learning Resource
4.3	IT Infrastructure
4.4	Maintenance of Campus Infrastructure

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CRITERION – V

Student Support and Progression

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CRITERION – V

Student Support and Progression



5.1	Student Support
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CRITERION – VI

Governance, Leadership and Management

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CRITERION – VI

Governance, Leadership and Management



6.1	Institutional Vision and Leadership
6.2	Strategy Development and Deployment
6.3	Faculty Empowerment Strategies
6.4	Financial Management and Resource Mobilization
6.5	Internal Quality Assurance System (IQAS)

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CRITERION – VII Institutional Values and Best Practices

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CRITERION – VII Institutional Values and Best Practices



7.1	Institutional Values and Social Responsibilities
7.2	Best Practices
7.3	Institutional Distinctiveness

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ELIGIBILITY FOR ASSESSMENT AND ACCREDITATION BY NAAC



- Higher Education Institutions (HEIs), if they have a record of at **least two batches of students graduated**
- or
- been in existence for **six years**, whichever is earlier, are eligible to apply for the process of Assessment and Accreditation (A&A) of NAAC

ELIGIBILITY FOR ASSESSMENT AND ACCREDITATION BY NAAC



Table 1: Distribution of Metrics and KIs across Criteria

Type of HEIs	Affiliated/Constituent Colleges
Criteria	7
Key Indicators (KIs)	32
Qualitative Metrics (Q _i M)	21
Quantitative Metrics (Q _n M)	34
Total Metrics (Q _i M + Q _n M)	55

Table 2: Distribution of weightages across Key Indicators (KIs)

Criteria and Key Indicators	Weightages
Criterion 1 – Curricular Aspects	100
Key Indicator- 1.1 Curricular Planning and Implementation	20
Key Indicator- 1.2 Academic Flexibility	30
Key Indicator- 1.3 Curriculum Enrichment	30
Key Indicator- 1.4 Feedback System	20
Criteria 2- Teaching- Learning and Evaluation	350
Key Indicator- 2.1 Student Enrolment and Profile	40
Key Indicator- 2.2 Student Teacher Ratio	40
Key Indicator- 2.3 Teaching- Learning Process	40
Key Indicator- 2.4 Teacher Profile and Quality	40
Key Indicator- 2.5 Evaluation Process and Reforms	40
Key Indicator- 2.6 Student Performance and Learning Outcome	90
Key Indicator- 2.7 Student Satisfaction Survey	60

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Criteria 3- Research, Innovations and Extension	110
Key Indicator 3.1 Resource Mobilization for Research	10
Key Indicator 3.2 Innovation Ecosystem	15
Key Indicator 3.3 Research Publication and Awards	25
Key Indicator 3.4 Extension Activities	40
Key Indicators 3.5 Collaboration	20
Criterion 4 - Infrastructure and Learning Resources	100
Key Indicator – 4.1 Physical Facilities	30
Key Indicator – 4.2 Library as a learning Resource	20
Key Indicator- 4.3 IT Infrastructure	30
Key Indicator – 4.4 Maintenance of Campus Infrastructure	20

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Criterion 6- Governance, Leadership and Management	100
Key Indicator- 6.1 Institutional Vision and Leadership	10
Key Indicator- 6.2 Strategy Development and Deployment	10
Key Indicator- 6.3 Faculty Empowerment Strategies	35
Key Indicator- 6.4 Financial Management and Resource Mobilization	15
Key Indicator- 6.5 Internal Quality Assurance System	30
Criterion7–Institutional Values and Best Practices	100
Key Indicator - 7.1 Institutional Values and Social Responsibilities	50
Key Indicator - 7.2 Best Practices	30
Key Indicator - 7.3 Institutional Distinctiveness	20

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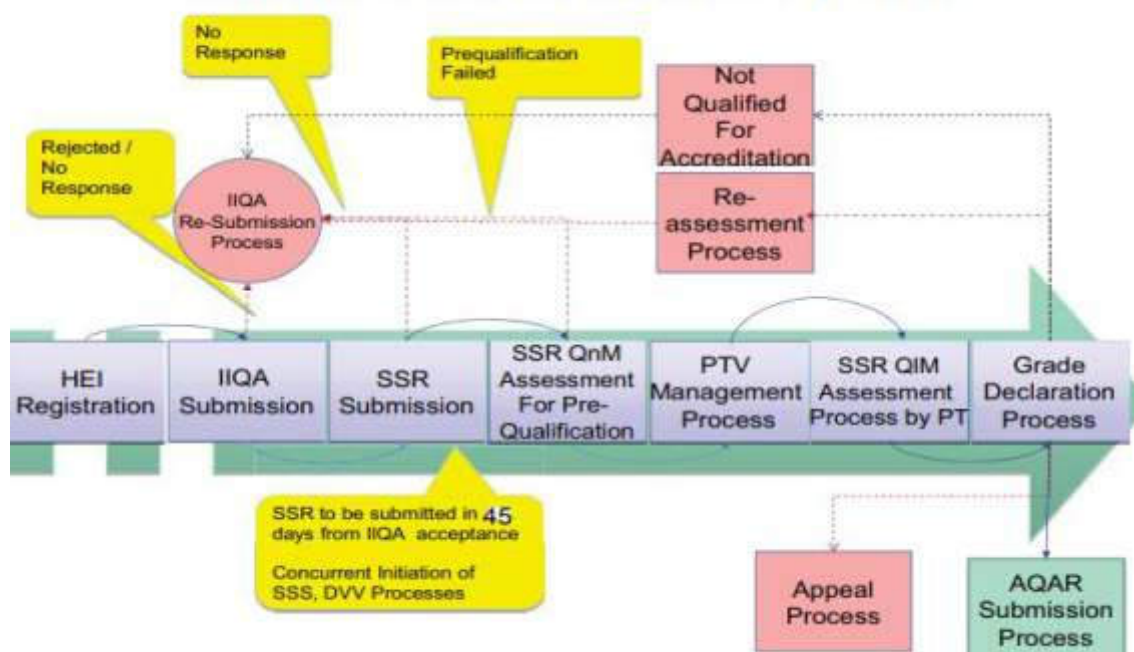
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PROCEDURAL DETAILS FOR NAAC ASSESSMENT



Online A&A Process Flow



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ASSESSMENT OUTCOME



The final result of the Assessment and Accreditation exercise will be an ICT based score, which is a combination of evaluation of qualitative and quantitative metrics. This will be compiled as a document comprising three parts.

PEER TEAM REPORT (PTR)

- Qualitative part of the outcome.
- Objective report.
- Evaluative judgements using keywords only.

INSTITUTIONAL GRADING

- Quantitative part.
- Criterion wise quality assessment.
- Resulting through Cumulative Grade Point Average (CGPA).

ASSESSMENT OUTCOME



LETTER GRADE -- PERFORMANCE DESCRIPTOR.

Table 3 Institutional Grades and Accreditation Status

Range of Institutional Cumulative Grade Point Average (CGPA)	Letter Grade	Status
3.51-4.00	A++	Accredited
3.26-3.50	A+	Accredited
3.01-3.25	A	Accredited
2.76-3.00	B++	Accredited
2.51-2.75	B+	Accredited
2.01-2.50	B	Accredited
1.51-2.00	C	Accredited
≤ 1.50	D	Not Accredited

* The accreditation status is valid for five years from the date of approval by Executive Committee of the NAAC.

RE-ASSESSMENT



- After **1 year** before completion of **3 years**.
- Re-assessment can be done **only once** in a cycle.
- Re-assessed institution cannot come for another re-assessment in the **same cycle**.
- The **current manual** for the Assessment and Accreditation is applicable for all institutions applying for re-assessment.
- The **fee structure** and other process would be as per the current procedures of **Assessment and Accreditation**.

MANDATORY DISCLOSURE ON HEI's WEBSITE



- SSR submitted online, to be uploaded after DVV process only (.pdf format).
- Data templates which are uploaded along with SSR.
- Annual Quality Assurance Report (AQAR – Year wise).
- Accreditation outcome document viz., Certificate, Grade sheet, etc.



Difference in Previous & Current A & A Process

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Difference in previous & current A & A Process



NAAC - OVERVIEW OF DECEMBER 2019 MANUAL (w.e.f. 1st January 2020) : Affiliated Colleges

Type of HEIs	Universities	Autonomous Colleges	Affiliated/Constituent Colleges	
			UG	PG
Criteria	7	7	7	7
Key Indicators (KIs)	34	34	31	32
Qualitative Metrics (Q _i M)	36	35	35	36
Quantitative Metrics (Q _n M)	79	72	58	60
Total Metrics (Q _i M + Q _n M)	115	107	93	96

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Difference in previous & current A & A Process



2(a) : Institutional preparedness for NEP: (Description in maximum 500 words)

- Multidisciplinary / interdisciplinary:
- Academic bank of credits (ABC):
- Skill development:
- Appropriate integration of Indian Knowledge system (teaching in Indian Language, culture, using online course)
- Focus on Outcome based education (OBE):
- Distance education/online education:

Difference in previous & current A & A Process



2(b) : Institutional Initiatives for Electoral Literacy: (Description in maximum 500 words)

- Electoral Literacy Club (ELC) need to be set up in the College.
- Students and Faculty coordinator to be appointed for club.
- Awareness and data collection for democratic value.
- Social relevant project- Research project, Survey, Awareness drive, participation in electoral process.
- Enrolled the students in electoral list if not enrolled.

NAAC - OVERVIEW OF DECEMBER 2019 MANUAL (w.e.f. 1st January 2020) : Affiliated Colleges

Distribution of Metrics across Criteria

Criteria	Q _n M Metrics (Quantitative)		Q ₁ M Metrics (Qualitative)	
	Count	Weightage	Count	Weightage
1. Curricular Aspects (100)	8	75	3	25
2. Teaching- Learning and Evaluation (350)	9	225	7	125
3. Research, Innovations and Extension (120)	12	110	2	10
4. Infrastructure and Learning Resources (100)	8	71	5	29
5. Student Support and Progression (130)	11	120	2	10
6. Governance, Leadership and Management (100)	6	42	10	58
7. Institutional Values and Best Practices (100)	6	27	7	73
Total	60	670	36	330

NAAC

Major Changes in Revised Manual w.e.f. 1st June 2022

- Recently updation of manual is in line with the **NEP-2020** recommendations
- Again in **January 2022** metrics related to **seven criteria** including both **Q_nM** and **Q₁M** have been now reduced to ease the Assessment and Accreditation process of **NAAC** for **Affiliated/Constituent Colleges** without compromising the quality aspects in **Higher Education**.

Difference in previous & current A & A Process



NAAC - OVERVIEW OF JANUARY 2022 MANUAL (w.e.f. 1st June 2022) : Affiliated Colleges

Type of HEIs	Affiliated/Constituent Colleges
Criteria	7
Key Indicators (KIs)	32
Qualitative Metrics (Q ₁ M)	21
Quantitative Metrics (Q _n M)	34
Total Metrics (Q₁M + Q_nM)	55

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Difference in previous & current A & A Process



NAAC - OVERVIEW OF JANUARY 2022 MANUAL (w.e.f. 1st June 2022) : Affiliated Colleges

Distribution of Metrics across Criteria

Criteria	Q _n M Metrics (Quantitative)		Q ₁ M Metrics (Qualitative)	
	Count	Weightage	Count	Weightage
1. Curricular Aspects (100)	4	70	2	30
2. Teaching- Learning and Evaluation (350)	7	225	3	125
3. Research, Innovations and Extension (110)	6	80	3	30
4. Infrastructure and Learning Resources (100)	3	40	3	60
5. Student Support and Progression (140)	8	130	1	10
6. Governance, Leadership and Management (100)	4	46	5	54
7. Institutional Values and Best Practices (100)	2	30	4	70
Total	34	621	21	379

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Difference in previous & current A & A Process



NAAC - JANUARY 2022 MANUAL Criteria wise changes

Criterion 1 – Curricular Aspects (100):

Changes / New:

- **1.1.1 Q1M (20):** The Institution ensures effective curriculum planning and delivery through a well-planned and documented process including Academic calendar and conduct of continuous internal Assessment. [Remark: old 1.1.1 & 1.2.2 are merged]
- **1.4.1 QnM (20):** Institution obtains feedback on the academic performance and ambience of the institution from various stakeholders, such as Students, Teachers, Employers, Alumni etc. and action taken report on the feedback is made available on institutional website (Yes or No). [Remark: old 1.4.1 & 1.4.2 are merged and curriculum feedback is changed to academic performance and ambience]

Difference in previous & current A & A Process



NAAC - JANUARY 2022 MANUAL Criteria wise changes

Criterion 1 – Curricular Aspects (100):

Removed:

- 1.1.1.3 QnM (5): Teachers of the Institution participate in following activities related to curriculum development and assessment of the affiliating University and/are represented on the following academic bodies during the last five years: 1. Academic council/BoS of Affiliating university 2. Setting of question papers for UG/PG programs 3. Design and Development of Curriculum for Add on/ certificate/ Diploma Courses 4. Assessment /evaluation process of the affiliating University
- 2.1.2.1 QnM (10): Percentage of Programmes in which Choice Based Credit System (CBCS)/ elective course system has been implemented.
- 3.1.3.2 QnM (10): Average percentage of courses that include experiential learning through project work/field work/internship during last five years.

Difference in previous & current A & A Process



NAAC - JANUARY 2022 MANUAL

Criteria wise changes

Criteria 2- Teaching- Learning and Evaluation (350):

Changes / New:

- **2.3.1 Q1M (40):** Student centric methods, such as experiential learning, participative learning and problem solving methodologies are used for enhancing learning experiences using ICT tools. [Remark: old 2.3.1 & 2.3.2 are merged]
- **2.5.1 Q1M (40):** Mechanism of internal/ external assessment is transparent and the grievance redressal system is time- bound and efficient. [Remark: old 2.5.1 & 2.5.2 are merged]

Difference in previous & current A & A Process



NAAC - JANUARY 2022 MANUAL

Criteria wise changes

Criteria 2- Teaching- Learning and Evaluation (350):

Changes / New:

- **2.6.1 Q1M (45):** Programme Outcomes (POs) and Course Outcomes (COs) for all Programmes offered by the institution are stated and displayed on website and attainment of POs and COs are evaluated. [Remark: old 2.6.1 & 2.6.2 are merged]
- **2.4.2 QnM (25):** Percentage of full time teachers with NET/SET/SLET/ Ph. D. / D.M. / M.Ch. / D.N.B Superspeciality / D.Sc. / D.Litt. during the last five years (consider only highest degree for count). [Remark: NET/SET/SLET newly added]

Difference in previous & current A & A Process



NAAC - JANUARY 2022 MANUAL

Criteria wise changes

Criteria 2- Teaching- Learning and Evaluation (350):

Removed:

- 1.2.2.1 Q1M (30): The institution assesses the learning levels of the students and organises special Programmes for advanced learners and slow learners.
- 2.2.3.3 QnM (15): Ratio of mentor to students for academic and other related issues.
- 3.2.4.3 QnM (20): Average teaching experience of full time teachers in the same institution (Data for the latest completed academic year in number of years). [Remark: This will be covered in Extd. profile 2.1) Number of full time teachers presently working in the institutions]

Difference in previous & current A & A Process



NAAC - JANUARY 2022 MANUAL

Criteria wise changes

Criteria 3- Research, Innovations and Extension (110):

Changes/New:

- 3.2.1 Q1M (10): Institution has created an ecosystem for innovations and has initiatives for creation and transfer of knowledge (patents filed, published, incubation center facilities in the HEI to be considered). [Remark: patents filed, published is newly added]
- 3.4.2 Q1M (10): Awards and recognitions received for extension activities from government / government recognised bodies. [Remark: old QnM 3.4.2 is converted to 3.4.2 Q1M]

Difference in previous & current A & A Process



NAAC - JANUARY 2022 MANUAL

Criteria wise changes

Criterion 4 - Infrastructure and Learning Resources (100):

Changes/New:

- **4.1.1 Q1M (20):** Availability of adequate infrastructure and physical facilities viz., classrooms, laboratories, ICT facilities, cultural activities, gymnasium, yoga centre etc. in the institution. [Remark: Old 4.1.2 Q1M Sports/cultural facilities are merged with 4.1.1 and Old 4.1.3 QnM ICT class rooms merged with 4.1.1 Q1M]

Difference in previous & current A & A Process



NAAC - JANUARY 2022 MANUAL

Criteria wise changes

Criterion 4 - Infrastructure and Learning Resources (100):

Changes/New:

- **4.2.1 Q1M (20):** Library is automated using Integrated Library Management System (ILMS), subscription to e-resources, amount spent on purchase of books, journals and per day usage of library. [Remark: Old 4.2.2 QnM Library e-resources, 4.2.3 QnM Library expenditure & 4.2.4 QnM per day usage of library by teachers and students are merged with 4.2.1 Q1M]
- **4.3.1 Q1M (20):** Institution frequently updates its IT facilities and provides sufficient bandwidth for internet connection. [Remark: Old 4.3.3 QnM Internet Bandwidth is merged with 4.3.1 Q1M]

NAAC - JANUARY 2022 MANUAL
Criteria wise changes

Criterion 5- Student Support and Progression (140):

Changes/New:

- **5.1.1 QnM (20):** Percentage of students benefited by scholarships and freeships provided by the Government and Non-Government agencies during last five years. [Remark: Old 5.1.2 QnM Freeship from institution / non- government agencies is merged with 5.1.1 QnM and Freeship from institution is removed, only from Non-Government agencies is there.]
- **5.2.1 QnM (20):** Percentage of placement of outgoing students and students progressing to higher education during the last five years. [Remark: Old 5.2.1 QnM Placements & 5.2.2 QnM Progression to Higher Education are merged]

NAAC - JANUARY 2022 MANUAL
Criteria wise changes

Criterion 6- Governance, Leadership and Management (100):

Changes / New:

- **6.1.1 Q1M (10):** The governance and leadership is in accordance with vision and mission of the institution and it is visible in various institutional practices such as decentralization and participation in the institutional governance. [Remark: Old 6.1.2 Q1M decentralization/participative management is merged with 6.1.1 Q1M]

Difference in previous & current A & A Process



NAAC - JANUARY 2022 MANUAL

Criteria wise changes

Criterion 7 - Institutional Values and Best Practices (100):

Changes / New:

7.1.2 QnM (20): The Institution has facilities and initiatives for

1. Alternate sources of energy and energy conservation measures [Old 7.1.2QnM]
2. Management of the various types of degradable and non-degradable waste [Old 7.1.3 Q1M]
3. Water conservation [Old 7.1.4 QnM]
4. Green campus initiatives [Old 7.1.5 QnM]
5. Disabled-friendly, barrier free environment. [Old 7.1.7 QnM]

[Remark: Old 7.1.2 Q1M, 7.1.3 Q1M, 7.1.4 QnM, 7.1.5 QnM & 7.1.7 QnM are merged]



SANJEEVAN

EN 6315 ■ ENGINEERING & TECHNOLOGY INSTITUTE, PANHALA ■

Two Day National level NAAC sponsored Online Seminar on

**“Use of ICT tool for quality enhancement
of higher education Institutes;
Post COVID situation”**



Organised by,
IQAC

**SANJEEVAN ENGINEERING & TECHNOLOGY INSTITUTE,
PANHALA (Maharashtra)**

9th and 10th December, 2022
Online mode

Good Morning,

How NACC documentation helps in NBA?

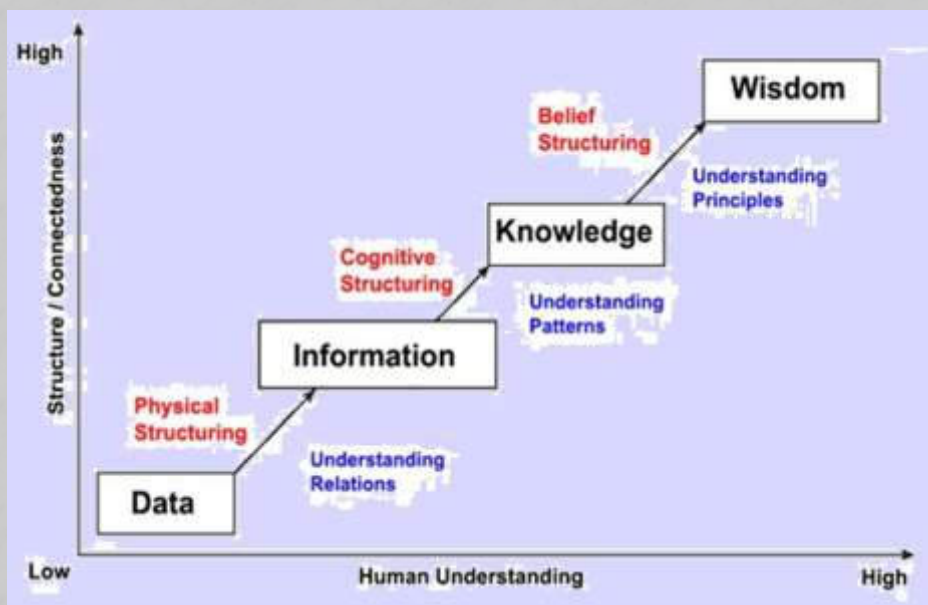
Dr. Shashank Joshi

Dean and Professor,

Faculty of Engineering and Technology,
Department of Computer, BVDU COE Pune
Bharati Vidyapeeth (Deemed to be University),
Pune- 411 030

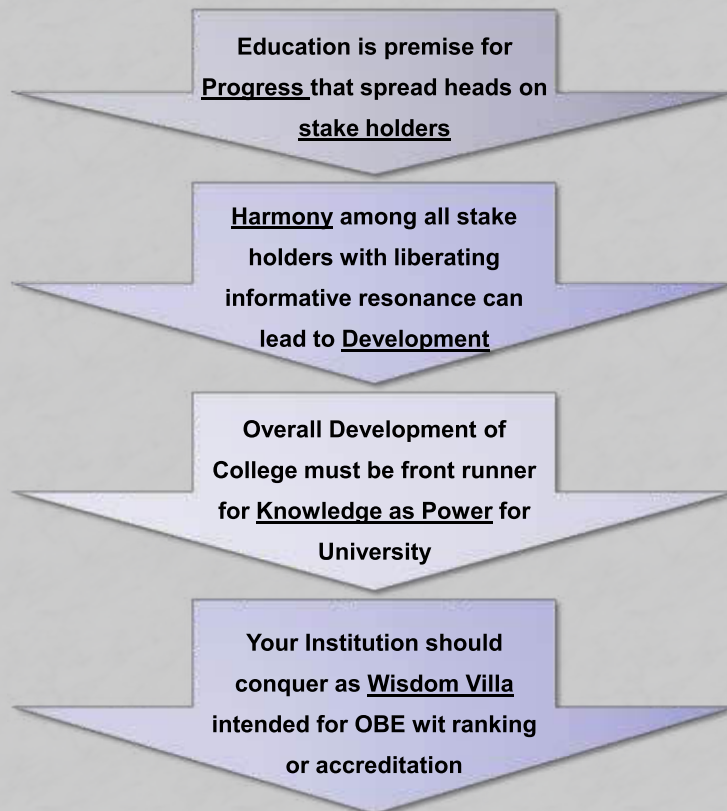
shashank.joshi@bharativedyapeeth.edu

TECHNOLOGY MOVEMENT



How NAAC documentation helps NBA : Dr Shashank Joshi

3



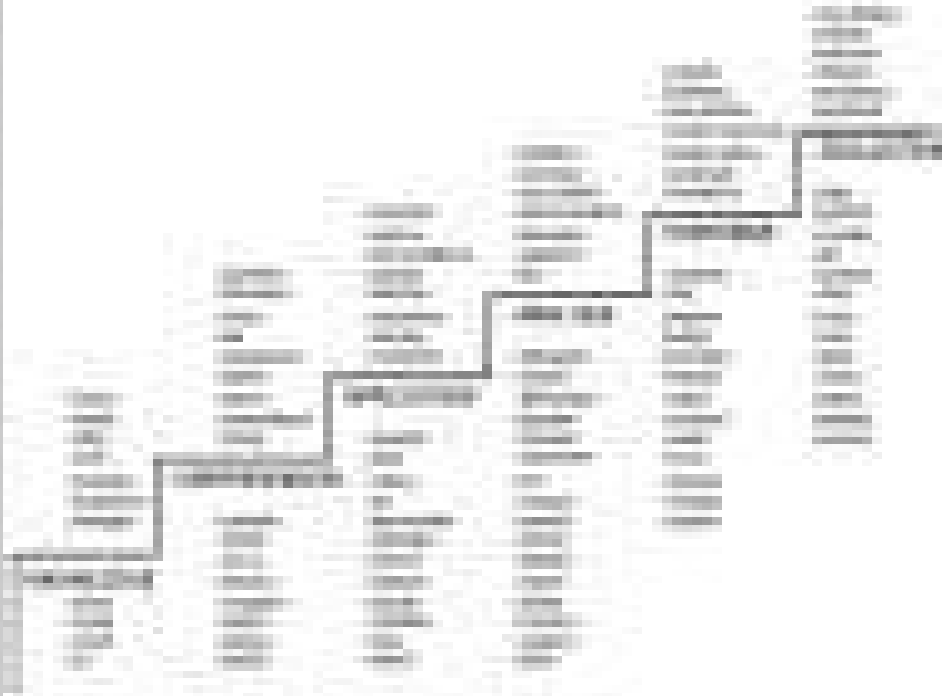
4

OBE

- The Outcome Based Accreditation, Assessment and Ranking includes NAAC,NBA, NIRF,
- These frameworks assisting the stakeholders in engineering education for SWOC analysis,
- To meet the standards and Quality in Higher Education,
- They have their own framework to measure the quality of the Engineering education,
- The criteria, key aspects and indicators of the three are different but overlapping,
- These differences in assessment are making the institutions to work for three different models throughout the academic year giving them less space to concentrate in the core academics.
- Need of ERP based DA System with common framework.

5

LEARNING OBJECTIVES



BLOOM TAXONOMY



COMPARISON

- NAAC : Assessment
- NBA : Accreditation
- NIRF : Research Framework

NACC

- The assessment by NAAC primarily focuses on three aspects while evaluating an institution;
 - Quality initiative,
 - Quality sustenance
 - and Quality enhancement.
- The A&A process of NAAC involves a combination of self evaluation and external peer evaluation. NAAC is more concerned about the developmental aspects of the institution in the context of quality. Self-evaluation is crucial in the process of A&A. It has a tremendous contribution in promoting objectivity, self-analysis, reflection and professionalism on the part of higher educational institutions (HEI). The self-evaluation proforma of NAAC provided as “manuals for self study” intend to discuss this input-process-output mechanism.
- Also, the Self-Study Report (SSR) which the institution submits during the A&A is expected to serve as a catalyst for institutional self-improvement, and promote innovation.

DOCUMENTS REQUIRED FOR NAAC

- Documents to be submitted with IIQA (Institutional Information for Quality Assessment)
- During online submission of IIQA, the following documents (if applicable) have to be uploaded in .pdf form.(Please note the size should not exceed 1MB.)
 - Latest Affiliation letter from the Affiliating University.
 - Latest Recognition/approval letter from Statutory Regulatory Authority (SRA) like AICTE, MCI etc...
 - UGC 2f and 12(B) recognition certificate along with latest Plan General Development Grant release letter from UGC.
 - Letter from UGC regarding award of College Potential Excellence /University PE.
 - For Autonomous colleges, UGC letter conferring Autonomous Status.
 - Proof of uploading All India Survey on Higher Education (AISHE) certificate.
 - If change in name, submit approvals of relevant authorities/ University/MHRD/UGC
 - Approval of UGC/MHRD/State government for establishment of university.
 - AIU or other governmental agencies approval for standalone institutes.
 - Upload AQAR's in the website so as to provide URL details.
 - Self declaration by the HEI's complying with rules and regulations of Central Government, State Government, UGC, Affiliating University and other applicable SRA in the format provided by NAAC.
 - Self declaration with respect to Affiliation status in the format provided by NAAC.

10

NATIONAL ASSESSMENT AND ACCREDITATION COUNCIL (NAAC)

Distribution of Weightages across 7 Criteria and 34 Key Indicators

Criteria	Key Indicators	Weightage	Weightage	Weightage
1. Institutional Profile	1.1 Institutional Vision and Mission	10	10	10
	1.2 Institutional History	10	10	10
	1.3 Institutional Infrastructure	10	10	10
	1.4 Institutional Governance	10	10	10
2. Academic Quality	2.1 Academic Standards	10	10	10
	2.2 Academic Performance	10	10	10
	2.3 Academic Innovation	10	10	10
	2.4 Academic Research	10	10	10
3. Student Quality	3.1 Student Admission	10	10	10
	3.2 Student Performance	10	10	10
	3.3 Student Innovation	10	10	10
	3.4 Student Research	10	10	10
4. Faculty Quality	4.1 Faculty Admission	10	10	10
	4.2 Faculty Performance	10	10	10
	4.3 Faculty Innovation	10	10	10
	4.4 Faculty Research	10	10	10
5. Financial Quality	5.1 Financial Management	10	10	10
	5.2 Financial Performance	10	10	10
	5.3 Financial Innovation	10	10	10
	5.4 Financial Research	10	10	10
6. Social Quality	6.1 Social Management	10	10	10
	6.2 Social Performance	10	10	10
	6.3 Social Innovation	10	10	10
	6.4 Social Research	10	10	10
7. Environmental Quality	7.1 Environmental Management	10	10	10
	7.2 Environmental Performance	10	10	10
	7.3 Environmental Innovation	10	10	10
	7.4 Environmental Research	10	10	10

11

NATIONAL ASSESSMENT AND ACCREDITATION COUNCIL (NAAC)

Teaching Learning Methods	1. Quality of Instructional Media	5	5	5
	2. Quality of Instructional Materials	5	5	5
	3. Quality of Instructional Materials	5	5	5
	4. Quality of Instructional Materials	5	5	5
	5. Quality of Instructional Materials	5	5	5
	6. Quality of Instructional Materials	5	5	5
	Total	30	30	30
Learning Resources	1. Quality of Learning Resources	5	5	5
	2. Quality of Learning Resources	5	5	5
	3. Quality of Learning Resources	5	5	5
	Total	15	15	15

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NATIONAL ASSESSMENT AND ACCREDITATION COUNCIL (NAAC)

Teaching Learning Methods	1. Quality of Instructional Media	5	5	5
	2. Quality of Instructional Materials	5	5	5
	3. Quality of Instructional Materials	5	5	5
	4. Quality of Instructional Materials	5	5	5
	Total	20	20	20
Learning Resources	1. Quality of Learning Resources	5	5	5
	2. Quality of Learning Resources	5	5	5
	3. Quality of Learning Resources	5	5	5
	Total	15	15	15
Teaching Learning Methods	1. Quality of Instructional Media	5	5	5
	2. Quality of Instructional Materials	5	5	5
	Total	10	10	10
Learning Resources	1. Quality of Learning Resources	5	5	5
	2. Quality of Learning Resources	5	5	5
	Total	10	10	10
Total		55	55	55

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NATIONAL BOARD OF ACCREDITATION (NBA)

Criteria	Assessment	Score
1. Vision, Mission, and Objectives	1.1 Vision and Mission Statement	2
	1.2 Objectives and Goals	2
	1.3 Alignment of Vision, Mission, and Objectives with the National Education Policy (NEP)	2
	1.4 Clarity and Feasibility of Vision, Mission, and Objectives	2
	1.5 Consistency of Vision, Mission, and Objectives with the National Education Policy (NEP)	2
2. Academic Quality	2.1 Academic Standards	2
	2.2 Quality of Academic Programs	2
	2.3 Quality of Academic Staff	2
	2.4 Quality of Academic Resources	2
	2.5 Quality of Academic Outcomes	2
	2.6 Quality of Academic Processes	2
	2.7 Quality of Academic Infrastructure	2
	2.8 Quality of Academic Governance	2
	2.9 Quality of Academic Research and Innovation	2
	2.10 Quality of Academic Leadership	2
Total		20

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NATIONAL BOARD OF ACCREDITATION (NBA)

1. Vision, Mission, and Objectives	1.1 Vision and Mission Statement	2
	1.2 Objectives and Goals	2
	1.3 Alignment of Vision, Mission, and Objectives with the National Education Policy (NEP)	2
	1.4 Clarity and Feasibility of Vision, Mission, and Objectives	2
2. Academic Quality	2.1 Academic Standards	2
	2.2 Quality of Academic Programs	2
	2.3 Quality of Academic Staff	2
	2.4 Quality of Academic Resources	2
3. Academic Governance	3.1 Academic Governance	2
	3.2 Quality of Academic Processes	2
	3.3 Quality of Academic Infrastructure	2
	3.4 Quality of Academic Leadership	2
Total		20

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NATIONAL BOARD OF ACCREDITATION (NBA)

NBA ACCREDITED	1. Institutional Information	Yes
	2. Academic Information	Yes
	3. Financial Information	Yes
	4. Infrastructure Information	Yes
	5. Quality Assurance System	Yes
	6. Institutional Self-Review	Yes
	7. Institutional Improvement Plan	Yes
	8. Institutional Review	Yes
	9. Institutional Accreditation	Yes
	10. Institutional Review	Yes
NBA ACCREDITED	11. Institutional Information	Yes
	12. Academic Information	Yes
	13. Financial Information	Yes
	14. Infrastructure Information	Yes

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NATIONAL BOARD OF ACCREDITATION (NBA)

NBA ACCREDITED	1. Institutional Information	Yes
	2. Academic Information	Yes
	3. Financial Information	Yes
	4. Infrastructure Information	Yes
	5. Quality Assurance System	Yes
	6. Institutional Self-Review	Yes
	7. Institutional Improvement Plan	Yes
	8. Institutional Review	Yes
	9. Institutional Accreditation	Yes
	10. Institutional Review	Yes
NBA ACCREDITED	11. Institutional Information	Yes
	12. Academic Information	Yes
	13. Financial Information	Yes
	14. Infrastructure Information	Yes

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NATIONAL INSTITUTIONAL RANKING FRAMEWORK (NIRF)

Index	Parameter	2019-20	2020-21
1. Faculty (Weightage: 30%)	Faculty with PhD/Doctoral Degree	10	10
	Faculty with Postgraduate Degree	10	10
	Faculty with Graduate Degree	10	10
	Faculty with Undergraduate Degree	10	10
	Total	40	40
2. Student (Weightage: 30%)	Student with Graduate Degree	10	10
	Student with Postgraduate Degree	10	10
	Student with Undergraduate Degree	10	10
	Student with Diploma	10	10
	Total	40	40

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NATIONAL INSTITUTIONAL RANKING FRAMEWORK (NIRF)

1. Faculty (Weightage: 30%)	Faculty with PhD/Doctoral Degree	10	10
	Faculty with Postgraduate Degree	10	10
	Faculty with Graduate Degree	10	10
	Faculty with Undergraduate Degree	10	10
	Total	40	40
2. Student (Weightage: 30%)	Student with Graduate Degree	10	10
	Student with Postgraduate Degree	10	10
	Student with Undergraduate Degree	10	10
	Student with Diploma	10	10
	Total	40	40
3. Research (Weightage: 40%)	Research Projects & Publications	10	10
	Total	40	40

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COMPARISON FOR NAAC AND NBA

S. No.	NAAC	NBA
1. Self assessment	Self study report (SSR)	Self study report
2. Peer Review	NAAC	NAAC
3. External Evaluation	External peer review	External peer review
4. Accreditation	NAAC	NAAC
5. Re-visit/Review	NAAC	NAAC
6. Accreditation Cycle	NAAC	NAAC

COMPARISON FOR NAAC AND NBA

S. No.	NAAC	NBA
1. Self assessment	Self study report (SSR)	Self study report
2. Peer Review	NAAC	NAAC
3. External Evaluation	External peer review	External peer review
4. Accreditation	NAAC	NAAC
5. Re-visit/Review	NAAC	NAAC
6. Accreditation Cycle	NAAC	NAAC
7. Accreditation Fee	NAAC	NAAC
8. Accreditation Period	NAAC	NAAC
9. Accreditation Body	NAAC	NAAC

COMPARISON FOR NAAC AND NBA

Sl. No.	NAAC	NBA	Remarks
1	1. Admission file	1. Admission file	
2	2. Internal assessment file	2. Internal assessment file	
3	3. Extension activities / awareness programmes file	3. Extension activities / awareness programmes file	
4	4. Staff meeting note /file with agenda	4. Staff meeting note /file with agenda	
5	5. Circular file	5. Circular file	
6	6. Scholarship file	6. Scholarship file	
7	7. Equipment purchase file	7. Equipment purchase file	
8	8. Equipment history (source of purchase, cost, accuracy, year of purchase)	8. Equipment history (source of purchase, cost, accuracy, year of purchase)	
9	9. Parents teachers meeting	9. Parents teachers meeting	
10		10. Alumni file	
11		11. Curriculum revision file (existing and previous)	
12		12. Ongoing, completed and applied project file-faculty wise	
13		13. Publication-faculty wise	
14		14. Patents file	
15		15. Ph.D. thesis list	
16		16. Journal subscription file	

How NAAC documentation helps NBA : Dr Shashank Joshi

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LIST OF FILES TO BE MAINTAINED FOR NAAC IN EACH DEPARTMENT

- 1. Admission file
- 2. Internal assessment file
- 3. Extension activities / awareness programmes file
- 4. Staff meeting note /file with agenda
- 5. Circular file
- 6. Scholarship file
- 7. Equipment purchase file
- 8. Equipment history (source of purchase, cost, accuracy, year of purchase)
- 9. Parents teachers meeting
- 10. Alumni file
- 11. Curriculum revision file (existing and previous)
- 12. Ongoing, completed and applied project file-faculty wise
- 13. Publication-faculty wise
- 14. Patents file
- 15. Ph.D. thesis list
- 16. Journal subscription file

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LIST OF FILES TO BE MAINTAINED FOR NAAC IN EACH DEPARTMENT

- 17. Consultancy project file
- 18. Collaboration files with MOU
- 19. Class time table
- 20. Department profile including vision and mission of the department in printable form
- 21. CD publication if any
- 22. Books published
- 23. Conference/workshop/seminar organized with photo evidence
- 24. seminar / Conference Proceedings'
- 25. Department Library file
- 26. Individual log book for each equipment
- 27. e-journal subscription file
- 28. PG & M.Phil. Pass percentage details year wise
- 29. List of Research scholars/ fellowships
- 30. Teaching and non-teaching staff file
- 31. Anti ragging committee file
- 32. Department placement cell file

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LIST OF FILES TO BE MAINTAINED FOR NAAC IN EACH DEPARTMENT

- 33. Green measures following in the department
- 34. Question bank for each subject
- 35. Disaster Management Measures – Chemical & Biological hazards
- 36. Feed back forms of the students and Remedial measures taken for the weaker students
- 37. Measures taken for the advanced learners
- 38. Database of students with photos
- 39. Student participatory learning activities
- 40. Department academic calendar with weekly & monthly wise tests/ assignments date
- 41. Best practices followed in curriculum and Teaching – Learning
- 42. Awards received by faculty members & students
- 43. Individual staff members' publication file

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COMMON FRAMEWORK

Sl. No.	Criteria	Sub-Criteria	Yes	No	Not Applicable	Remarks
1	1.1	1.1.1				
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How NAAC documentation helps NBA : Dr Shashank Joshi

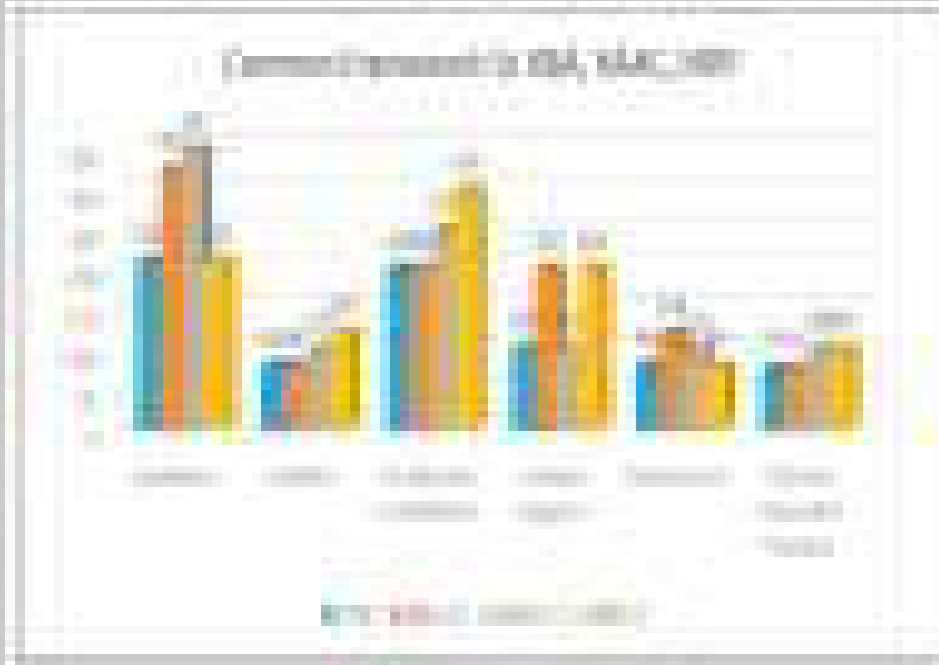
COMMON FRAMEWORK

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How NAAC documentation helps NBA : Dr Shashank Joshi

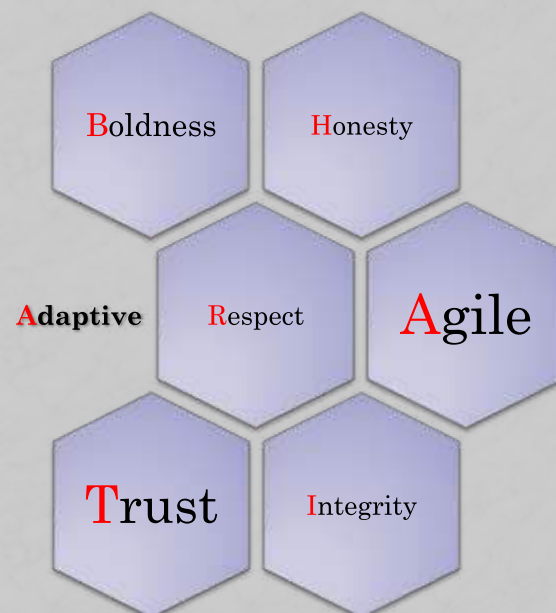
COMMON FRAMEWORK



How NAAC documentation helps NBA : Dr Shashank Joshi

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BHARATI MODEL OF VALUES



How NAAC documentation helps NBA : Dr Shashank Joshi

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ICT tools for quality Enhancement of Higher Education

Dr. Sanjeev N. Jain, Principal, Sanjeevan Engineering
& Technology Institute, Panhala



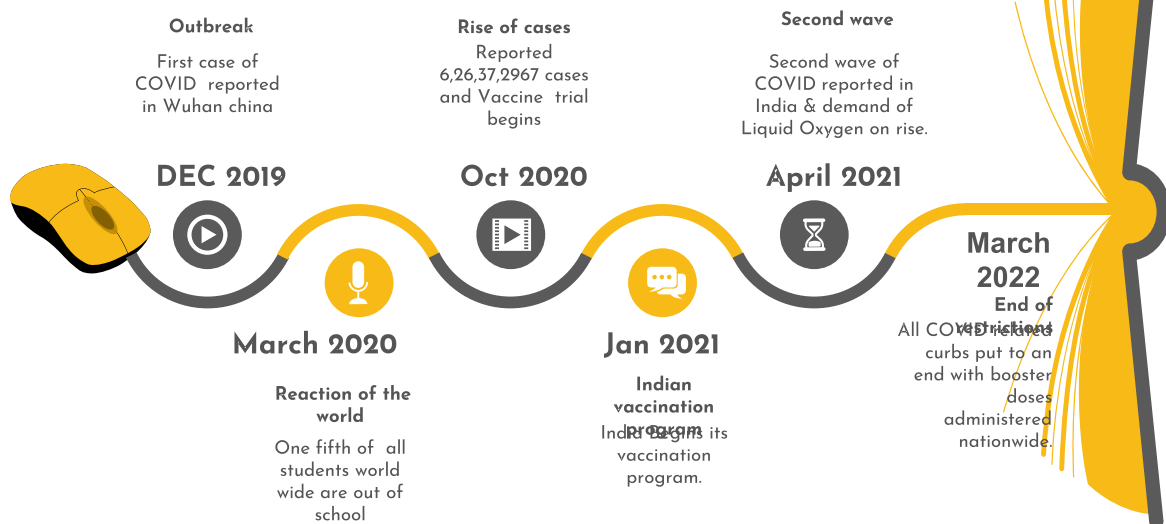
Agenda

- 01** Impact of COVID on Education
- 02** Why ICT tools ?
- 03** Challenges in utilization of ICT tools
- 04** Quality Enhancement with ICT tools
- 05** Conclusion



Impact of COVID on Education

COVID Timeline



Changing Scenario



Impact of COVID



- The COVID-19 pandemic created the largest disruption of education systems in history.

- The ability to respond to school closure is proportional to the level of development of the respective country.

- In the most fragile education systems, this interruption will have a negative impact on most of the internet deprived students

- Educational communities across the world figured out various ways to support students and teachers with innovative platforms and strategies.

190

In these many countries, the crisis has helped in the stimulation of innovation in the education field.

90%

Countries implemented some form of remote learning policy

40 Million

Children worldwide have missed out on early childhood education



ICT Tools

- Technology changes swiftly
- Various ICTs that are the most important determinants of the effectiveness of such tools in education.
- ICT could be used for a wide variety of problems and can provide learning situations to explore and experiment.
- Computers, laptops, desktops, data projector, software programs, printers' scanners and Information Communication Technology tools are digital infrastructures.



Stages of transition to online learning



Benefits of ICTs



The following benefits can be noted

- ✓ Student motivation
- ✓ Enhances subject learning
- ✓ Student attainment levels.
- ✓ Promotes higher-order thinking skills
- ✓ Student engagement in subject learning.
- ✓ Develops Digital literacy
- ✓ Improves engagement and knowledge retention
- ✓ Encourages collaboration.

Forced Shift

- ✓ The pandemic has forced the Education Sector to shift dramatically to virtual .

Online Education

Platforms

- ✓ Students and teachers are now relying on various online platforms to adopt new pedagogical methods to learn and teach.



Global Digital Library

open source	
offers free eBooks	
40 languages	
downloading	
Printing	
Platform	



Canva

Free & Paid	
simple design	
blog graphics	
flyers	
posters	
Tool	



Infogram

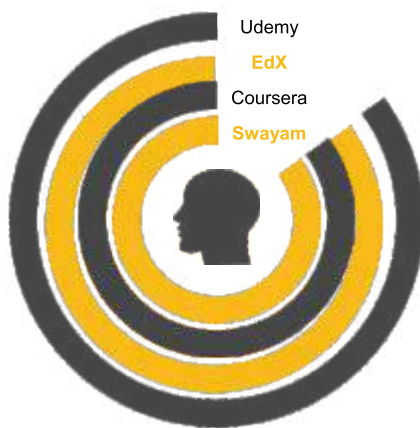
Free & Paid	
Create	
Publish	
Interactive	
Engaging	
Software	



Mindomo

Paid	
Create mind maps	
share mind maps	
Task maps	
For Desktop, iOS and Android	
Tool	

Massive open online course– MOOC platform



116

openSAP:

German-based software company SAP launched their platform for enterprise MOOCs. The objective is to enlarge the SAP ecosystem.

1548

Future Learn

Online courses to help learners study, build professional skills and connect with experts.

52

OpenWHO

English, Spanish and Portuguese language courses on ICT skills and programming.

18

Moochouse

A white-label platform based on the HPI MOOC Platform, where companies and institutions can offer MOOCs under their own branding.

Growth of MOOCs market

Massive Open Online Course (MOOC) Market in Retail - Growth Rate by Region (2020-2025)



Higher Education & Futuristic Educational trends

Norris and Lefrere (2011) and others imagined a more nimble, agile and open university engaging with present knowledge systems, they did not foresee that this transition might be forced due to the Covid-19 pandemic..



The algorithm as professor



The University as a Service



Changing world



The university as
assessment powerhouse



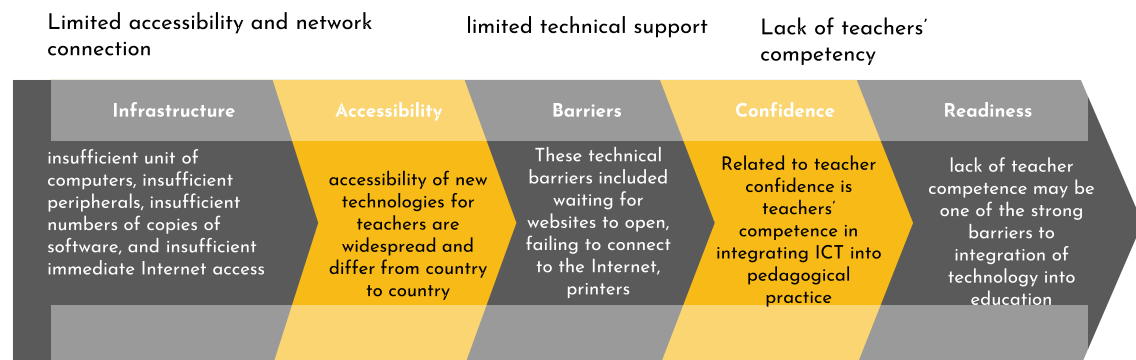
Personalized learning
diversity



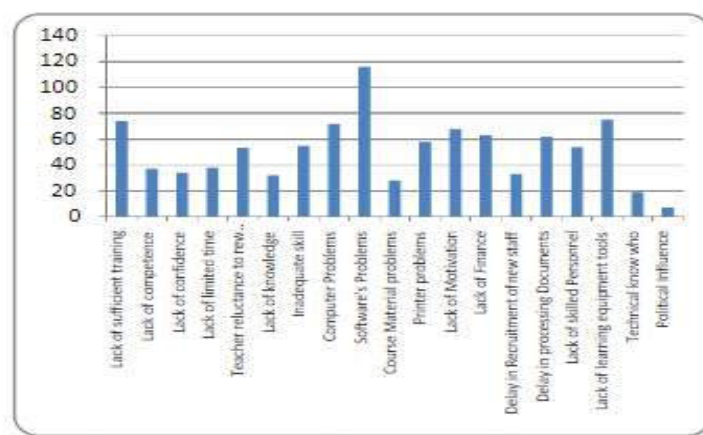
Problem solving



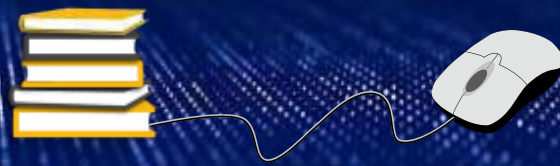
Resistance & Reasons



Factors leading to limitations



Quality Enhancement with ICT tools



Support of Govt

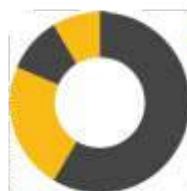


NPTEL (National Programme on Technology Enhanced Learning), is funded by the Ministry of Education (MoE) Government of India, and was launched in 2003. I

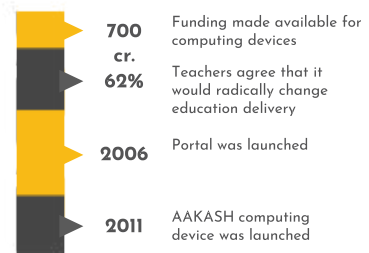
Sakshat portal

To cater to the learning needs of more than 50 crore people through a proposed scheme of 'National Mission in Education through Information and Communication Technology (ICT).

NPTEL stats



- Largest online repository
- 1.3 billion views
- 12000 hrs of transcripts
- 56000 hours of video



NPTEL

The focus areas of NPTEL i) higher education, ii) professional education, iii) distance education and iv) continuous and open learning

Deploying ICT for Quality Education

Coordination
Effective use of ICT in education requires intra and inter-ministry coordination

Technical support for teachers

ICT support staff at institutes is crucial



Pedagogical support for teachers.
short-term strategies are needed to develop Teacher's capacity for implementing ICT-enabled lessons.

Intelligent tutoring systems

It monitors student progress, identifies strengths and limitations

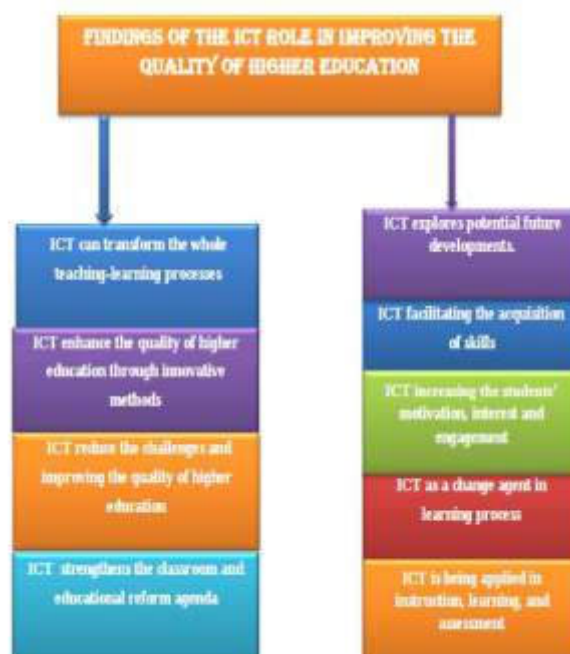
Differentiated and just-in-time programs

Professional development programs should be based on the learning needs of each teacher identified through a sound assessment process..

Systematic monitoring and evaluation of ICT use

The use of ICT in institutes should be evaluated to determine whether methods and tools are having the expected impact.

Role of ICT in quality education



ICT & dynamics of Quality Education



ICT vs QUALITY EDUCATION



- ❖ Quality education depends on the development of information technology in several provision such as enlarging the motivation of learner, enrichment of basic skills increasing teacher training in technology.
- ❖ The student centric environment is created with the help of ICT which transforms the curriculum / subject.
- ❖ The function of ICT in education has become inevitable.
- ❖ Information communication technology instruments such as multimedia based soft ware and sound, colorful moving images to enhance motivation among students in learning process.
- ❖ Haddad and Draxler identify at least five levels of technology use in education:
 - a) Presentation
 - b) Demonstration
 - c) Drill & Practice
 - d) Interaction
 - e) Collaboration.

ICT and its Influence for Quality Education

- ❖ Information communication technologies are influencing all aspects of life, in which the impacts of ICT is significant is education.
- ❖ ICTs help expand access to education, motivate to learn, facilitates the acquisition of basic skills, and can transform the learning environment thus help improving the quality of education.
- ❖ ICT has tremendous potential for education.
- ❖ ICT enables a teacher to reach out widely efficiently and effectively.
- ❖ It helps teachers and institutions to be more modern and dynamic.
- ❖ The use of ICT will enhance the learning experiences of students.
- ❖ It also helps for building a successful career, in a technology savvy world.
- ❖ Quick changes in the modern technologies, which shows that role of ICT in future education.

ICT in Educational Process

- ❖ Fast Communication Factor the modern technologies illuminate all geographical boundaries, so students can join various projects all around the world.
- ❖ It provides realistic environment in their real classroom situation. Students who can exchange their ideas with in their co learners through ICT.
- ❖ The role of teacher motivating the young learners to draw the attention towards their subject through multimedia based technology.
- ❖ The ICT plays one among the major factor to change the cooperative learning among the students community to understand the subject matter with easiest

Ensuring Quality Education

- ❖ Largely based on teacher opinion, of the potential of ICT to enhance educational quality;
- ❖ They also identified teachers with concerns about it leading to waste of student time and the encouragement of superficial work.
- ❖ This range of opinion reinforces that the educational impact of ICT depends largely on the use to which it is put.
- ❖ Where ICT is used to facilitate a student centered approach promote inter alia the development of analytical and information handling skills,
- ❖ It is adoptable for every situation in the classroom environment to creating the motivation among the learners.

Transformation of the student

- ❖ We must remind ourselves that the pandemic has induced in us a greater belief in global connections (Luthra 2020).
- ❖ Global programs have traditionally suffered from travel contingencies and immigration barriers.
- ❖ The pandemic affords us an opportunity to create a strong virtual global education program (Whalen 2020).
- ❖ Technology tools are now expected by students not just for instruction, but also for other aspects of their experience.
- ❖ AI-enabled career planning and management will allow students to receive personalized guidance on how to imagine their professional life.

Conclusion

ICT will remain in use for personal growth, professional growth, creativity, and joy, consumption, and wealth.

This digitalization revolution can synergise the educational ambitions

Preparing to move education outside of traditional physical classrooms in response to COVID-19



Covid 19 event coincides with the increase in capabilities of information technology

ICT has become a potent force in transforming the educational landscape the world over.

We need to be optimistic as literature entails a high level of student satisfaction and interest in ICT immersed learning environment.



THE ADVANTAGES OF MOOC COURSES INCORPORATION IN THE CURRICULUM

By

Prof . Suhas Patil

(suhas_patil@yahoo.com)

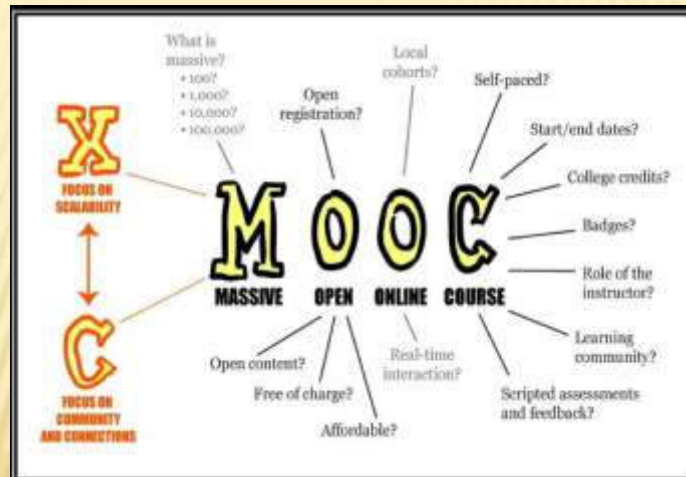
Professor, Department of Computer
Engineering

Bharati Vidyapeeth (DU) college of Engg, Pune.



FUNCTIONS OF PLATFORM FOR MOOCS

MOOC: CONCEPT & DEFINITION CONTINUED...



HISTORICAL BACKGROUND OF MOOC

- ✖ During last years, MOOCs, or massive open online courses, have been at a furious pace

USA

Coursera (2012): 1905 courses

edX (2012): 975 courses

Udacity (2012): 141 courses

Peer to Peer Univ. (2009)

NovoEd (2013): 77 courses

Canvas: 345 courses

Europe

FutureLearn (2012, UK): 351 courses

Open Classrooms (2007, France): 25 courses

OpenHPI (2012, France): 30 courses

iversity (2013, Germany): 93 courses

ALISON (2007, Ireland)

MiriadaX (Spain): 168 courses

Asia-Oceania

KMOOC (2014, Korea): 18 courses

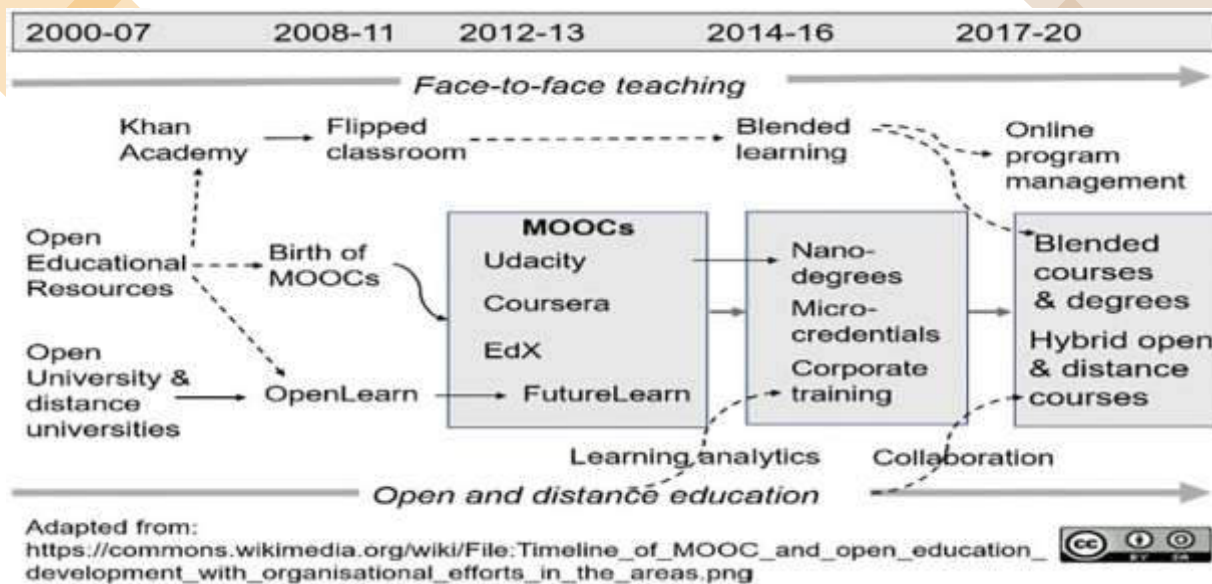
JMOOC (2013, Japan)

Xuetang (China)

NPTEL (2006, India): 96 courses

OpenLearning (2012, Austria)

Rwaq (2013, Saudi Arabia)



DEVELOPMENT OF MOOCS IN INDIA

- ✦ Brief History of Indian MOOCs:
- ✦ The first MOOC experiments in India took place in 2012 with a course offered by Dr. Gautam Schroff of Tata Consultancy Services (TCS) and an adjunct faculty at Indian Institute of Technology (IIT), Delhi.
- ✦ Also Larks Learning (Downes 2012a) as well as Sunstone (Sunstone Business School 2012) independently came up with the first indigenous MOOCs in the private sector in 2012. IIT, Kanpur developed an indigenously built mooKIT platform in 2014; IIT BombayX, a customization of the open-source edX platform, came up in 2014-15 and NPTEL content is being delivered through Google Course builder since 2014.
- ✦ The Swayam platform was inaugurated in July 2017.

HISTORICAL DEVELOPMENT OF MOOCS IN INDIA.

Initiative	Year of Launch	Institution behind Platform	Website Link
NPTEL	2003	IIT Madras	nptel.ac.in/
mooKIT	2012	IIT Kanpur	www.mooKit.co
IITBX	2014	IIT Bombay	iitbimbayx.in

CONCEPT AND DEFINITION

- ✗ Online: the course is available digitally and that is why participants can access it from anywhere.
- ✗ 'Course': has a structure, a syllabus, a design and provides participants an opportunity to join learning community.
- ✗ The MOOC aims at a large-scale interactive participation of users with the help of web.
- ✗ Features of MOOC : videos, study materials, quizzes and online exams.
- ✗ Philosophy of MOOCs : 3A's i.e., Anytime, Anyone, Anywhere.
- ✗ MOOC has no barriers of economic, geographic, academic, age, and gender.
- ✗ MOOC platform providers are Coursera, edX, Canvas and FutureLearn

CONCEPT AND DEFINITION

- ✖ The word MOOC is 'Massive Open Online Course'.
- ✖ An online course which is Massive i.e.
 1. available to many,
 2. it is Open,
 3. implying it
 4. is free of cost,
 5. it also implies there is no pre-requisite qualifications
 6. Or level of performance to join the course
 7. participants can join anytime and leave anytime.

CONCEPTS AND DEFINITION

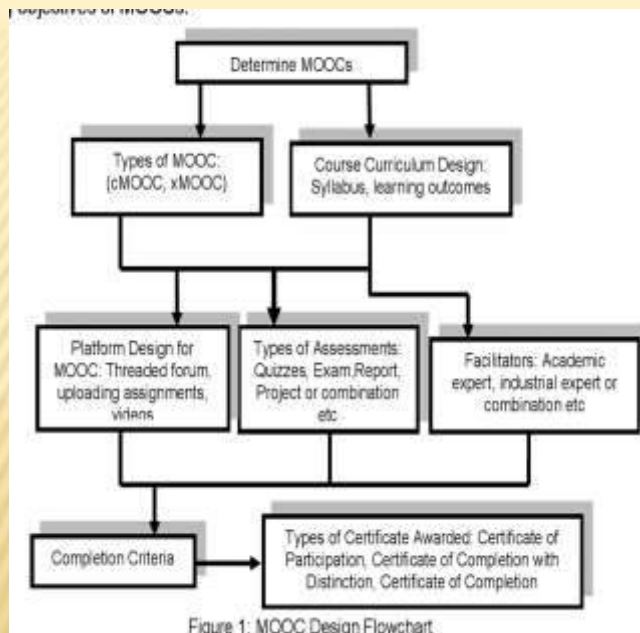
- ✖ The development of MOOCs is made possible by the online exchange of information by experts through social networking platforms.
- ✖
- ✖ The resources are also accessible without any cost through a search engine like Google, Yahoo, etc. MOOCs have the biggest advantage in that students can access them without any cost.
- ✖ There are two kinds of MOOCs which exist nowadays. There are cMOOCs (connectivist Massive Online Learning Courses) where there is a joint development of the course material by the students and the teachers. Such collaborative development is there so that the materials are apt for the future learning of students.

CONCEPTS AND DEFINITION

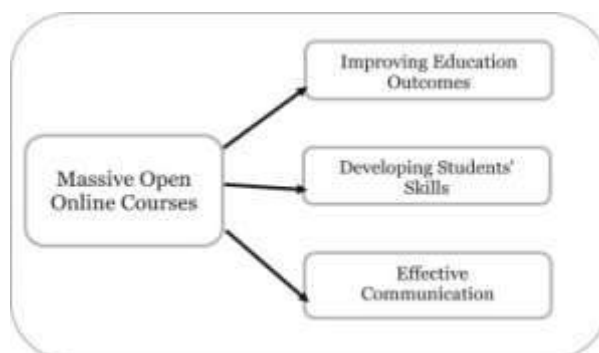
- ✖ xMOOCs (extended Massive Online Open Courses) have a specified course structure as per which the course must be finished.
- ✖ So, they have the aim that the user has to get a certification after studying the subject matter.
- ✖ There is a cost associated with getting the certificates and materials for these courses. Unlike the case of the cMOOCs, student collaboration in such courses is quite limited.
- ✖ It's just limited to consulting each other to ask questions and provide help.

CHARACTERISTICS OF MOOC

- ✖ Quasi MOOC uses online training, offers online courses, representing an online resource, for example, such as open courses: Khan Academy or MIT Open Course Ware.
- ✖ Online quasi MOOCs are developed by teachers that can be not certified.
- ✖ Quasi MOOCs are shorter MOOCs for contents and skills and do not require a semester course structure.
- ✖ The purpose of the quasi MOOC is to provide access to collections of free learning of the mini elections in various disciplines and for different age groups of students.
- ✖ Quasi MOOCs can be content-based (xMOOCs), task-based, network based (cMOOCs).



OBJECTIVES OF MOOC



OBJECTIVES OF MOOC

CATEGORIES/TYPES MOOC

- ✕ There are different types of MOOCs, categorized on the basis of pedagogy, number of students, type of content etc.
- 1. Distributed Online Collaborative Courses (DOCC);
- 2. Big Open Online Courses (BOOC);
- 3. Synchronous Massive Online Courses (SMOC);
- 4. Small Private Online Courses (SPOC);
- 5. Corporate MOOCs;

- THE PERCENTAGE OF COURSES IN ENGLISH DECREASED SLIGHTLY FROM 80% IN 2014 TO 75% IN 2015. IT IS CAUSED BY THE GROWTH OF FRANCE UNIVERSITÉ NUMERIQUE (FUN) AND THE SPANISH PLATFORM MIRIADA X.

MOOC service	Coursera	edX	Canvas	FutureLearn	Miriada	France Université Numérique
Market share	35.6%	18.1%	6.92%	5.68%	3.66%	3.33%
MOOC service	Udacity	Open Education	Rwaq	Diversity	NovoEd	Others
Market share	2.95%	2.12%	1.83%	1.78%	1.63%	16.4%

ARE MOOCS RELIABLE?

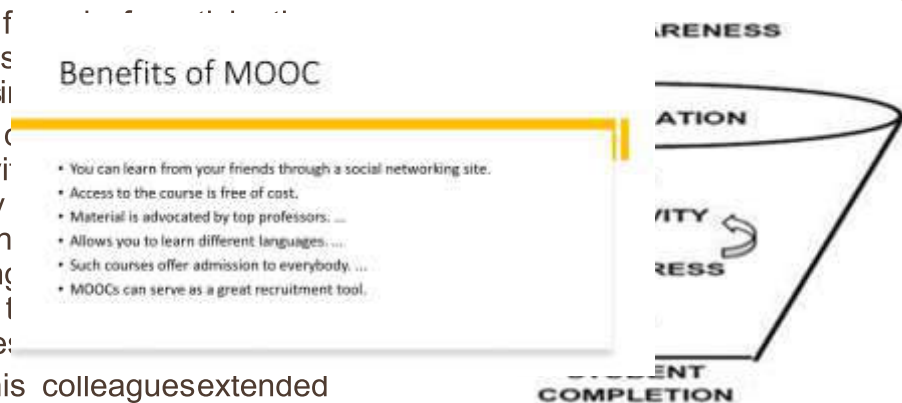
- ✗ The most frequently cited reason for professors' participating in MOOCs is a desire to increase access to higher education worldwide.
- ✗
- ✗ But the big instructional burden which the professors must take for lecture preparation is beyond that in face-to-face class.
- ✗ A lecturer spent more than 100 hours on recording online lecture videos and doing other preparation before starting MOOC class and he or she spent 8–10 hours a week on the course including online activities such as discussion forums.
- ✗ Most of analyses on MOOCs focused on economy (e.g., productivity, cost) and technology (e.g., platforms, automatic grading). More theoretical groundings and qualitative and quantitative data are still requested for evaluating whether MOOCs are effectiveness and efficiency in educational perspective.

MOTIVATING LEARNERS

- ✗ Less than 10% of the students who sign up typically complete the course.
- ✗ Most participants participate peripherally.
- ✗ Some students did not care whether they could complete a course or receive a certificate.
- ✗ Instead, they wanted to learn something based on specific needs.
- ✗ The most basic solution to the problem of poor completion rates is to motivate the learners to participate in the activities of MOOCs.
- ✗ Clow's model [22] is useful for motivating MOOC's learners.

MOTIVATING LEARNERS

- ✗ He creates the funnel metaphor to describe completion rates in MOOCs.
- ✗ This funnel is characterized by registration activity, characterized by AIDA (awareness, interest, action) marketing occurs through 1 awareness, interest, action, and completion.
- ✗ Howarth and his colleagues extended Clow's model by adding "student completion" to the end of the funnel.



Benefits of MOOC

- You can learn from your friends through a social networking site.
- Access to the course is free of cost.
- Material is advocated by top professors. ...
- Allows you to learn different languages. ...
- Such courses offer admission to everybody. ...
- MOOCs can serve as a great recruitment tool.

Benefits of MOOC to Teachers

There are three main advantages of using MOOCs for teaching:

- MOOCs Allow Teachers to Rethink Their Courses. ...
- MOOCs Encourage Teachers to Utilize Technologies. ...
- MOOCs Provide Teachers with Analytics That Improve Teaching.
- MOOC providers are investing in instructional design and development so as to improve the efficacy and quality of the learning experience for learners, showcasing the difference design can make to the quality of learning.
- By doing so, they are showing faculty and students what a high quality course can look like.

BENEFITS OF MASSIVE OPEN ONLINE CONTENT TO EMPLOYEES

Corporate Benefits of MOOC:

- ✗ Boost employee productivity and profits.
- ✗ Improves employee retention rates.
- ✗ Addresses real world challenges to improve on-the-job performance.
- ✗ Organisations can identify motivated employees who possess desirable skill sets.
- ✗ Increase the confidence of employees.

BENEFITS FOR THE STUDENTS

Benefits of Education are Societal and Personal:

- ✖ Poverty Reduction.
- ✖ Connecting Across Borders.
- ✖ Sense of Accomplishment.
- ✖ More Productivity.
- ✖ Better Communication.
- ✖ Critical Thinking Skills.
- ✖ Identification of Skills.
- ✖ Greater Sense of Discipline.

BENEFITS FOR EDUCATION

Benefits Showing Why Education Is Important to Our Society:

- ✖ Creating More Employment Opportunities. ...
- ✖ Securing a Higher Income. ...
- ✖ Developing Problem-solving Skills. ...
- ✖ Improving the Economy. ...
- ✖ Providing a Prosperous and Happy Life. ...
- ✖ Giving Back to the Community. ...
- ✖ Creating Modern Society. ...
- ✖ Bridging the Borders.

ADVANTAGES OF MOOCS

- ✖ You can learn from your friends through a social networking site.
- ✖ Access to the course is free of cost
- ✖ Material is advocated by top professors
- ✖ The course material of MOOCs has been selected by top professors in universities.
- ✖ Allows you to learn different languages
- ✖ Since language-based learning is also available in MOOCs, they prepare students for entrance tests in various languages.
- ✖ Such courses offer admission to everybody d efficiency in educational perspective.

ADVANTAGES OF MOOCS

- ✖ It's true that MOOCs are available for everybody who can't attend regular courses either due to time or financial constraints.
- ✖ Sometimes, the course you want to enrol in is not taught at your college so you have to go to a MOOC provider to study the course.
- ✖ Choose a major, If you are unable to decide on a major in college, then you can test yourself in a MOOC first.
- ✖ This will give you first-hand knowledge about the subject you are willing to study in college.
- ✖ You can get to know through a MOOC how interesting is that subject, rather than choosing that course in college and wasting your time and money.

ADVANTAGES OF MOOCS IN EDUCATION

- ✖ Gain a taster experience for a full degree programme.
- ✖ Courses are flexible, you can start now and study at your own pace.
- ✖ Being able to register for free and many MOOCs are free certificate courses.
- ✖ Engage and feedback with your fellow learners.
- ✖ Deadlines are flexible according to your schedule.
- ✖ What are the advantages of using MOOCs in workplace learning and executive education?
- ✖ Improved loyalty and retention rates

DISADVANTAGES OF MOOCS

- ✖ One of the biggest disadvantages is that students are not interested in completing the course because they don't have the inclination to do.
- ✖ Not meant for students with disabilities
- ✖ Learners who have visual disabilities can't be made to go through such courses.
- ✖ No special attention
- ✖ The students if they don't understand a topic, can't get special attention from the tutor.

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CRITIQUES MOOCS HAVE RECEIVED

- ✗ Very low completion rates.
- ✗ Low motivation
- ✗ Low perceived value compared to University Degrees
- ✗ Competition among MOOC providers and smaller academic institutions.
- ✗ Education perceived as a product
- ✗ Localization issues.
- ✗ Clow's model [22] is useful for motivating MOOC's learners.

FUTURE TRENDS IN MOOCS

- ✦ With the advancement of educational technology, MOOCs are coming of age, and new trends indicate MOOCs will be embracing more and more technology-based features like adaptive learning, gamification, and social learning.
- ✦ In addition to students, corporate houses are also showing interest in MOOCs for their employees.
- ✦ Here lies a great opportunity for eLearning companies to expand their business by adapting MOOCs in their service portfolio.

RELEVANCE OF MOOCS IN INDIAN HIGHER EDUCATION CONTEXT

Online (O): MOOCs has ability to give equal opportunity to access knowledge breaking barriers of time, distance and even the financial barriers which is the largest barrier in Indian context.

Course (C): Looking at the array of various subjects that have already been covered in various MOOCs, it can be inferred that MOOCs can deliver any subject be it related to science, technology, religion, sociology, communication, etc.

MOOCs has Potential Value for Indian Higher Education:

According to press release by MHRD (2018), India: Huge number of users including students, teachers, professionals, sr. citizens, housewives etc. who have registered for various courses under SWAYAM.

Over 100 Universities have come forward in accepting credit transfer for courses done through SWAYAM Platform.

With ample thrust from the Government of India, MOOCs have in fact penetrated education as well as training at all levels in India.

SUCCESSFUL IMPLEMENTATION OF MOOCS IN INDIA

Following Major 5 Steps for Indian H. E. Systems have been Introduced:

- ✖ Overcoming the Constraints of Physical Infrastructure and Teaching Resources;
- ✖ Facilitating Movement towards 'Open'-ness;
- ✖ Promoting Development and Practice of Online and Blended Pedagogy to Improve Quality and Scale within the existing University System;
- ✖ Better Recognition of Online Learning and even Online Degrees;
- ✖ Promoting International Marketing and Outreach of Indian Universities and Institutions;

FEATURES OF THE MOOC PLATFORMS.

provider	Course format	Learning model	No. of courses	No. of users	Institutional Credits	Platform Language	Mob App	App Platform
NPTEL	Scheduled	Online	1200	1.5 Million	Partial	English	Yes	Android
mooKIT	Scheduled	Blended	15	0.1 Million	Partial	English Hindi, Kannada, French, Russian, Ukrainian	No	--
IITBX	Scheduled Self-pace	Online	63	1.25 Million	Partial	English	No	-----

CHALLENGES FOR MOOC IN INDIA

- ✗ Technological Infrastructure
- ✗ Investment
- ✗ Diversified Needs
- ✗ Adoption of MOOC among learners
- ✗ Quality

PROSPECTS FOR MOOC IN INDIA

xMOOCs: deliver high quality content from some of the world's best universities for free.	MOOCs: useful for opening access to high quality content.	Valuable for developing basic conceptual learning, and for creating large online communities of interest or practice.	Are an extremely valuable form of lifelong learning and continuing education.
aren't fixed into traditional term and semester models of the university.	Aren't bound by traditional university credentialing.	Unique - scale, learning communities, scheduling and credentialing flexibility.	"hands on" involvement by the faculty member is limited

SWAYAM

SWAYAM: as one of the World's biggest Massive Open Online Courses (MOOCs) integrated platform of free online courses,

cover subjects from high school onwards till higher education including Skill based courses to ensure that every student benefit from learning material through ICT.

Government's MOOC platform - have gained fast popularity in India.

The objective of this effort is to take the best teaching learning resources to all, including the most disadvantaged.

SWAYAM seeks to bridge the digital divide for students who have until now remained untouched by the digital revolution and have not been able to join the mainstream of the knowledge economy.

FOUR QUADRANT OF SWAYAM



BENEFITS OF SWAYAM

- ✕ Best in Class-Instructors
- ✕ Weekly Assignment
- ✕ Proctored Exams
- ✕ Systematic Approach
- ✕ Easy Credit Transfer
- ✕ Active Local Chapters

NATIONAL COORDINATORS



Revised NAAC Assessment & Accreditation Framework

(Use of ICT Tool for Quality Enhancement of Higher Education Institutes; Post COVID Situation)

Sanjeevan Engineering & Technology Institute, Panhala

9th December, 2022 (2:00 pm to 3:00 pm)

By

Prof. Dr. P. N. Tekwani [Ph.D – IISc Bangalore]
Nirma University, Ahmedabad

Revised A&A Framework

- The A&A process of NAAC continue to be an exercise in partnership of NAAC with the HEI being assessed.
- As is known by now, the A&A process of NAAC is being revised and this revision attempts to enhance such a partnership.
- Over years the feedback procured from the HEIs, other stakeholders and the developments in the national scene – all have contributed in making appropriate revisions in the process so as to accelerate the process with greater quality rigor.
- The Revised Assessment and Accreditation Framework was launched in July 2017. It represents an explicit Paradigm Shift making it ICT enabled, objective, transparent, scalable and robust. [Document of December, 2019]

The Shift is

- from qualitative peer judgement to data based quantitative indicator evaluation with increased objectivity and transparency
- towards extensive use of ICT confirming scalability and robustness
- in terms of simplification of the process: drastic reduction in number of questions, size of the report, visit days, and so on
- in terms of boosting benchmarking as quality improvement tool. This has been attempted through comparison of NAAC indicators with other international QA frameworks

The Shift is (Contd...)

- introducing pre-qualifier for peer team visit, as 25% of system generated score
- introducing *System Generated Scores* (SGS) with combination of online evaluation (about 70%) and peer judgement (about 30%)
- in introducing the element of *third party validation* of data
- in providing appropriate differences in the metrics, weightages and benchmarks to universities, autonomous colleges and affiliated/constituent colleges
- in revising several metrics to bring in enhanced participation of students and alumni in the assessment process

Quality Assessment

- Quality Assessment (QA) can better be done through self-evaluation.
- The self-evaluation process and the subsequent preparation of the Self Study Report (SSR) to be submitted to NAAC involves the participation of all the stakeholders – management, faculty members, administrative staff, students, parents, employers, community and alumni.
- While the participation of internal stakeholders i.e. management, staff and students provide credibility and ownership to the activity and could lead to newer initiatives, interaction with the external stakeholders facilitate the development process of the institution and their educational services.
- Overall, the QA is expected to serve as a catalyst for institutional self-improvement, promote innovation and strengthen the urge to excel.

Quality Indicator Framework (QIF)

- The seven criteria represent the core functions and activities of a HEI.
- In the revised framework not only the academic and administrative aspects of institutional functioning but also the emerging issues have been included.
- The seven Criteria to serve as basis for assessment of HEIs are:
 - I. Curricular Aspects
 - II. Teaching-Learning and Evaluation
 - III. Research, Innovations and Extension
 - IV. Infrastructure and Learning Resources
 - V. Student Support and Progression
 - VI. Governance, Leadership and Management
 - VII. Institutional Values and Best Practices

Criterion I: Curricular Aspects

- Criterion I pertains to the practices of an institution in initiating a wide range of programme options and courses that are in tune with the emerging national and global trends and relevant to the local needs.
- Apart from issues of diversity and academic flexibility, aspects on career orientation, multi-skill development, feedback system and involvement of stakeholders in curriculum updating are also gauged.

KEY INDICATORS

- 1.1*(U) -Curriculum Design and Development
- 1.1*(A) - Curriculum Planning and Implementation
- 1.2 Academic Flexibility
- 1.3 Curriculum Enrichment
- 1.4 Feedback System

*(U) - applicable only for Universities and Autonomous Colleges

*(A) - applicable only for the Affiliated/Constituent Colleges

Criterion II: Teaching Learning and Evaluation

- Criterion II pertains to the efforts of an institution to serve students of different backgrounds and abilities, through effective teaching-learning experiences.
- Interactive instructional techniques that engage students in higher order '*thinking*' and investigation, through interviews, focused group discussions, debates, projects, presentations, experiments, practicum, internship and application of ICT are important.
- Adequacy, competence as well as the continuous professional development of the faculty.

KEY INDICATORS

- 2.1 Student Enrolment and Profile
- 2.2 Catering to Student Diversity
- 2.3 Teaching-Learning Process
- 2.4 Teacher Profile and Quality
- 2.5 Evaluation Process and Reforms
- 2.6 Student Performance and Learning Outcomes
- 2.7 Student Satisfaction Survey

Criterion III: Research, Innovations and Extension

- Seeks information on the relevant policies, practices and outcomes of the institution.
- Facilities provided and efforts made by the institution to promote a 'research culture'.
- Institution's responsibility to enable faculty to undertake research projects useful to society.
- Serving the community through extension, which is a social responsibility and a core value to be demonstrated by institutions

KEY INDICATORS

3.1 *Promotion of Research and Facilities

3.2 Resource Mobilization for Research

3.3 Innovation Ecosystem

3.4 Research Publications and Awards

3.5 *Consultancy

3.6 Extension Activities

3.7 Collaboration

*Not Applicable to Affiliated Colleges

Criterion IV: Infrastructure and Learning Resources

- The adequacy and optimal use of the facilities available in an institution are essential to maintain the quality of academic and other programmes on the campus.
- It also requires information on how every constituent of the institution - students, teachers and staff - benefit from these facilities.
- Expansion of facilities to meet future development is included among other concerns.

KEY INDICATORS

4.1 Physical Facilities

4.2 Library as a Learning Resource

4.3 IT Infrastructure

4.4 Maintenance of Campus Infrastructure

Criterion V: Student Support and Progression

- Efforts of an institution to provide necessary assistance to students, to enable them to acquire meaningful experiences for learning at the campus and to facilitate their holistic development and progression.
- It also looks into student performance and alumni profiles and the progression of students to higher education and gainful employment.

KEY INDICATORS

- 5.1 Student Support
- 5.2 Student Progression
- 5.3 Student Participation and Activities
- 5.4 Alumni Engagement

Criterion VI: Governance, Leadership and Management

- Effective functioning of an institution can be gauged by the policies and practices it has evolved in the matter of planning human resources, recruitment, training, performance appraisal, financial management and the overall role of leadership.

KEY INDICATORS

- 6.1 Institutional Vision and Leadership
- 6.2 Strategy Development and Deployment
- 6.3 Faculty Empowerment Strategies
- 6.4 Financial Management and Resource Mobilization
- 6.5 Internal Quality Assurance System (IQAS)

Criterion VII: Institutional Values and Best Practices

- Every institution has a mandate to be responsive to at least a few pressing issues such as gender equity, environmental consciousness and sustainability, inclusiveness and professional ethics, but the way it addresses these and evolves practices will always be unique.
- Practices which are evolved internally by the institution leading to improvements in any one aspect of its functioning – academic, administrative or organizational, - are recognized as a “best practices”.
- Over a period of time, due to such unique ways of functioning each institution develops distinct characteristic which becomes its recognizable attribute.

KEY INDICATORS

7.1 Institutional Values and Social Responsibilities

7.2 Best Practices

7.3 Institutional Distinctiveness

The Assessment Process

- The assessment process is carried out in three stages.
- It comprises three main components, viz.,
 - Self Study Report (SSR),
 - Student Satisfaction Survey, and
 - the Peer Team Report
- The SSR has a total of
 - 115 Metrics for Universities,
 - 107 Metrics for Autonomous Colleges,
 - 93 & 96 Metrics for UG & PG Affiliated/Constituent Colleges respectively
- The SSR has two kinds of Metrics:
 - one, those requiring quantifiable facts and figures as data which have been indicated as ‘*quantitative metrics*’ (Q_nM);
 - and two, those metrics requiring descriptive responses and are accordingly named ‘*qualitative metrics*’ (Q_lM).

Distribution of Metrics and Key Indicators (KIs) Across Criteria

Type of HEIs	Universities	Autonomous Colleges	Affiliated/Constituent Colleges	
			UG	PG
Criteria	7	7	7	7
Key Indicators (KIs)	34	34	31	32
Qualitative Metrics (Q _l M)	36	35	35	36
Quantitative Metrics (Q _n M)	79	72	58	60
Total Metrics (Q_lM + Q_nM)	115	107	93	96

Distribution of Weightages Across Key Indicators (KIs)

Criteria	Key Indicators (KIs)	Universities	Autonomous Colleges	Affiliated/Constituent Colleges	
				UG	PG
1. Curricular Aspects	1.1 *(U)Curriculum Design and Development	50	50	NA	NA
	1.1. *(A) Curricular Planning and Implementation	NA	NA	20	20
	1.2 Academic Flexibility	50	40	30	30
	1.3 Curriculum Enrichment	30	40	30	30
	1.4 Feedback System	20	20	20	20
	Total	150	150	100	100

Distribution of Weightages Across Key Indicators (KIs)

Criteria	Key Indicators (KIs)	Universities	Autonomous Colleges	Affiliated/Constituent Colleges	
				UG	PG
2. Teaching-Learning and Evaluation	2.1 Student Enrolment and Profile	10	20	40	40
	2.2 Catering to Student Diversity	20	30	50	50
	2.3 Teaching-Learning Process	20	50	50	50
	2.4 Teacher Profile and Quality	50	50	60	60
	2.5 Evaluation Process and Reforms	40	50	30	30
	2.6 Student Performance and Learning Outcomes	30	50	60	60
	2.7 Student satisfaction Survey	30	50	60	60
	Total	200	300	350	350

Distribution of Weightages Across Key Indicators (KIs)

Criteria	Key Indicators (KIs)	Universities	Autonomous Colleges	Affiliated/Constituent Colleges	
				UG	PG
3. Research, Innovations and Extension	3.1 Promotion of Research and Facilities	20	20	NA	NA
	3.2 Resource Mobilization for Research	20	10	15	15
	3.3 Innovation Ecosystem	30	10	NA	10
	3.4 Research Publications and Awards	100	30	15	25
	3.5 Consultancy	20	10	NA	NA
	3.6 Extension Activities	40	50	60	50
	3.7 Collaboration	20	20	20	20
	Total	250	150	110	120

Distribution of Weightages Across Key Indicators (KIs)

Criteria	Key Indicators (KIs)	Universities	Autonomous Colleges	Affiliated/Constituent Colleges	
				UG	PG
4. Infrastructure and Learning Resources	4.1 Physical Facilities	30	30	30	30
	4.2 Library as a Learning Resource	20	20	20	20
	4.3 IT Infrastructure	30	30	30	30
	4.4 Maintenance of Campus Infrastructure	20	20	20	20
	Total	100	100	100	100

Distribution of Weightages Across Key Indicators (KIs)

Criteria	Key Indicators (KIs)	Universities	Autonomous Colleges	Affiliated/Constituent Colleges	
				UG	PG
5. Student Support and Progression	5.1 Student Support	30	30	50	50
	5.2 Student Progression	40	30	30	25
	5.3 Student Participation and Activities	20	30	50	45
	5.4 Alumni Engagement	10	10	10	10
	Total	100	100	140	130

Distribution of Weightages Across Key Indicators (KIs)

Criteria	Key Indicators (KIs)	Universities	Autonomous Colleges	Affiliated/Constituent Colleges	
				UG	PG
6. Governance, Leadership and Management	6.1 Institutional Vision and Leadership	10	10	10	10
	6.2 Strategy Development and Deployment	10	10	10	10
	6.3 Faculty Empowerment Strategies	30	30	30	30
	6.4 Financial Management and Resource Mobilization	20	20	20	20
	6.5 Internal Quality Assurance System	30	30	30	30
	Total	100	100	100	100

Distribution of Weightages Across Key Indicators (KIs)

Criteria	Key Indicators (KIs)	Universities	Autonomous Colleges	Affiliated/Constituent Colleges	
				UG	PG
7. Institutional Values and Best Practices	7.1 Institutional Values and Social Responsibilities	50	50	50	50
	7.2 Best Practices	30	30	30	30
	7.3 Institutional Distinctiveness	20	20	20	20
	Total	100	100	100	100
	TOTAL SCORE	1000 *	1000 *	1000 *	

Procedure (some major points, refer Manual for more details)

- Eligible HEIs seeking A&A are required to submit Institutional Information for Quality Assessment (IIQA) online any time during the year.
- After the acceptance of IIQA, the institution will be asked to fill the Self Study Report (SSR) with the required document to be uploaded in the portal of NAAC website within 45 days.
- As preparation of SSR is a systematic process, so it is suggested that the HEIs should be ready with soft copy of SSR and related documents well in advance of submitting IIQA.
- The SSR has to be uploaded as per the format in portal of NAAC.
- HEIs should make necessary preparations with the required data, documents and/or responses before logging on to the NAAC website for submission of SSR online.
- Careful study of the Manual will be of great help in this regard.

Procedure (some major points, refer Manual for more details)

- HEIs are requested to go through the Standard Operating Procedure (SOP) available in Apply Online Tab in NAAC website, before preparation of SSR.
- As indicated earlier, the SSR comprises both Qualitative and Quantitative metrics. The Quantitative Metrics (Q_nM) add up to about 70% and the remaining about 30% are Qualitative Metrics (Q_lM).
- The data submitted on Quantitative Metrics (Q_nM) will be subjected to validation exercise with the help of Data Validation and Verification (DVV) process done by NAAC.
- The responses to Qualitative Metrics (Q_lM) will be reviewed by the Peer Team on site only after the institution clears the Pre-qualifier stage.
- HEI that clears the DVV process will proceed for Peer Team Visit with a condition of a Pre-qualifier, that the HEI should score at least 25% in Quantitative Metrics (Q_nM) as per the final score after the DVV Process.

Procedure (some major points, refer Manual for more details)

- Student Satisfaction Survey (SSS) will be conducted simultaneously with DVV process.
- Institutions will have to submit the entire database of students with e-mail/mobile numbers, at the time of filling of online SSR itself.
- The SSS questionnaire (20 objective & 01 subjective) will be e-mailed to all students and the following rule will be applied for processing the responses.
 - For colleges – (UG/PG and Autonomous) responses should be received from at least 10% of the student population or 100, whichever is lesser.
 - For Universities – 10% of the student population or 500, whichever is lesser.

Institutional Grades and Accreditation Status

- On the basis of the CGPA obtained by the institution in maximum possible score of 4.00, the final grade is assigned on a seven point scale

Range of Institutional Cumulative Grade Point Average (CGPA)	Letter Grade	Status
3.51-4.00	A++	Accredited
3.26-3.50	A+	Accredited
3.01-3.25	A	Accredited
2.76-3.00	B++	Accredited
2.51-2.75	B+	Accredited
2.01-2.50	B	Accredited
1.51-2.00	C	Accredited
≤ 1.50	D	Not Accredited

SSR Related

- For Metric related to finance the preceding financial year (1st April to 31st March) may be used to consolidate data,
- for publication related data preceding calendar year (1st January to 31st December) data to be entered and
- for the other metrics the preceding academic year may be taken for data to be entered in 'data capturing format' of portal.
- Wherever the requirement of current year data is mentioned, use the data of last completed academic year.

Data Requirements for SSR

- *Executive Summary*
- *Profile of the University*
- *Extended Profile of the University*
- *Quality Indicator Framework (QIF)*
- *Evaluative report of the Departments*
- *Data Templates / Documents (Quantitative Metrics)*

Executive Summary

- **Introductory Note** on the Institution: location, vision mission, type of the institution etc.
- **Criterion-wise Summary** on the Institution's functioning in not more than 250 words for each criterion.
- Brief note on **Strength Weaknesses Opportunities and Challenges (SWOC)** in respect of the Institution.
- **Any additional information** about the Institution other than ones already stated.
- **Over all conclusive explication** about the institution's functioning.
- The Executive summary shall not be more than **5000 words**.

Format for Presentation of Best Practices

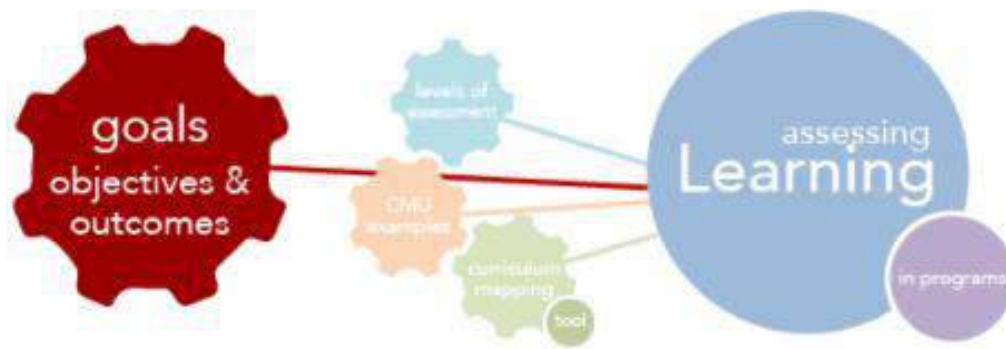
- Title of the Practice
- Objectives of the Practice (in about 100 words)
- The Context (in about 150 words)
- The Practice (in about 400 words)
- Evidence of Success (in about 200 words)
- Problems Encountered and Resources Required (in about 150 words)
- Notes (Optional) (in about 150 words)

Mandatory Disclosure on HEI's Website (refer Manual for more details)

- To ensure the transparency in the process of Assessment and Accreditation, it is necessary for the Higher Educational Institution's (HEI's) to upload the SSR along with other relevant documents on Institutional website.
 - SSR submitted online, to be uploaded after DVV process only (.pdf format).
 - Data templates which are uploaded along with SSR.
 - Annual Quality Assurance Report (AQAR – Year wise).
 - Accreditation outcome document viz., Certificate, Grade sheet, etc.

References

- *“Institutional Accreditation for Self-Study Report – Universities”*, by National Assessment and Accreditation Council (NAAC), An Autonomous Institution of the University Grants Commission (UGC), December 2019.
- *“Standard Operating Procedure (SOP) For Data Validation and Verification of General Universities”*, by National Assessment and Accreditation Council (NAAC), An Autonomous Institution of the University Grants Commission (UGC), updated as on 1st January 2021.



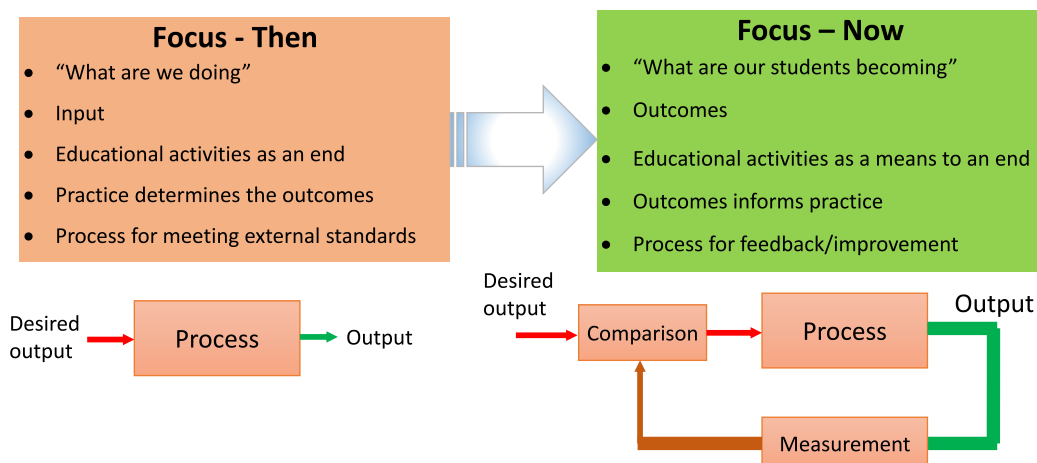
Blooms Taxonomy POs COs Mapping

Government College
Engineering, Karad

Outline

- 🍏 What is OBE ? and Process of OBE
- 🌸 Bloom's Taxonomy
- 🏢 How to define POs ?
- 📊 How to define COs ?
- 🗂️ How to Map COs with POs ?
- 📋 Process of estimation of outcomes
- ❓ Any Queries ?

Focus (Now & Then)



Focus and Benefits of OBE

OBE addresses the following key questions:

- **What** do we want the students to have or be able to do?
- **How** can we best help students achieve it?
- **How** will we know whether they students have achieved it?
- **How** do we close the loop for further improvement (Continuous Quality Improvement (CQI))?

Benefits of OBE:

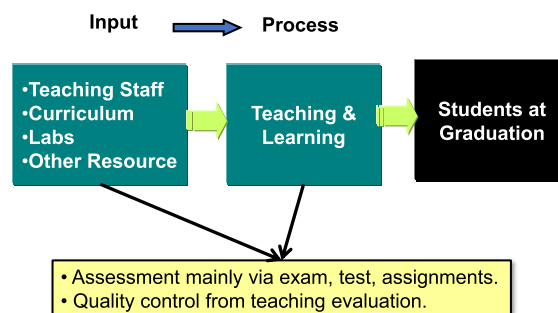
1. **More directed & coherent curriculum.**
2. **Graduates will be more “relevant” to industry & other stakeholders (more well rounded graduates)**
3. **Continuous Quality Improvement (CQI) is in place.**

Expectations on Students under OBE – the Outcomes

- Students are expected to be able to do more challenging tasks other than memorize and reproduce what was taught.
- Students should be able to: write project proposals, complete projects, analyze case studies, give case presentations, show their abilities to think, question, research, and make decisions based on the findings.
- Be more creative, able to analyze and synthesize information.
- Able to plan and organize tasks, able to work in a team as a community or in entrepreneurial service teams to propose solutions to problems and market their solutions.

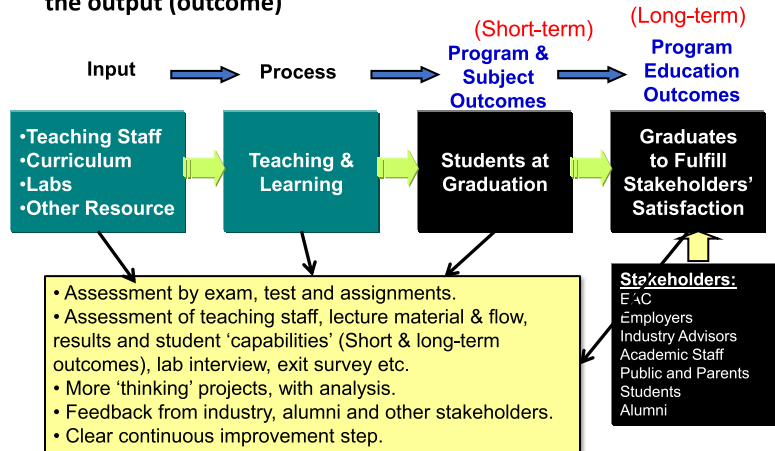
OBE Versus Traditional Education Process

- Traditional education process focuses on the inputs.



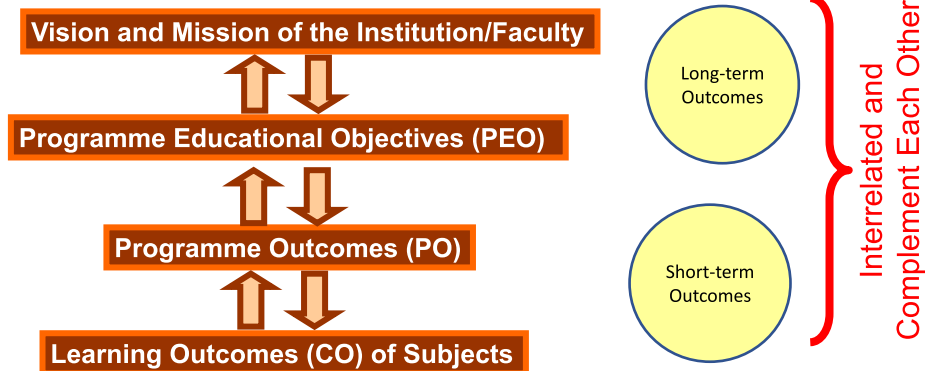
Outcome-Based Education Versus Traditional Education Process

- OBE shifts from measuring input and process to **include measuring the output (outcome)**

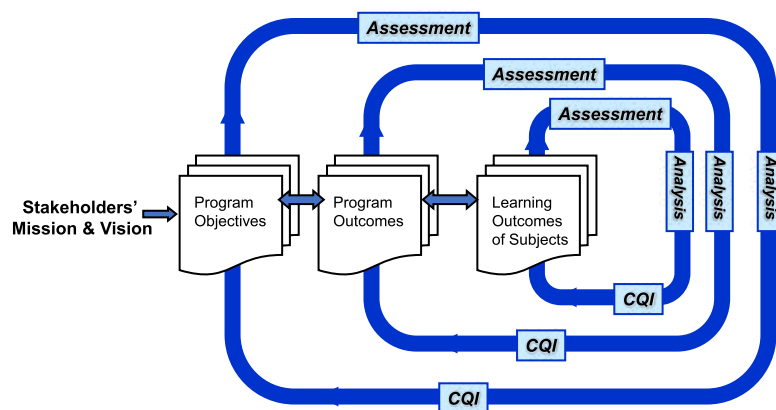


Outcomes in OBE

A Model Hierarchy of Outcomes

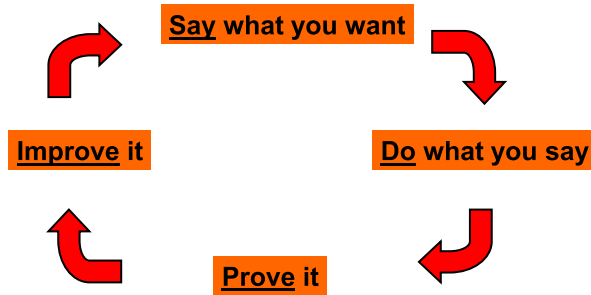


Outcome-Based Education



Outcome-Based Education

Continuous Quality Improvement (CQI)



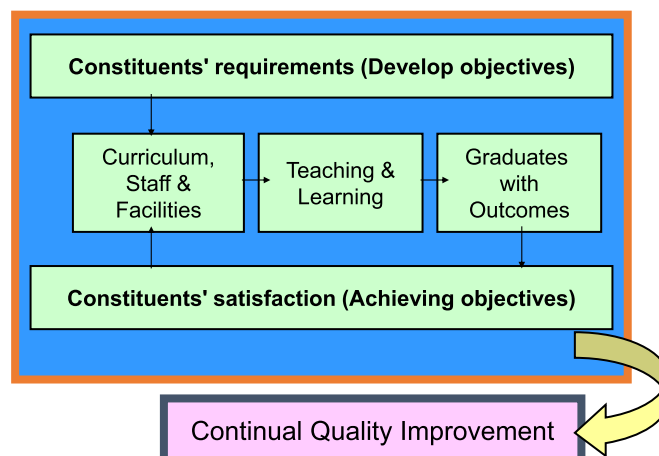
What is OBE (Outcome Based Education) ?

- What do you want the students to have or able to do?
- How can you best help students achieve it?
- How will you know what they have achieved it?
- How do you close the loop

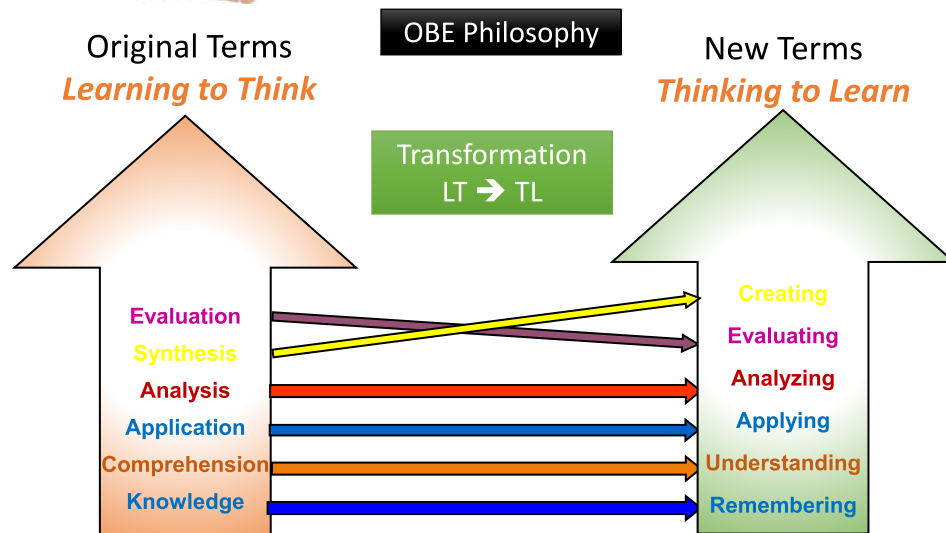
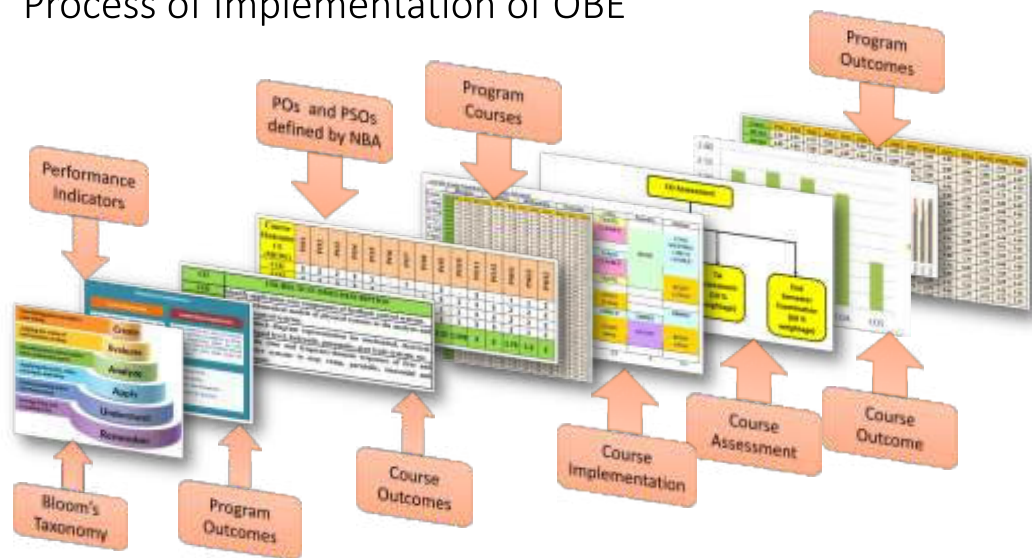
- Focuses on student learning by:

- Using learning outcome statements to make explicit what the student is expected to be able to know, understand or do;
- Providing learning activities which will help the student to reach these outcomes;
- Assessing the extent to which the student meets these outcomes using explicit assessment criteria.

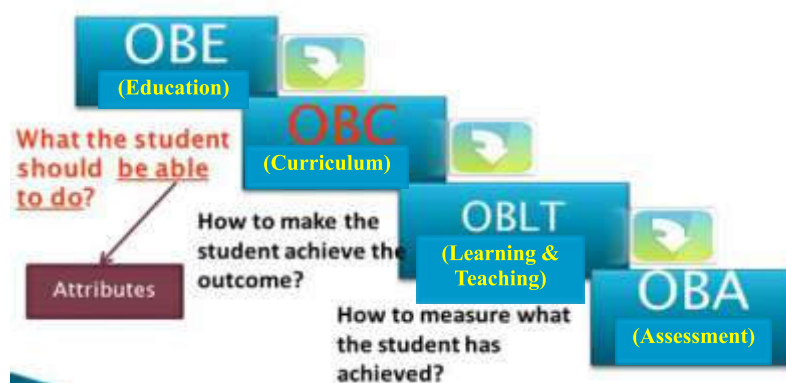
What is OBE ?



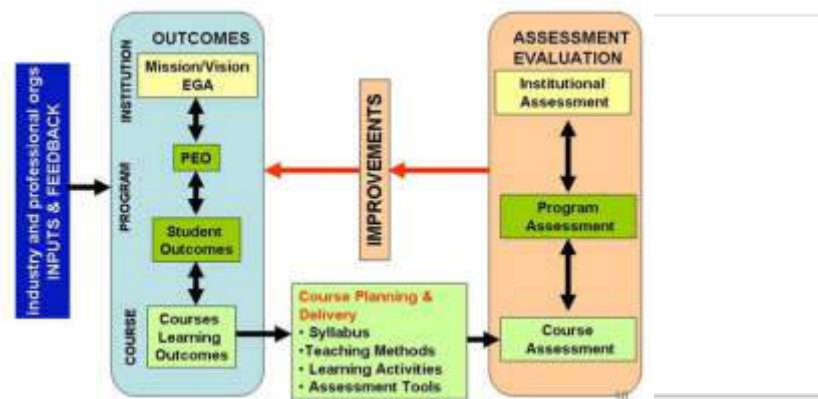
Process of Implementation of OBE



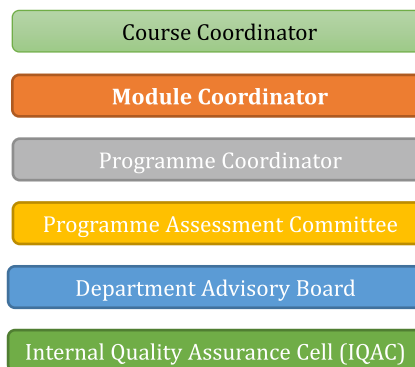
Outcome Based Education for Outcome Based Accreditation



OBE Framework



Administrative System for Implementation of OBE



Program Outcomes (POs)

- 1. Engineering Knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of **complex engineering** problems.
- 2. 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.
- 3. 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
- 4. 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.

Conti...

5. **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.
6. **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.
7. **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.
8. **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

Conti...

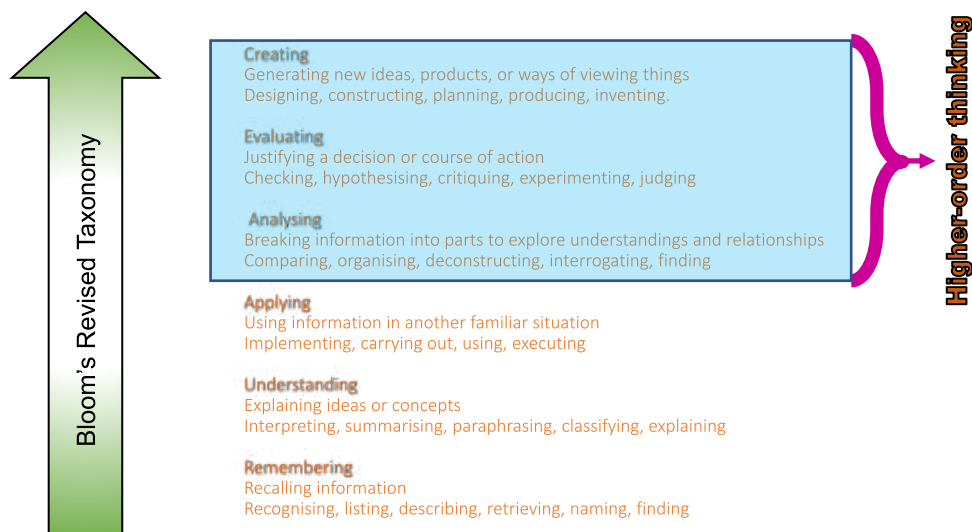
9. **Individual and Team Work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
10. **Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
11. **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.
12. **Life-long Learning:** Recognize the need for, and have the preparation and ability to engage in independent and lifelong learning in the broadest context of technological change.

PROGRAM SPECIFIC OUTCOMES (PSO)

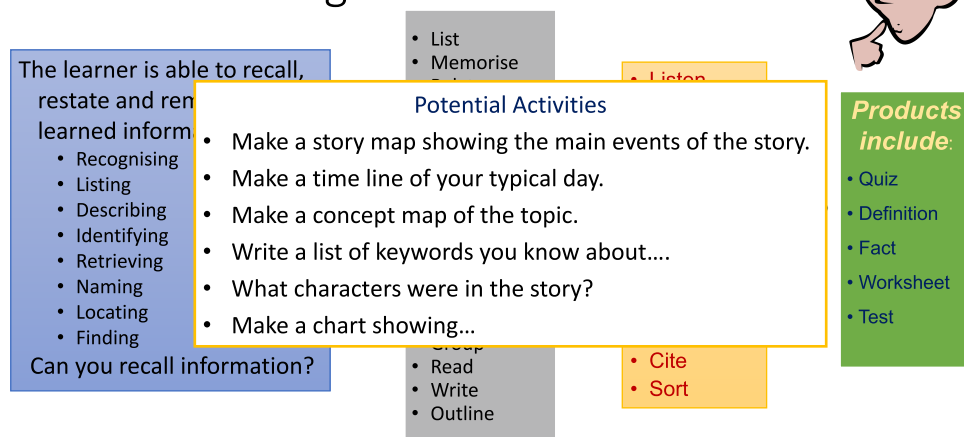
- These outcomes are specific to a program in addition to NBA defined POs, namely, Civil, Mechanical, Chemical, Computer science etc.,(2-4)

Example: Civil Engineering can have PSOs as:

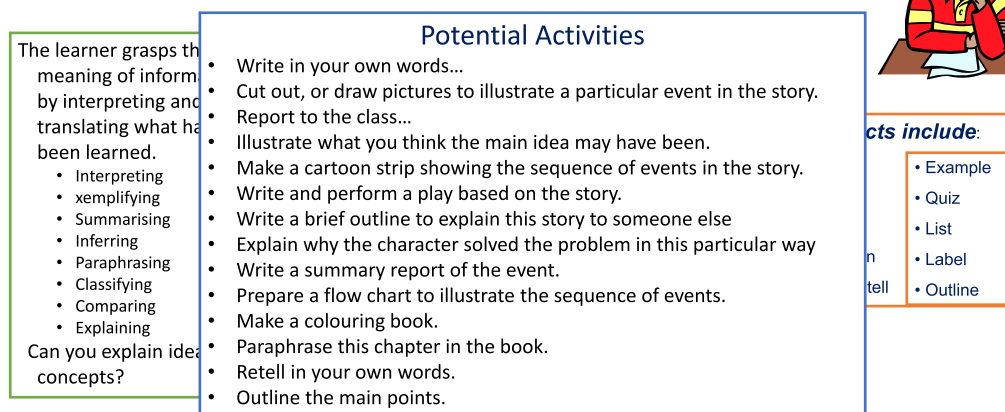
- **PSO1:** Able to analyse and design building structural systems.
- **PSO2:** Able to provide design solutions to water supply and sewage systems.
- **PSO3:** Able to identify and analyse transportation engineering problems and provide solutions for the benefit of society.



Remembering



Understanding



Applying



The learner makes use of information in a new context different from the one in which it was learned.

- Implementing
- Carrying out
- Using
- Executing

Can you use the information in another familiar situation?

Potential Activities

- Construct a model to demonstrate how it looks or works
- Practise a play and perform it for the class
- Make a diorama to illustrate an event
- Write a diary entry
- Make a scrapbook about the area of study.
- Prepare invitations for a character's birthday party
- Make a topographic map
- Take and display a collection of photographs on a particular topic.
- Make up a puzzle or a game about the topic.
- Write an explanation about this topic for others.
- Dress a doll in national costume.
- Make a clay model...
- Paint a mural using the same materials.
- Continue the story...

Products include:

- Presentation
- Interview
- Performance
- Diary
- Journal

Analysing



The learner uses information to understand relationships.

Can you use the information to understand relationships?

Potential Activities

- Use a Venn Diagram to show how two topics are the same and different
- Design a questionnaire to gather information.
- Survey classmates to find out what they think about a particular topic. Analyse the results.
- Make a flow chart to show the critical stages.
- Classify the actions of the characters in the book
- Create a sociogram from the narrative
- Construct a graph to illustrate selected information.
- Make a family tree showing relationships.
- Devise a roleplay about the study area.
- Write a biography of a person studied.
- Prepare a report about the area of study.
- Conduct an investigation to produce information to support a view.
- Review a work of art in terms of form, colour and texture.
- Draw a graph
- Complete a Decision Making Matrix to help you decide which breakfast cereal to purchase

Evaluating

Judging the value of ideas, materials and methods by developing and applying standards and criteria.



The learner makes decisions based on in-depth research, criticism and assessment.

Can you justify a decision or action?

Potential Activities

- Write a letter to the editor
- Prepare and conduct a debate
- Prepare a list of criteria to judge...
- Write a persuasive speech arguing for/against...
- Make a booklet about five rules you see as important. Convince others.
- Form a panel to discuss viewpoints on....
- Write a letter to... advising on changes needed.
- Write a half-yearly report.
- Prepare a case to present your view about...
- Complete a PMI on...
- Evaluate the character's actions in the story

Products include:

- Presentation
- Interview
- Performance
- Diary
- Journal

Creating

Putting together ideas or elements to develop a original idea or engage in creative thinking.



The learner creates new ideas and information using what has been previously learned.

- Designing
- Constructing
- Planning
- Producing
- Inventing
- Devising
- Making

Can you generate new products, ideas, or ways of viewing things?

- Compose
- Assemble
- Organise
- Invent
- Compile
- Forecast
- Devise
- Propose
- Construct
- Plan
- Prepare
- Develop
- Originate
- Imagine
- Generate

- Formulate
- Improve
- Act
- Predict
- Produce
- Blend
- Set up
- Devise
- Concoct
- Compile

Products include:

- | | |
|------------|-----------------|
| • Film | • Song |
| • Story | • Newspaper |
| • Project | • Media product |
| • Plan | • Advertisement |
| • New game | • Painting |



Blooming Questions

- Questioning should be used purposefully to achieve well-defined goals.
- Bloom's Taxonomy is a classification of thinking organised by level of complexity. It gives teachers and students an opportunity to learn and practice a range of thinking and provides a simple structure for many different kinds of questions and thinking.
- The taxonomy involves all categories of questions.
- Typically a teacher would vary the level of questions within a single lesson.

Lower and Higher Order Questions

Lower-level questions are those at the remembering, understanding and lower-level application levels of the taxonomy.

Usually, questions at the lower levels are appropriate for:

Evaluating students' preparation and comprehension

Diagnosing students' strengths and weaknesses

Reviewing and/or summarising content

Lower and Higher Order Questions

Higher level questions are those requiring complex application, analysis, evaluation or creation skills.

Questions at higher levels of the taxonomy are usually most appropriate for:

Encouraging students to think more deeply and critically

Problem solving

Encouraging discussions

Stimulating students to seek information on their own

Questions for Remembering

What happened after...?

How many...?

What is...?

Who was it that...?

Can you name ...?

Find the definition of...

Describe what happened after...

Who spoke to...?

Which is true or false...?

Questions for Understanding

- Can you explain why...?
- Can you write in your own words?
- How would you explain...?
- Can you write a brief outline...?
- What do you think could have happened next...?
- Who do you think...?
- What was the main idea...?
- Can you clarify...?
- Can you illustrate...?
- Does everyone act in the way that does?

(Pohl, *Learning to Think, Thinking to Learn*, p. 12)



Questions for Applying

Do you know of another instance where...?

Can you group by characteristics such as...?

Which factors would you change if...?

What questions would you ask of...?

From the information given, can you develop a set of instructions about...?

Question for Analysing

- Which events could not have happened?
- If...happened, what might the ending have been?
- How is...similar to...?
- What do you see as other possible outcomes?
- Why did...changes occur?
- Can you explain what must have happened when...?
- What are some of the problems of...?
- Can you distinguish between...?
- What were some of the motives behind..?
- What was the turning point?
- What was the problem with...?

(Pohl, *Learning to Think, Thinking to Learn*, p. 13)



Questions for Evaluating

- Is there a better solution to...?
- Judge the value of... What do you think about...?
- Can you defend your position about...?
- Do you think...is a good or bad thing?
- How would you have handled...?
- What changes to.. would you recommend?
- Do you believe...? How would you feel if...?

- How effective are...?
- What are the consequences..?
- What influence will...have on our lives?
- What are the pros and cons of...?
- Why is ...of value?
- What are the alternatives?
- Who will gain & who will lose?

Questions for Creating

Can you design a...to...?

Can you see a possible solution to...?

If you had access to all resources, how would you deal with...?

Why don't you devise your own way to...?

What would happen if ...?

How many ways can you...?

Can you create new and unusual uses for...?

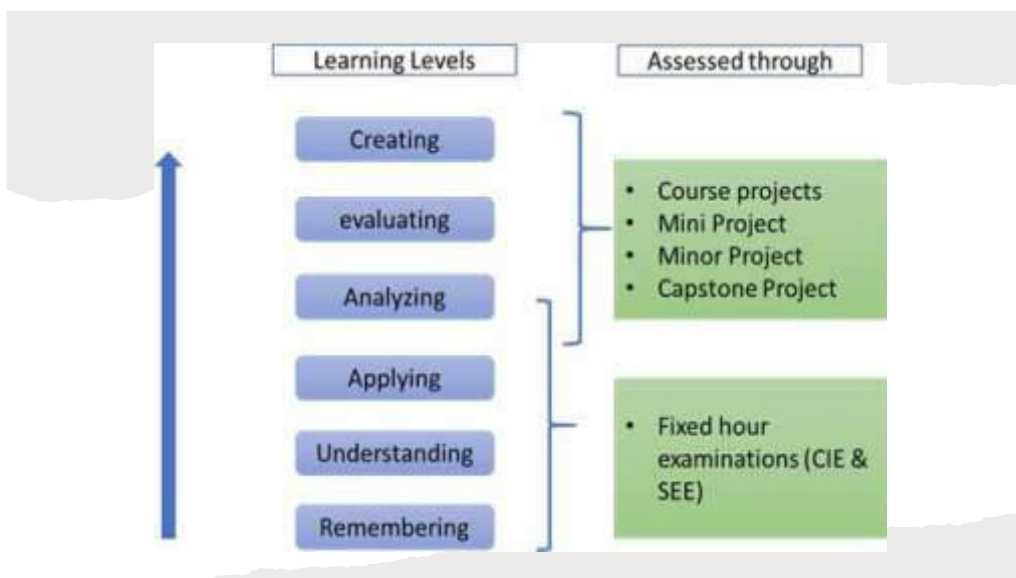
Can you develop a proposal which would...?



BLOOMS TAXONOMY AND ASSESSMENT

In Using Bloom's taxonomy framework in planning and designing of assessment of student learning, following points need to be considered:

1. Normally the first three learning levels, namely, remembering, understanding and applying and to some extent the fourth level - analyzing are assessed in the Continuous Internal Evaluation (CIE) and Semester End Examinations (SEE), where students are given a limited amount of time.
2. Higher Bloom Levels, namely, analysis, evaluation and creation can be assessed in extended course works or in a variety of student works like course projects, mini/ minor projects, internship experience and final year projects.



CO-PO Mapping

Assessment:

It is one or more processes that identify, collect, and prepare data to evaluate the achievement of Course Outcomes and Program Outcomes

PO/Course Assessment Tool Types	PO/ Course Assessment Tool	1	2	3	4	5	6	7	8	9	10	11	12
Direct Tools	Tests	√	√	√	√								
	Assignments	√	√	√	√		√		√			√	√
	Lab/Seminars/Industrial Training/ Projects (Rubrics)	√	√	√	√	√		√	√	√	√	√	√
Indirect Tools	Course End Survey	√	√	√	√	√	√	√	√	√	√	√	√
	Exit Survey	√	√	√	√	√	√	√	√	√	√	√	√
	Faculty Survey	√	√	√	√	√	√	√	√	√	√	√	√
	Alumni Survey		√			√					√		
	Programme Statistics	√	√					√		√		√	√

CO-PO Relationship

- Each CO can be identified to address a subset of POs
- Based on the number of COs and the sessions dedicated to them it is possible to identify the strength of mapping (1, 2 or 3) to POs
- Based on these strengths of selected POs a CO matrix can be established.

CO-PO Relationship

COURSE	COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
Analysis of structures II	CO1	3	3	-	-	-	-	-	-	-	-	-	-
	CO2	3	3	-	-	-	-	-	-	-	-	-	-
	CO3	3	2	-	3	-	3	3	-	-	-	-	-
Environmental Engineering I	CO2	3	3	-	-	-	3	3	-	-	3	-	-
	CO3	-	-	3	-	-	-	3	3	-	3	-	-
	CO4	3	3	-	-	-	-	-	-	-	-	-	-
Geotechnical Engineering II	CO1	3	3	-	-	-	-	-	-	-	-	-	-
	CO2	3	3	-	-	-	-	-	-	-	-	-	-
	CO3	3	3	-	-	-	-	-	-	-	-	-	-
	CO4	3	3	2	-	-	3	-	-	-	-	-	-
Concrete Technology	CO1	3	-	-	-	-	-	-	-	-	-	-	-
	CO2	-	3	3	-	-	-	-	-	-	-	-	-
	CO3	-	3	3	-	-	-	-	-	-	-	-	-
	CO4	-	-	-	-	-	-	3	3	-	-	-	-
Hydrology and water resources	CO1	3	3	-	-	-	-	-	-	-	-	-	-
	CO2	3	3	-	-	-	-	-	-	-	-	-	-
	CO3	3	3	3	-	-	-	3	-	-	-	-	-
Quantity Surveying and Costing	CO1	3	3	-	1	-	-	-	-	-	-	-	-
	CO2	3	3	-	-	2	2	-	-	-	-	-	-
	CO3	3	3	-	-	-	-	-	-	-	-	-	-
	CO4	2	3	2	-	-	3	-	-	-	-	-	-
Alternate Building Material & Technology	CO1	3	-	-	-	-	-	3	-	-	-	-	1
	CO2	-	3	-	-	-	-	3	-	-	-	-	3
	CO3	-	-	-	-	-	-	3	-	-	-	-	2
	CO4	-	-	3	-	2	-	2	3	-	-	-	-
Major Project Phase II	CO1	-	-	-	-	-	-	3	-	3	-	-	-
	CO2	3	3	3	3	-	-	-	3	3	-	-	3
	CO3	-	-	-	-	3	-	-	-	3	-	-	-
	CO4	-	-	-	-	-	-	-	-	3	3	2	-

Example Weightages for PO Attainment

PO No.	Method of Assessment	Direct Assessment (CIE)	Direct Assessment (SEE)	Student Exit Survey	Course End Survey	Faculty Survey	PO Attainment, %
	Weightage PO Description	50%	30%	10%	5%	5%	
PO 1	Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.	38%	22%	7%	4%	4%	76%
PO 2	Identify, formulate, research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.	37%	22%	7%	4%	4%	75%
PO 3	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.	32%	23%	7%	3%	3%	68%
PO 4	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.	39%	23%	7%	4%	3%	77%

PO Attainment

All POs can be adequately addressed through the selection of core courses and their COs

Attainable targets can be selected for each of the CO.

If assessment is in alignment with COs the performance of the students indicates the CO attainment.

These measurements provide the basis for continuous improvement in the quality of learning.

Continuous Improvement

- Closing the loop at course level, programme level and Institute level ensures quality assurance for stakeholders.
- All attainment analysis is made to provide continuous improvement through either in course delivery, Assessment and curriculum (Essence of OBE)

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ASSESSMENT STRATEGY FOR OUTCOME-BASED EDUCATION

2. Two-step Process for Bringing Clarity to POs

- POs give useful guidance at the program level for the curriculum design, delivery and assessment of student learning. However, they represent fairly high-level generic goals that are not directly measurable. Real observability and measurability of the POs at course level is very difficult. To connect high-level learning outcomes (POs) with course content, course outcomes and assessment, there is a necessity to bring further clarity and specificity to the program outcomes [5]. This can be achieved through the following two-step process of identifying Competencies and Performance Indicators (PI).
- (1) Identify Competencies to be attained: For each PO define competencies –different abilities implied by program outcome statement that would generally require different assessment measures. This helps us to create a shared understanding of the competencies we want students to achieve. They serve as an intermediate step to the creation of measurable indicators.

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Example:

- Program Outcome (Attribute 3)

Design:

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 public health and safety, and cultural, societal, and environmental considerations.

Competencies

1. Demonstrate an ability to define a complex, open-ended problem in engineering terms.
2. Demonstrate an ability to generate a diverse set of alternative design solutions.
3. Demonstrate an ability to select the optimal design scheme for further development.
4. Demonstrate an ability to advance an engineering design to the defined end state.

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- (2) Define Performance Indicators: For each of the competencies identified, define performance Indicators (PIs) that are explicit statements of expectations of the student learning. They can act as measuring tools in assessment to understand the extent of attainment of outcomes. They can also be designed to determine the appropriate achievement level or competency of each indicator so that instructors can target and students can achieve the acceptable level of proficiency.

Example:

For the Competency -2

Demonstrate an ability to generate a diverse set of alternative design solutions

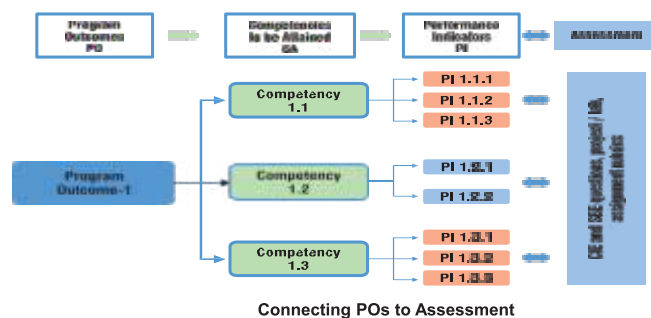
Performance Indicators:

1. Apply formal idea generation tools to develop multiple engineering design solutions
2. Build models, prototypes, algorithms to develop a diverse set of design solutions
3. Identify the functional and non-functional criteria for evaluation of alternate design solutions.

It should be noted that, when we consider the program outcome, it looks like, it can be achieved only in the Capstone project. But if we consider the competencies and performance indicators, we start seeing the opportunities of addressing them (and hence PO) in various courses of the program.

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Once the above process is completed for the program, the assessment of COs for all the courses is designed by connecting assessment questions (used in various assessment tools) to the PIs. By following this process, where examination questions map with PIs, we get clarity and better resolution for the assessment of COs and POs. The pictorial representation of the process is given in Figure below:



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3. Program Outcomes – Competencies – Performance Indicators

Following table gives the suggestive list of competencies and associated performance indicators for each of the PO in Mechanical Engineering Program.

PO 1: Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialisation for the solution of complex engineering problems.			
Competency		Indicators	
1.1	Demonstrate competence in mathematical modelling	1.1.1	Apply mathematical techniques such as calculus, linear algebra, and statistics to solve problems
		1.1.2	Apply advanced mathematical techniques to model and solve mechanical engineering problems
1.2	Demonstrate competence in basic sciences	1.2.1	Apply laws of natural science to an engineering problem
1.3	Demonstrate competence in engineering fundamentals	1.3.1	Apply fundamental engineering concepts to solve engineering problems
1.4	Demonstrate competence in specialized engineering knowledge to the program	1.4.1	Apply Mechanical engineering concepts to solve engineering problems.

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PO 2: Problem analysis: Identify, formulate, research literature, and analyse complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.			
Competency		Indicators	
2.1	Demonstrate an ability to identify and formulate complex engineering problem	2.1.1	Articulate problem statements and identify objectives
		2.1.2	Identify engineering systems, variables, and parameters to solve the problems
		2.1.3	Identify the mathematical, engineering and other relevant knowledge that applies to a given problem
2.2	Demonstrate an ability to formulate a solution plan and methodology for an engineering problem	2.2.1	Reframe complex problems into interconnected sub-problems
		2.2.2	Identify, assemble and evaluate information and resources.
		2.2.3	Identify existing processes/solution methods for solving the problem, including forming justified approximations and assumptions
		2.2.4	Compare and contrast alternative solution processes to select the best process.

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2.3	Demonstrate an ability to formulate and interpret a model	2.3.1 Combine scientific principles and engineering concepts to formulate model/s (mathematical or otherwise) of a system or process that is appropriate in terms of applicability and required accuracy. 2.3.2 Identify assumptions (mathematical and physical) necessary to allow modeling of a system at the level of accuracy required.
2.4	Demonstrate an ability to execute a solution process and analyze results	2.4.1 Apply engineering mathematics and computations to solve mathematical models 2.4.2 Produce and validate results through skilful use of contemporary engineering tools and models 2.4.3 Identify sources of error in the solution process, and limitations of the solution. 2.4.4 Extract desired understanding and conclusions consistent with objectives and limitations of the analysis

PO 8: Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.			
Competency		Indicators	
8.1	Demonstrate an ability to recognize ethical dilemmas	8.1.1	Identify situations of unethical professional conduct and propose ethical alternatives
8.2	Demonstrate an ability to apply the Code of Ethics	8.2.1	Identify tenets of the ASME professional code of ethics
		8.2.2	Examine and apply moral & ethical principles to known case studies

PO 10: Communication: Communicate effectively on complex engineering activities with the engineering community and with the 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			
Competency		Indicators	
10.1	Demonstrate an ability to comprehend technical literature and document project work	10.1.1	Read, understand and interpret technical and non-technical information
		10.1.2	Produce clear, well-constructed, and well-supported written engineering documents
		10.1.3	Create flow in a document or presentation - a logical progression of ideas so that the main point is clear
10.2	Demonstrate competence in listening, speaking, and presentation	10.2.1	Listen to and comprehend information, instructions, and viewpoints of others
		10.2.2	Deliver effective oral presentations to technical and non-technical audiences
10.3	Demonstrate the ability to integrate different modes of communication	10.3.1	Create engineering-standard figures, reports and drawings to complement writing and presentations
		10.3.2	Use a variety of media effectively to convey a message in a document or a presentation

PO 12: Life-long learning: Recognise the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.			
Competency		Indicators	
12.1	Demonstrate an ability to identify gaps in knowledge and a strategy to close these gaps	12.1.1	Describe the rationale for the requirement for continuing professional Development.
		12.1.2	Identify deficiencies or gaps in knowledge and demonstrate an ability to source information to close this gap.
12.2	Demonstrate an ability to identify changing trends in engineering knowledge and practice	12.2.1	Identify historic points of technological advance in engineering that required practitioners to seek education in order to stay current.
		12.2.2	Recognize the need and be able to clearly explain why it is vitally important to keep current regarding new developments in your field.

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12.3	Demonstrate an ability to identify and access sources for new information	12.3.1	Source and comprehend technical literature and other credible sources of information.
		12.3.2	Analyze sourced technical and popular information for feasibility, viability, sustainability, etc.

- The above table can be used for most of the engineering programs. However, for Computer Science & Engineering/ Information Technology programs it requires some modifications.
- **A suggestive list of competencies and associated performance indicators for Computer Science & Engineering/ Information Technology Programs is given in Appendix-A.**

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Revised Bloom's taxonomy in the cognitive domain includes thinking, knowledge, and application of knowledge. It is a popular framework in engineering education to structure the assessment as it characterizes complexity and higher-order abilities. It identifies six levels of competencies within the cognitive domain (Fig. 2) which are appropriate for the purposes of engineering educators.

According to revised Bloom's taxonomy, the levels in the cognitive domain are as follows:

Level	Descriptor	Level of attainment
1	Remembering	Recalling from the memory of the previously learned material
2	Understanding	Explaining ideas or concepts
3	Applying	Using the information in another familiar situation
4	Analysing	Breaking information into the part to explore understandings and relationships
5	Evaluating	Justifying a decision or course of action
6	Creating	Generating new ideas, products or new ways of viewing things

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Revised Bloom's Taxonomy

Bloom's taxonomy is hierarchical, meaning that learning at the higher level requires that skills at a lower level are attained.

2. Action Verbs for Assessment

Choice of action verbs in constructing assessment questions is important to consider. Quite often, the action verbs are indicators of the complexity (level) of the question. Over time, educators have come up with a taxonomy of measurable verbs corresponding to each of the Bloom's cognitive levels [8].

These verbs help us not only to describe and classify observable knowledge, skills and abilities but also to frame the examination or assignment questions that are appropriate to the level we are trying to assess.

Suggestive list of skills/ competencies to be demonstrated at each of the Bloom's level and corresponding cues/ verbs for the examination/ test questions is given below:

Level	Skill Demonstrated	Question cues / Verbs for tests
1. Remember	<ul style="list-style-type: none"> Ability to recall of information like facts, conventions, definitions, jargon, technical terms, classifications, categories, and criteria ability to recall methodology and procedures, abstractions, principles, and theories in the field knowledge of dates, events, places mastery of subject matter 	list, define, tell, describe, recite, recall, identify, show, label, tabulate, quote, name, who, when, where

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Level	Skill Demonstrated	Question cues / Verbs for tests
2. Understand	<ul style="list-style-type: none"> understanding information grasp meaning translate knowledge into new context interpret facts, compare, contrast order, group, infer causes predict consequences 	describe, explain, paraphrase, restate, associate, contrast, summarize, differentiate, interpret, discuss
3. Apply	<ul style="list-style-type: none"> use information use methods, concepts, laws, theories in new situations solve problems using required skills or knowledge Demonstrating correct usage of a method or procedure 	calculate, predict, apply, solve, illustrate, use, demonstrate, determine, model, experiment, show, examine, modify
4. Analyse	<ul style="list-style-type: none"> break down a complex problem into parts Identify the relationships and interaction between the different parts of a complex problem identify the missing information, sometimes the redundant information and the contradictory information, if any 	classify, outline, break down, categorize, analyze, diagram, illustrate, infer, select

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Level	Skill Demonstrated	Question cues / Verbs for tests
5. Evaluate	<ul style="list-style-type: none"> compare and discriminate between ideas assess value of theories, presentations make choices based on reasoned argument verify value of evidence recognize subjectivity use of definite criteria for judgments 	assess, decide, choose, rank, grade, test, measure, defend, recommend, convince, select, judge, support, conclude, argue, justify, compare, summarize, evaluate
6. Create	<ul style="list-style-type: none"> use old ideas to create new ones Combine parts to make (new) whole, generalize from given facts relate knowledge from several areas predict, draw conclusions 	design, formulate, build, invent, create, compose, generate, derive, modify, develop, integrate

It may be noted that some of the verbs in the above table are associated with multiple Bloom's Taxonomy levels. These verbs are actions that could apply to different activities. We need to keep in mind that it's the skill, action or activity we need students to demonstrate that will determine the contextual meaning of the verb used in the assessment question.

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3. Assessment Planning

While using Bloom's taxonomy framework in planning and designing of assessment of student learning, following points need to be considered:

- Normally the first three learning levels; remembering, understanding and applying and to some extent fourth level analysing are assessed in the Continuous Internal Evaluation (CIE) and Semester End Examinations (SEE), where students are given a limited amount of time. And abilities; analysis, evaluation and creation can be assessed in extended course works or in a variety of student works like course projects, mini/ minor projects, internship experience and final year projects.



Fig. 3: Assessment methods for different Bloom's cognitive levels

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APPENDIX-A

Competencies and Performance Indicators (PIs)

Computer Science & Engineering/Information Technology Programs

PO 1: Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialisation for the solution of complex engineering problems.			
	Competency		Indicators
1.2	Demonstrate competence in mathematical modelling	1.2.1	Apply the knowledge of discrete structures, linear algebra, statistics and numerical techniques to solve problems
		1.2.2	Apply the concepts of probability, statistics and queuing theory in modeling of computer-based system, data and network protocols.
1.5	Demonstrate competence in basic sciences	1.5.1	Apply laws of natural science to an engineering problem

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	Competency		Indicators
1.6	Demonstrate competence in engineering fundamentals	1.6.1	Apply engineering fundamentals
1.7	Demonstrate competence in specialized engineering knowledge to the program	1.7.1	Apply theory and principles of computer science and engineering to solve an engineering problem

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APPENDIX-B

Sample questions for Bloom's Taxonomy levels

SAMPLES QUESTIONS FOR BLOOMS TAXONOMY LEVELS:

1. REMEMBER

Skill Demonstrated	Question Ques / Verbs for tests
<ul style="list-style-type: none"> Ability to recall of information like, facts, conventions, definitions, jargon, technical terms, classifications, categories, and criteria ability to recall methodology and procedures, abstractions, principles, and theories in the field knowledge of dates, events, places mastery of subject matter 	list, define, describe, state, recite, recall, identify, show, label, tabulate, quote, name, who, when, where, etc.

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Sample Questions:

- State Ohm's law
- List the physical and chemical properties of silicon
- List the components of A/D converter
- List the arithmetic operators available in C in increasing order of precedence.
- Define the purpose of a constructor.
- Define the terms: Sensible heat, Latent heat and Total heat of evaporation
- List the assembler directives.
- Describe the process of galvanisation and tinning

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Sample Questions:

9. Write truth table and symbol of AND, OR, NOT, XNOR gates
10. Define the terms: Stress, Working stress and Factor of safety.
11. What is the difference between declaration and definition of a variable/function?
12. List the different storage class specifiers in C.
13. What is the use of local variables?
14. What is a pointer to a pointer?
15. What are the valid places for the keyword "break" to appear?
16. What is a self-referential structure?

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2. UNDERSTAND

Skill Demonstrated	Question Ques / Verbs for tests
<ul style="list-style-type: none">• understanding information• grasp meaning• translate knowledge into new context• interpret facts, compare, contrast• order, group, infer causes• predict consequences	describe, explain, paraphrase, restate, associate, contrast, summarize, differentiate interpret, discuss

Sample Questions:

1. Explain the importance of sustainability in Engineering design
2. Explain the behaviour of PN junction diode under different bias conditions
3. Describe the characteristics of SCR and transistor equivalent for a SCR
4. Explain the terms: Particle, Rigid body and Deformable body giving two examples for each.

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Sample Questions:

5. How many values of the variable num must be used to completely test all branches of the following code fragment?

```
if (num>0)
    if (value<25)
    {
        value=10*num; if(num<12)
            value=value/10;
    }
    else
        Value=20*num;
    else
        Value=30*num
```
6. Discuss the effect of Make in India initiative on the Indian manufacturing Industry.
7. Summarise the importance of ethical code of conduct for engineering professionals
8. Explain the syntax for 'for loop'.
9. What is the difference between including the header file with-in angular braces < > and double quotes " "?

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Sample Questions:

10. What is the meaning of base address of the array?
11. What is the difference between actual and formal parameters?
12. Explain the different ways of passing parameters to the functions.
13. Explain the use of comma operator (,).
14. Differentiate between entry and exit controlled loops.
15. How is an array different from linked list?

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3. APPLY

Skill Demonstrated	Question Ques / Verbs for tests
<ul style="list-style-type: none">• use information• use methods, concepts, laws, theories in new situations• solve problems using required skills or knowledge• Demonstrating correct usage of a method or procedure	calculate, predict, apply, solve, illustrate, use, demonstrate, determine, model, experiment, show, examine, modify

Sample Questions:

1. Model and realize the following behaviors using diodes with minimum number of digital inputs.
 - (i) Turning on of a burglar alarm only during night time when the locker door is opened.
 - (ii) Providing access to an account if either date of birth or registered mobile number or both are correct.
 - (iii) Updating the parking slot empty light in the basement of a shopping mall.
1. One of the resource persons needs to address a huge crowd (nearly 400 members) in the auditorium. A system is to be designed in such a way that everybody attending the session should be able to hear properly and clearly without any disturbance. Identify the suitable circuit to boost the voice signal and explain its functionality in brief.

Appendix B2

Sample Questions:

3. A ladder 5.0 m long rests on a horizontal ground & leans against a smooth vertical wall at an angle 20° with the vertical. The weight of the ladder is 900 N and acts at its middle. The ladder is at the point of sliding, when a man weighing 750 N stands on a rung 1.5 m from the bottom of the ladder. Calculate the coefficient of friction between the ladder & the floor.
4. A ball is dropped from 6 meters above a flat surface. Each time the ball hits the surface after falling a distance h , it rebounds a distance rh . What will be the total distance the ball travels in each of the following cases.
 - (a) $r > 1$
 - (b) $0 < r < 1$
 - (c) $r = 1$



5. The region bounded by the curves $y = e^{-(1/x)}$, $y = 0$, $x = 1$, and $x = 5$ is rotated about the x -axis. Use Simpson's Rule with $n = 8$ to estimate the volume of the resulting solid.
6. An electric train is powered by machine which takes the supply from 220 V DC rail running above the train throughout. Machine draws current of 100 A from the DC rail to account for high torque during starting and runs at 700 r.p.m initially. Calculate the new speed of the train once it picks up the speed where the torque output required is only 70% of starting torque. Assume the motor has a resistance of 0.1Ω across its terminals.

Appendix B3

Sample Questions:

7. Write an algorithm to implement a stack using queue.
8. A single array $A[1..MAXSIZE]$ is used to implement two stacks. The two stacks grow from opposite ends of the array. Variables $top1$ and $top2$ ($top1 < top2$) point to the location of the topmost element in each of the stacks. What is the condition for "stack full", if the space is to be used efficiently.
9. Consider the following table of arrival time and burst time for three processes P0, P1 and P2.

Process	Arrival Time	Burst Time
P0	0 ms	9 ms
P1	1 ms	4 ms
P2	2 ms	9 ms

The pre-emptive shortest job first scheduling algorithm is used. Scheduling is carried out only at arrival or completion of processes. What is the average waiting time for the three processes?

10. A CPU generates 32-bit virtual addresses. The page size is 4 KB. The processor has a translation look-aside buffer (TLB) which can hold a total of 128-page table entries and is 4-way set associative. What is the minimum size of the TLB tag?

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4. ANALYZE

Skill Demonstrated	Question Ques / Verbs for tests
<ul style="list-style-type: none">break down a complex problem into parts.Identify the relationships and interaction between thedifferent parts of complex problem	classify, outline, break down, categorize, analyse, diagram, illustrate, infer, select

Sample Questions:

1. A class of 10 students consists of 5 males and 5 females. We intend to train a model based on their past scores to predict the future score. The average score of females is 60 whereas that of male is 80. The overall average of the class is 70. Give two ways of predicting the score and analyse them for fitting model.
2. Suppose that we want to select between two prediction models, M1 and M2. We have performed 10 rounds of 10-fold cross-validation on each model, whereas the same data partitioning in round one is used for both M1 and M2. The error rates obtained for M1 are 30.5, 32.2, 20.7, 20.6, 31.0, 41.0, 27.7, 26.0, 21.5, 26.0. The error rates for M2 are 22.4, 14.5, 22.4, 19.6, 20.7, 20.4, 22.1, 19.4, 16.2, 35.0. Comment on whether one model is significantly better than the other considering a significance level of 1%.

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Sample Questions:

3. Return statement can only be used to return a single value. Can multiple values be returned from a function? Justify your answer.
4. Bob wrote a program using functions to find sum of two numbers whereas Alex wrote the statements to find the sum of two numbers in the `main()` function only. Which of the two methods is efficient in execution and why?
5. Carly wants to store the details of students studying in 1st year and later on wishes to retrieve the information about the students who score the highest marks in each subject. Specify the scenario where the data can be organized as a single 2-D array or as multiple 1-D arrays.
6. Dave is working on a Campus Management Software but is unable to identify the maximum number of students per course. He decided to implement the same using arrays but discovered that there is memory wastage due to over-provisioning. Which method of memory storage should be used by Dave and how it can be implemented using C?

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Sample Questions:

7. Albert is working on a 32-bit machine whereas Julie is working on a 64-bit machine. Both wrote the same code to find factorial of a number but Albert is unable to find factorial of a number till 9 whereas Julie is able to find the factorial of higher number. Identify the possible reason why Albert is unable to find the factorial. Suggest some changes in the code so that Albert can handle bigger inputs.
8. While writing a C code, the problem faced by the programmers is to find if the parenthesis is balanced or not. Write an algorithm to check if the parenthesis in C code are balanced. Initially your code should work for balanced { and } braces.
9. Swapping of the data in a linked list can be performed by swapping the contents in the linked list. Can the contents of a linked list be swapped without actually swapping the data?

Appendix B7

5. EVALUATE

Skill Demonstrated	Question Ques / Verbs for tests
<ul style="list-style-type: none">compare and discriminate between ideasassess value of theories, presentationsmake choices based on reasoned argumentverify value of evidencerecognize subjectivityuse of definite criteria for judgments	assess, decide, choose, rank, grade, test, measure, defend, recommend, convince, select, judge, support, conclude, argue, justify, compare, summarize, evaluate

Appendix B8

6. CREATE

Skill Demonstrated	Question Ques / Verbs for tests
<ul style="list-style-type: none">use old ideas to create new onesCombine parts to make (new) whole,generalize from given factsrelate knowledge from several areaspredict, draw conclusions	design, formulate, build, invent, create, compose, generate, derive, modify, develop, integrate

Both higher order cognitive skills 'Evaluate' and 'Create' are difficult to assess in time-limited examinations. These need to be assessed in variety of student works like projects, open ended problem-solving exercises etc. Typical examples of problem statements or need statements which need higher order abilities to solve are given below

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Sample Problem / Need statements:

1. Automatic tethering of milking machine to the udder of a cow. A milk dairy wants to automate the milking process. The milking process involves attaching the milking cups to the teats. Design a system for the same.
2. An electric vehicle uses LiON batteries. The batteries have to be charged and get discharged during use. The batteries require continuous monitoring during charging and discharging so that they remain healthy and yield a long life. Design a system to monitor and manage the health of the batteries.
3. A Biotech industry needs automation for filling its product into 20 ltr bottles. Design a system to meter the flow into the bottles so that each bottle has 20 ltr of the liquid. There will be more than one filling station and the system has to monitor all the filling stations as well as keep count of the total production on a daily basis.
4. Microwave Doppler radar with a range of 9m are available for motion detection. Design a surround view monitoring system for a 3 wheeler to detect human obstacles while the vehicle is in motion.
5. Design a system to assist the driver by using cameras to detect lane markers and pedestrians while the vehicle is in motion.
6. Develop a small size USB 2.0 / 3.0 CMOS camera system which can be used for industrial inspection, medical applications, microscopy, etc. The system should be able to capture the image quickly and be able to process the captured image and then store it also

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APPENDIX-C Model Question Papers

MODEL QUESTION PAPER

Course: Programming for Problem solving (ESC 103)

Maximum Marks :100; Duration: 03 hours

Q.No	Questions	Marks	CO	BL	PI
1(a)	Explain the steps involved in solving a problem using computer.	08	CO1	L2	1.4.1
1(b)	Write an algorithm to find roots of a quadratic equation $ax^2 + bx + c = 0$ reading the values of a, b and c.	12	CO2	L3	1.4.1
2(a)	Compare if-else-if and switch statement giving examples for their relevant use.	08	CO2	L2	1.4.1
2b	Write a C program that reads a given integer number and checks whether it is a palindrome. A palindrome is a number that has same value even when it is reversed. Eg: 12321 is a palindrome.	12	CO3	L3	1.4.1
3a	Compare the working of three looping constructs of C language giving their syntax.	08	CO3	L2	1.4.1

Appendix C 91

Q.No	Questions	Marks	CO	BL	PI
3b	What does the following program do? #include <stdio.h> int main() { char ch; int vcnt = 0, ccnt=0; for (ch = getchar(); ch != '\n'; ch=getchar()){ if(ch=='a' ch=='e' ch=='i' ch=='o' ch=='u' ch=='A' ch=='E' ch=='I' ch=='O' ch=='U') vcnt++; else if((ch >= 'a' && ch <= 'z') (ch >= 'A' && ch <= 'Z')) ccnt++; } printf(" %d %d\n", vcnt, ccnt); } Rewrite the above program using while and switch constructs.	12	CO4	L4	1.4.1
4a	Compare call by value and call by reference with relevant examples.	8	CO3	L2	1.4.1

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Q.No	Questions	Marks	CO	BL	PI
4b	Write a C function to find the largest and smallest in a given list of integers of size n using call by reference: void minmax(int list[], int n, int *min, int *max);	12	CO3	L3	1.4.1
5a	Explain at least four file handling operations available in C language giving their syntax.	4	CO3	L2	1.4.1
5b	Identify the bug in the following function written to return the swapped values of two integer variables given: int swap(int *x, int *y) { int *temp; temp = x, x=y, y = temp; }	6	CO5	L4	1.4.1
5c	Define a structure to store time with three components hours, mins and seconds. Write a modular C program to compute the time taken by an athlete to complete a marathon reading the start and end time of his run.	10	CO3	L3	1.4.1

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BL – Bloom's Taxonomy Levels (1- Remembering, 2- Understanding, 3 – Applying, 4 – Analysing, 5 – Evaluating, 6 - Creating)

CO – Course Outcomes

PO – Program Outcomes; PI Code – Performance Indicator Code



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APPENDIX-D

Sample Scoring Rubrics

RUBRICS FOR COMMUNICATION (WRITTEN & ORAL)

Component	Proficient	Acceptable	Needs Improvements
Written Communication	Report is well organized and clearly written. The underlying logic is clearly articulated and easy to follow. Words are chosen that precisely express the intended meaning and support reader comprehension. Diagrams or analyses enhance and clarify presentation of ideas. Sentences are grammatical and free from spelling errors.	Report is organized and clearly written for the most part. In some areas the logic or flow of ideas is difficult to follow. Words are well chosen with some minor exceptions. Diagrams are consistent with the text. Sentences are mostly grammatical and only a few spelling errors are present but they do not hinder the reader.	Report lacks an overall organization. Reader has to make considerable effort to understand the underlying logic and flow of ideas. Diagrams are absent or inconsistent with the text. Grammatical and spelling errors make it difficult for the reader to interpret the text in places.
Presentation Visual Aids	Slides are error-free and logically present the main components of the process and recommendations. Material is readable and the graphics highlight and support the main ideas.	Slides are error-free and logically present the main components of the process and recommendations. Material is mostly readable and graphics reiterate the main ideas.	Slides contain errors and lack a logical progression. Major aspects of the analysis or recommendations are absent. Diagrams or graphics are absent or confuse the audience.

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Component	Proficient	Acceptable	Needs Improvements
Oral Presentation	Speakers are audible and fluent on their topic, and do not rely on notes to present or respond. Speakers respond accurately and appropriately to audience questions and comments.	Speakers are mostly audible and fluent on their topic, and require minimal referral to notes. Speakers respond to most questions accurately and appropriately.	Speakers are often inaudible or hesitant, often speaking in incomplete sentences. Speakers rely heavily on notes. Speakers have difficulty responding clearly and accurately to audience questions.
Body Language	Body language, as indicated by appropriate and meaningful gestures (e.g., drawing hands inward to convey contraction, moving arms up to convey lift, etc.) eye contact with audience, and movement, demonstrates a high level of comfort and connection with the audience.	Body language, as indicated by a slight tendency to repetitive and distracting gestures (e.g., tapping a pen, wringing hands, waving arms, clenching fists, etc.) and breaking eye contact with audience, demonstrates a slight discomfort with the audience.	Body language, as indicated by frequent, repetitive and distracting gestures, little or no audience eye-contact, and /or stiff posture and movement, indicate a high degree of discomfort interacting with audience.

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RUBRICS FOR ASSESSMENT OF DESIGN PROJECTS

Category	Needs Improvements	Acceptable	Proficient
Purpose of the Project	Does not clearly explain the intended outcome of the project or provides little information about the problem that was being solved, the need being met, or why the project was selected	Provides a description of the intended outcome of the project which includes information about the problem that was being solved or the need being met, and why the project was selected	Provides a detailed intended outcome of the project which includes information about the problem that was being solved or the need being met, and clearly articulates the reasons and decision-making process used to select the project
Research	Lacks awareness of similar work done by others in an unacceptable literary form	Reflects awareness of similar work done by others and presents it in an acceptable literary format	Reflects thorough understanding of similar work done by others and presents it in an acceptable literary format
Choices	Lacks justification of choices with little or no references to functional, aesthetic, social, economic, or environmental considerations	Justifies choices made with reference to functional, aesthetic, social, economic, or environmental considerations	Demonstrates sophisticated justification of choices with reference to functional, aesthetic, social, economic, or environmental consideration

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Category	Needs Improvements	Acceptable	Proficient
Alternative Designs	Only one design presented or clearly infeasible alternative given. Serious deficiencies in exploring and identifying alternative designs.	Alternative approaches identified to some degree.	Final design achieved after review of reasonable alternatives.
Application of Engineering Principles	No or erroneous application of engineering principles yielding unreasonable solution. Serious deficiencies in proper selection and use of engineering principles.	Effective application of engineering principles resulting in reasonable solution.	Critical selection and application of engineering principles ensuring reasonable results.
Final Design	Not capable of achieving desired objectives.	Design meets desired objectives.	Design meets or exceeds desired objectives.
Interpretation of Results	No or erroneous conclusions based on achieved results. Serious deficiencies in support for stated conclusions.	Sound conclusions reached based on achieved results.	Insightful, supported conclusions and recommendations.

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RUBRICS FOR REVIEW – III

PI Code	PI	Marks	Very Poor Up to 20%	Poor Up to 40%	Average Up to 60%	Good Up to 80%	Very good Up to 100%
10.2.2	Deliver effective oral presentations to technical and non- technical audiences - IA	03	Could not deliver effective presentations.	Could not deliver presentation, but presentation was prepared and attempted.	Able to deliver fair presentation but not able to answer to the audiences	Deliver effective presentations but able to answer partially to the audience queries.	Deliver effective presentation and able to answer all queries of the audience.
9.3.1	Present results as a team, with smooth integration of contributions from all individual efforts – GA + IA	03	No Contribution from an individual to a team	Contributions from an individual to a team is minimal	Contributions from an individual to a team is moderate	A contribution from an individual to a team is good but not well groomed in team.	Contribution from an individual to a team is good and results in an integrated team presentation.

Model Question Papers

For Undergraduate Programs

Programs

1. Civil Engineering
2. Computer Science and Engineering
3. Electrical and Electronics Engineering
4. Electronics and Communication Engineering
5. Mechanical Engineering

Page No.

CE1-CE28
CSE1-CSE57
EEE1-EEE44
ECE1-ECE61
ME1-ME55

All India Council for Technical Education

All India Council for Technical Education

Civil Engineering

Model Question Papers

For Undergraduate Program

The model question papers are suggestive blueprints. The primary aim of these question papers is to bring clarity about the process of connecting questions to performance indicators and hence to course outcomes. Further, these question papers demonstrate how bloom's taxonomy can be used to understand the quality of question papers and their effectiveness in assessing higher order abilities. The structure of question papers, number of questions, choices given, time given for examination etc., can vary based on the practices of the University or college.

Table of Contents

Name of Course	Page No.
1. Advanced Geotechnical Engineering	CE1-CE7
2. Construction Project Management	CE8-CE12
3. Advanced Project Management	CE13-CE18
4. Design of RCC Structures	CE19-CE22
5. Environmental Engineering	CE22-CE28

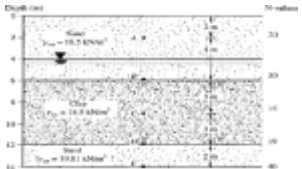
Course Name: Advanced Geotechnical Engineering

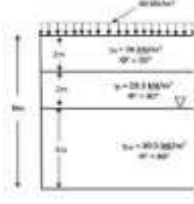
Course Outcomes (CO):

At the end of the course the student should be able to:

1. Plan soil exploration program, interpret the results and prepare soil exploration report.
2. Compute active and passive earth pressure.
3. Carry out stability analysis of finite and infinite slopes with some field problem.
4. Compute safe bearing capacity of shallow foundations.
5. Design pile and pile group.
6. Carry out settlement analysis of footings.
7. Assess the potential of soil for the design of landfills and reinforced earth wall.

Model Question Paper Total
Duration (H:M):3:00
Course :Advanced Geotechnical Engineering
Maximum Marks :100

Q.No.	Questions	Marks	CO	BL	PO	PI Code
1a	You are appointed as site engineer and have been tasked to carry out site investigations for an earth dam construction site. Describe the investigation procedure and discuss what information is required for the preparation and presentation of the report.	8	CO1	L3	1	1.3.1
1b	A standard penetration test was carried out at a site. The soil profile is given in figure 1(b) below with the penetration values. The average soil data are given for each layer. Compute the corrected values of N_{60} and plot showing the variation of observed and corrected values with depth.  Fig 1(b)	6	CO1	L3	4	1.3.1

1c	The unit weight of a soil of a 30° slope is 17.5 kN/m^3 . The shear parameters c and ϕ for the soil are 10 kN/m^2 and 20° respectively. Given that the height of the slope is 12 m and the stability number obtained from the charts for the given slope and angle of internal friction is 0.025 , compute the factor of safety.	6	CO3	L2	1	1.3.1
2a	For the retaining wall shown in figure 2(a), draw the active earth pressure distribution diagram and obtain total active force on the wall.	8	CO2	L3	2	2.1.2
						
2b	A retaining wall 4.5 m high with a vertical back supports a horizontal fill weighing 18.60 kN/m^3 and having $\phi = 32^\circ$, $\delta = 20^\circ$, and $c = 0$. Determine the total active thrust on the wall by Culmann's graphical method.	12	CO2	L3	1	1.3.1

Civil Engineering

CE3

All India Council for Technical Education

Model Question Paper

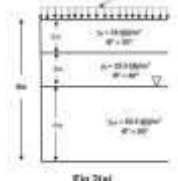
3a	A canal having side slope $1:1$ is proposed to be constructed in cohesive soils to a depth of 4.5 m below the ground surface. The soil properties are given below; $u=15$, $c_u=10 \text{ kN/m}^2$, $e=1.0$ $G=2.65$. find the factor of safety with respect to cohesion against failure of bank slopes; (i) When the canal is full of water and. (ii) When there is sudden draw down of water in canal.	8	CO3	L3	2	2.1.2
3b	Determine the depth at which a circular footing 2 m diameter be founded to provide a factor of safety of 3.0 . If it has to carry a safe load of 1500 kN . The foundation soil has $c=15 \text{ kN/m}^2$, $\phi=30^\circ$ and unit weight of soil $\phi=18 \text{ kN/m}^3$.	7	CO4	L3	2	2.1.2
3c	A large scale bearing capacity test on a footing of size $1.05 \text{ m} \times 1.05 \text{ m}$ at a depth of 1.5 m yielded an ultimate value of 141 kN . Unconfined compressive tests on the soft saturated clay yielded a strength of 0.03 N/mm^2 . If the unit weight of the soil is 16 kN/m^3 , how much does the test value differ from that obtained using Terzaghi's bearing capacity equation?	5	CO4	L3	2	2.1.2
4a	Design a pile foundation system in 20 m thick soft clay with undrained cohesion of 60 kPa , density of 18 kN/m^3 and water content of 30% . The clay layer is underlined by hard rock. The pile foundation should carry a load of 6500 kN . Take liquid limit $=60\%$, $G=2.7$.	12	CO5	L3	2	2.2.3

Civil Engineering

CE4

All India Council for Technical Education

Model Question Paper

4b	A soil profile at a site consists of 4.0 m of medium sand with dry unit weight of 17 kN/m^3 , underlain by a normally consolidated layer of 2.0 m thick clay. The initial void ratio of clay is 1.0 its saturated unit weight is 20 kN/m^3 and its liquid limit is 50% . The ground water table is at the top of the clay layer. A square footing $2 \text{ m} \times 2 \text{ m}$ is founded at a depth of 1.0 m below the GL at the site. The load on the footing is 1200 kN . Calculate the settlement of footing due to consolidation of the clay layer.	8	CO6	L3	2	2.1.2
5a	Check the reinforced earth wall shown in figure 5(a) for stability against a) sliding b) over turning and c) bearing failure. Although BC is a rough face, assume it to be smooth.	8	CO7	L3	2	2.1.2
						

Civil Engineering

CE5

5b	Site A and Site B are two sites located at a distance 20km and 30km respectively from a city. Below table gives the details for both sites. (i) What criterions to be considered while selecting a landfill site? (ii) Compare the score of both sites and suggest which site is best suited for constructing a landfill.						12	CO7	L4	2	2.1.2
	Parameters	weightage	Sensitivity indices				SiteA	Site B			
			0.25	0.50	0.75	1.00					
	Distance (km)	100	10	20	30	40	20	30			
	Population within 500m	300	200	400	600	800	600	400			
	Depth to GW (m)	400	40	30	20	10	20	40			
	Soil type	200	Clay	Silt	Sand	Gravel	Silt	gravel			



BL – Bloom's Taxonomy Levels (1- Remembering, 2- Understanding, 3 – Applying, 4 – Analysing,

5 –Evaluating, 6 - Creating)

CO – Course Outcomes

PO – Program Outcomes; PI Code – Performance Indicator Code

COURSE OUTCOMES

Course Outcomes state what a student, on successfully completing (passing) the course and earning a pass grade and the credit can perform/do/demonstrate with what he/she has learnt in the course. These are also referred as Learning Outcomes or Student Outcomes - NBA uses the term Course Outcomes (COs). Note that the emphasis is on using/applying the knowledge imparted/acquired by a successful student in the course and not on the knowledge per se.

Assessment of attainment of Outcomes

- Stating the Program outcomes expresses what our learners (students) will be equipped for when they successfully complete and fulfil the requirements of the Program (award of the degree)
- In OBE, all outcomes have to measurable (that is, quantified) and measured (calculated) to understand how well the program is serving our students and also to identify improvements to act upon – e.g. changes to courses, curriculum revision, teaching-learning-evaluation
- Program outcomes are measured each academic year for the graduating batch.
- POs are realized by curriculum, teaching/learning and assessment (performance of students) – co-curricular and extra-curricular components may also be included.

Assessing attainment of POs

As POs are realized through curriculum implementation, we need to first look at the courses of the curriculum and the Outcomes of each course (COs).

From the attainment of COs for all the courses of a Program, we can calculate the attainment of POs

Thus, the attainment-of-outcome calculation is bottom-up –first COs and from that the POs

Note, however, that curriculum design will be top-down – from POs to curriculum – to COs/courses

First, we look at the NBA criteria/score for a overall picture and then, proceed with COs and assessment of attainment of COs

SAR – NBA Criteria and Evaluation Scores

Grade Y W C D: Y compliant, W weakness, C concern, D Deficient

1. Vision, Mission, PEOs	50	Definitions, stake holder dissemination/awareness
2. Program Curriculum &T-L-P	100	
3. COs and POs	175	CO-PO mapping and attainment calculation
4. Students' Performance	100	
5. Faculty Information/Contributions	200	
6. Facilities and Technical Support	80	
7. Continuous Improvement	75	Analyzing CO-PO calculations and C-I actions
8. First-Year Academics	50	CO-PO calculations and using them
9. Student Support Systems	50	
10. Governance, Institutional Support and Financial Resources	120	

Course Outcomes - COs

COs are also known as Learning Outcomes (for instance in ABET)

Given a curriculum, we design and detail courses in terms of syllabus description, pre-requisites, credits (L-T-P-C) text book(s), reference book(s), Question Bank.

Implementing a course comprises:

- TEACHING, LEARNING and ASSESSMENT (QUIZ, Assignment, Exams ..)
- CONSTRUCTIVE ALIGNMENT OF T, L and A
- ASSESSMENT DRIVEN BY LEARNING-OUTCOMES
- ASSESSMENT DRIVES TEACHING AND LEARNING
- ASSESSEMENT IS WHAT STUDENTS FOCUS ON
- **COs are central to OBE**
- **POs are given by NBA and COs are determined by the department**

Course Outcomes CO – An Example

- Course Title: Heat & Mass Transfer
- Course Outcomes
 - 1 Solve practical engineering problems using basic concepts of heat and mass transfer.
 - 2 Evaluate steady and unsteady performance for insulation, fin and thermocouple.
 - 3 Analyze laminar and turbulent boundary layer flow on internal and external regions.
 4. Design shell and tube type heat exchangers for convective heat transfer applications.
 - 5 Analyze phase change heat transfer processes applied to process-heat applications
 - 6 Determine radiation heat transfer rates in engineering problems.
 - 7 Perform design calculations of thermal equipment and prepare technical report

Writing clear COs is important; Implementing them well in T-L-A is also important

CO-PO mapping (connecting COs with POs)

- The mapping is a matrix with rows as COs and columns as POs

Each element/cell of the matrix has a value in {--, 1, 2, 3}

The meaning associated with the values are as follows:

- this CO (row) has nil/very small/insignificant contribution to the PO(column)
- 1 → relevant and small significance
- 2 → medium or moderate
- and 3 → strong

These values have to be justified in the T-L-A of the course, particularly in terms of the BLOOM Level of the questions/Problems

An Example CO-PO mapping (contd ..)

	PO1	PO2	PO3	PO4
CO1	2	2		
CO2		3		
CO3		2	2	
CO4		3	2	
CO5		3		
CO6		2		
CO7			3	3

Explanation of CO-PO mapping Example

- Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of **complex engineering problems**.
 - 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.
 - 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.
 - 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
- Solve practical engineering problems using basic concepts of heat and mass transfer. CO-PO { 2 2 -- -- }
 - Evaluate steady and unsteady performance for insulation, fin and thermocouple. CO-PO { -- 3 -- -- }
 - Analyze laminar and turbulent boundary layer flow on internal and external regions. CO-PO { -- 2 2 -- }
 - Design shell and tube type heat exchangers for convective heat transfer applications. CO-PO { -- 2 3 -- }
 - Analyze phase change heat transfer processes applied to process-heat applications CO-PO { -- 3 -- -- }
 - Determine radiation heat transfer rates in engineering problems. CO-PO { - 2 -- -- }
 - Perform design calculations of thermal equipment and prepare technical report CO-PO { -- -- 3 3 }

CO attainment calculation - Rubrics

3 levels of attainment 1-Low; 2-medium; 3- High

For Example, the three levels of attainment can be defined as

level 3 -> 70% students scoring more than set target marks

level 2-> 60% students scoring more than set target marks

level 1-> 50% students scoring more than set target marks

level 0-> Less than 50% students scoring more than set target marks
target can be average, pass level, median etc.

	T1/ CO1	T1/ CO2	T2/ CO3	T2/ CO4	T2/ CO5	M/ CO1	M/ CO2	M/ CO3	M/ CO4	M/ CO5	SEE/ CO1	SEE/ CO2	SEE/ CO3	SEE/ CO4	SEE/ CO5
S1	30	40	20	30	25	17	18	15	07	15	09	08	20	13	20
S2	25	37	25	25	25	18	14	08	11	09*	08	09	15	14	19
S3	10	30	14*	20	25	19	09*	11	15	06	07*	08	20	09*	18
S4	14	20	10	17	24	20	06	17	14	15	05	04	11	05	15
MAX	50	50	30	30	40	20	20	20	20	20	15	15	20	20	30
CUT OFF	25	25	15	15	20	10	10	10	10	10	7.5	7.5	10	10	15
#above CUT- OFF	2	3	2+1	4	4	4	2+1	3	3	2+1	2+1	3	4	2+1	4
CO- VALUE	1	3	2	3	3	3	2	3	3	2	2	3	3	2	3

CO attainment Calculation – Example – Threshold (Rubrics)

Target marks for CO – 50%

CO attainment Level 0-> Number of students above target < 50%

CO attainment Level 1-> Number of students above target 50% - 60%

CO attainment Level 2-> Number of students above target 60% -75%

CO attainment Level 3-> Number of students above target 75%

In our Example, there are 4 students

For 1 -> (only)2 students scoring above target in that CO

For 3-> 3 or 4 students scoring above target in that CO

For 2-> we have taken students with score close to target in that CO-level

CO attainment calculation – contd..

	TEST1 (10%)	TEST2(10%)	Model (30%)	Final (50%)	attainment
CO1	1	----	3	2	$(0.1+0.9+1.0)/0.9$ $2.0/0.9= 2.22$
CO2	3	----	2	3	$(0.3+0.6+1.5)/0.9$ $2.4/0.9=2.66$
CO3	----	2	3	3	$(0.2+0.9+1.5)/0.9$ $2.6/0.9=2.88$
CO4	----	3	3	2	$(0.3+0.3+1.0)/0.9$ $1.6/0.9=1.77$
CO5	----	3	2	3	$(0.3+0.6+1.5)/0.9$ $2.4/0.9=2.66$

Criteria for Attainment Levels

- Levels can be defined by program coordinator or Head of department
- Here 3 levels of attainment is taken as 1-Low; 2-medium; 3-High
- 3 levels of attainment can be defined as
- HH(3) :- 70% students scoring more than average marks or set target marks in an assessment method
- MM(3):- 60% students scoring more than average marks or set target marks in an assessment method
- LL (1) :- 50% students scoring more than average marks or set target marks in an assessment method
- NA(0):- Less than 50% students scoring more than average marks or set target marks in an assessment method

CO attainment calculation –Rubrics – Contd..

If targets are **achieved**, we may set higher targets subsequently as part of continuous improvement. Further, scale of 3 levels may be reworked to scale of 5 levels. 5 level may be defined as follows:

- 5-> 80% students scoring more than target marks
- 4-> 70% students scoring more than target marks
- 3-> 60% students scoring more than target marks
- 2-> 50% students scoring more than target marks
- 1-> 40% students scoring more than target marks
- 0-> Less than 40% students scoring more target marks

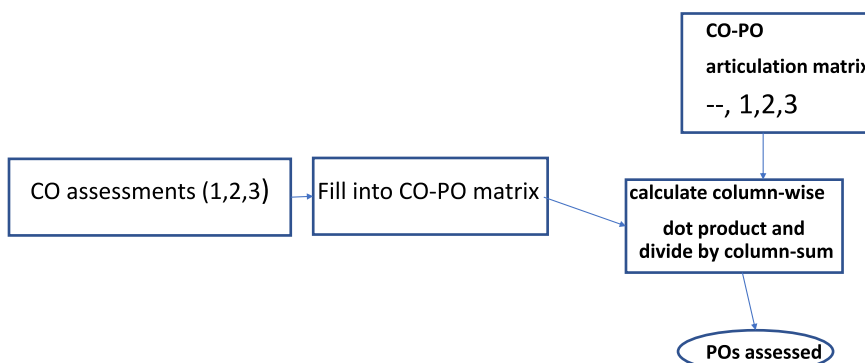
If targets are **not achieved** then instead of lowering target; program should put in place an action plan to attain the target in subsequent years

CO-PO mapping (example)

1: Slight (Low) 2: Moderate (Medium) 3: Substantial (High) : blank: no correlation

						PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12
SEM		SUB CODE	Course	COURSE OUTCOMES	COURSE OUTCOMES Statement												
III	C203	BEXX201	Course name	C203.1		3	3	2	2	-	-	3	3	2	2	1	-
				C203.2		-	-	-	-	-	-	3	3	3	2	1	-
				C203.3		-	-	-	-	-	-	3	2	2	2	1	-
				C203.4		-	-	-	-	-	-	3	2	2	2	1	-
				C203.5		-	-	-	-	-	-	2	2	2	2	1	-
				C203.6		-	-	-	-	-	-	2	2	2	2	1	-

Procedure for PO attainment calculation



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Program Outcome Attainment - Calculation

For Calculation of Program Outcome, we can use two method:
(i) Direct Method (ii) Indirect Method

Direct Method: In direct method, we take CO attainment of all courses contributing to particular Program Outcomes and then calculate the attainment based on mapping (as per course articulation matrix)

Indirect Method: In indirect method, surveys from current passing out students (program exit survey), survey from employer (during placement), survey from industry person (if students are working as intern for some industry) to be taken.

All this survey needs to be quantified [put questions like rate our students in the scale of 5 (5-excellent, 1-not satisfactory)]

Indirect method too should be based on predefined levels

Example; Level-3: **80% on above survey takers giving 4 on 5 marks**

Level-2: **70% on above survey takers giving 4 on 5 marks**

Level-1: **60% on above survey takers giving 4 on 5 marks**

PO Attainment - Calculation

Co urse	Course Outcomes	Attainment Level Column A	PO1 Column B	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PO13	PO14	PO15
C3 01	C301.1	1.5	1	1	3	2	2	1	-	1	1	-	-	-	2	2	1
	C301.2	2.1	1	1	3	2	3	1	-	-	1	-	-	-	2	2	1
	C301.3	2.4	1	1	3	3	3	-	-	-	1	2	-	-	3	3	1
	C301.4	2.5	1	1	3	3	3	2	-	-	1	-	-	-	3	3	1
	C301.5	2.4	1	2	3	3	3	-	-	1	1	-	-	1	3	3	1
	C301.6	2.7	1	2	3	3	3	2	-	-	1	2	-	1	3	3	1
C3 02	C302.1	1.8	-	-	-	-	-	-	1	-	2	1	3	-	-	-	-
	C302.2	1.9	-	-	-	-	-	-	1	-	2	-	3	-	-	-	-
	C302.3	1.7	-	-	-	-	-	-	1	-	2	-	3	-	-	-	-
	C302.4	2.7	-	-	-	-	-	-	1	-	2	-	3	-	-	-	-
	C302.5	2.1	-	-	-	-	-	-	1	-	2	-	3	-	-	-	-
	C302.6	1.4	-	-	-	-	-	-	1	-	2	-	3	-	-	-	-
	Program Outcome Attainment		2.27	2.34	2.27	2.33	2.31	2.33	1.93	1.95	2.04	2.40	1.93	2.55	2.33	2.33	2.27

Here only 2 course are taken; for actual calculations all courses to be taken
Calculation: PO1= (column A* Column B)/Sum(column B)
This can be done in excel

Using outcome assessment for improvement – an example

From an SAR of civil Engineering program (accreditation completed)

PO1: Engineering knowledge: Apply knowledge of mathematics, science, engineering fundamentals, and an engineering specialization for the solution of complex engineering problems.

Target: 2.5 Calculated attainment: 2.3

The overall attainment of PO1 is near but below the target value;

The foundation course Mechanics of Materials (CVC202) has CO attainment below the target. Mathematical courses - Statistics and Integral Transforms (MAC209) and Numerical Methods and Partial Differential Equations (MAC213) have attainment below the target value. These are impacting the PO attainment.

Actions identified are – on the next slide

outcome assessment → improvement – example contd..

This diagnosis indicates insufficient connectivity between the theoretical concepts and their mathematical applications.

- Action 1: Contextual learning pedagogy is used in Mechanics of Materials to associate classroom teaching to real-world experiences and improve the grasp of fundamental concepts.
- Action 2: In the Mathematics courses in the third semester - Statistics and Integral Transforms and in the fourth semester - Numerical Methods and Partial Differential Equations simple problems of civil engineering were introduced

When targets are achieved then outcomes are attained; subsequently,
We revise and set higher targets as a part of continuous improvement
Target setting and CI are go together in OBE

Improvement using PSO assessment – Example (Analysis)

PSO1: Proficiency in a specialized area: Demonstrate proficiency in one of the following specialized areas of Civil Engineering i) Construction Materials and Management ii) Structural and Geotechnical Engineering iii) Environmental, water resources and Transportation Engineering

PSO Target Value 2.50 PSO Attainment 2.37

PSO13 is lower than the target value.

The course Advanced Project Management (CVC316) has lesser attainment for PSO13.

New pedagogies are identified for improving the learning of the students.

The following actions are identified to strengthen PO7

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.

Question: How are targets set for Pos?

Improvement using PSO assessment – Example (ACTIONS)

- **Action1:** Course project in **Advanced Geotechnical Engineering** is introduced to demonstrate the relationship between the safe bearing capacity of the soil and the structural design.
- **Action 2:** Contextual learning pedagogy is used on **Mechanics of Materials** to associate classroom teaching to real-world experiences.
- **Action3:** Hands-on learning pedagogy in **Concrete technology** is introduced to allow students to experiment - learn by trial and error, and understand the gaps between theory and practice.
- **Action4:** Project-based learning is introduced in **Construction Project Management** to bridge the gap between the theoretical concepts studied in the classroom and their practical applications in the real world.

Roles of Lecturers

- Review PEOs, POs, course structures and syllabi.
- Teach the relevant engineering, maths, and other relevant subjects.
- Conduct relevant tutorials and laboratory practical sessions.
- Give appropriate guide on assignments and projects.
- Conduct empirical measurements of POs.
- Prepare the required documentation.
- Assure EAC and public on the standard of our graduates.
- Obtain and maintain accreditation from EAC through Continuous Quality Improvement (CQI).

Roles of Students

- Know the required Programme Outcomes and Programme Objectives (available at the FOE website).
- For each course, review the Learning Outcomes (available at the FOE website/uploaded in MMLS) at the beginning of each trimester. This gives you an idea of the knowledge and skills expected from a particular course.
- Be more proactive in the learning process to acquire the Learning Outcomes of subjects.
- Demonstrate through the assessment methods that the required skills and knowledge have been acquired.
- Attain the Programme Outcomes and Programme Objectives as a whole during the entire programme.
- Give constructive feedbacks on the programme/course/academic staff to obtain accreditation through active participation in Online Teaching Evaluation, Academic Advisory System, dialog sessions with Dean, etc.

A Brief Report on Two Day NAAC Sponsored National Seminar
On
"Use of ICT tool for quality enhancement of higher education Institutes; Post COVID
situation" Organized by
IQAC, Sanjeevan Engineering & Technology Institute, Panhala, Maharashtra
9th & 10th December, 2022
Convener : Dr. Sanjeev N. Jain,
Principal, Sanjeevan Engineering & Technology Institute, Panhala

I am very happy to present the report of NAAC Sponsored National online Seminar on 'Use of ICT tool for quality enhancement of higher education Institutes; Post COVID situation'.

Objectives of the seminar:

- To introduce ICT tools & its value in Post COVID situation.
- To extend awareness of ICT usage, in higher education institutes for Quality improvement.
- To create an awareness of Blended learning techniques.
- To integrate MOOC courses in the curriculum.
- To penetrate usage of online test & evaluation techniques.
- To emphasize OBE in Post COVID situation for accreditation.
- To get the evaluator's perspectives in accreditation process.

With the encouragement and support from our Management, Principal the assistance of the coordinator and members of IQAC and my colleagues, it was possible for us to make all arrangements for the smooth and successful conduction of this online Seminar. I hope that the fruit of this Seminar will reach all the Participants and academicians in the field of Higher education. Brochures of the Seminar were sent to different colleges all over India through e-mail and WhatsApp. Total 144 participants from different colleges from different states in India responded and participated in the Seminar. The seminar had eight different Sessions by 08 different eminent resource persons.

The Seminar began at 10.00 a.m. as per the programme schedule. The seminar was conducted through Google meet online platform. The opening ceremony was inaugurated by the Dr. Sanjeev N. Jain, Principal, Sanjeevan Engineering & Technology Institute, Panhala, Maharashtra In his inaugural speech, he spoke about the Post COVID situation and use of ICT tool in higher education institutes. Vote of thank given by Dr. G. C. Koli, IQAC co-ordinator.

Day 1, Friday 9th December 2022:

The first session was started at 10.30am by Dr. Sanjeev N. Jain, Principal, Sanjeevan Engineering & Technology Institute, Panhala, in the session he elaborated on Post COVID Scenario of higher education institutes - A Quality concerned. He continued to explain about impact of COVID over education system, different ICT tools in detail, challenges in use of ICT. He also described the comparison between ICT and quality education system nicely. The second session conducted by Prof. S.C. Borse, IQAC co-ordinator, Deogiri institute of Engineering & Management studies, Aurangabad. He systematically presented the preparation procedure of NAAC Cycle 2 by showing the case study of one college. The third session was presented by Dr. P. N. Tekwani, Director-Research & Innovation, Dean Faculty of Doctoral Studies and research, Nirma University, Ahmedabad. In the session he delivered Revised NAAC A&A framework criteria wise in detail. Fourth session was conducted by Dr. Suhas Deshmukh, Associate Professor, Government college of Engineering, Karad. He has explained the different ICT tools and use of Excel tool in achieving OBE mapping and attainment.

Day 2, Saturday 10th December 2022:

On the second day, First session was addressed Dr. Suhas Patil, Professor, Bharati Vidyapeeth (Deemed to be University) College of Engineering, Pune. He elaborated in detail, regarding Concept, History of MOOC, Development of MOOC, and successful implementation of MOOC. Second session was conducted by Dr. Shashank Joshi, Dean Faculty of Engineering & Technology, Bharati Vidyapeeth (Deemed to be University), Pune. He clearly presented the procedures of NAAC how helps to complete procedures of NBA. Session three was delivered by Dr. Dhananjay Bagul, Director, Rajmata Jijau Shikshan Prasarak Mandal, ICMR, Pune. He enlightened over the NAAC criteria and different ranking procedures. In the last session of Seminar Dr. C. S. Rai, Professor, Guru Gobind Singh Indraprastha University, New Delhi thoroughly discussed the topic of Outcome Based Education in Post COVID situation.

Finally valedictory session started at 4.00pm in the presence of Dr. Sanjeev N. Jain, Principal and Vice Principal, Dr. S. G. Sapate, Sanjeevan Engineering & Technology Institute, Panhala. Dr. G. C. Koli presented a Seminar Report to the participants and feedback was enthusiastically shared by some participants of different states. Vote of Thank was offered by Dr. D.S. Bhosale, Dean, Sanjeevan Engineering & Technology Institute, Panhala.



Dr. G. C. Koli
IQAC



Dr. Sanjeev N. Jain
Convener

Recommendations received by all the experts are as below

Glimpses of Seminar

WELCOME TAKHOMY

SANDH VAN
Good Morning.
How NACC Documentation Helps in NBA?
Dr. Madhukar Tullu
Associate Professor
Faculty of Engineering and Technology
Department of Logistics, BGS College of Engineering
BGS College of Engineering, BGS

Revised NAAC Assessment & Accreditation Framework
Two Day National Level Online Seminar on
Use of ICT Tool for Quality Enhancement of Higher Education Institutes; Post COVID Situation
Sanjivan Engineering & Technology Institute, Pashala
9th December, 2022 (2:00 pm to 3:00 pm)
By
Prof. Dr. P. N. Tekwani [Ph.D – IISc Bangalore]
Director – Directorate of Research and Innovation
Dean – Faculty of Doctoral Studies and Research
Professor and Former Head - Department of Electrical Engineering
Nirma University, Ahmedabad
drtekwanipn@gmail.com
NIRMA UNIVERSITY
NACC ACCREDITED - AMBA

Focus and Benefits of OBE
OBE addresses the following key questions:
• What do we want the students to have or be able to do?
• How can we best help students achieve it?
• How will we know whether they students have achieved it?
• How do we close the loop for further improvement (Continuous Quality Improvement (CQI))?
Benefits of OBE:
1. More directed & coherent curriculum.
2. Graduates will be more "relevant" to industry & other stakeholders (more well rounded graduates)
3. Continuous Quality Improvement (CQI) is in place.

CONTENTS
DIEMS
REVISED ASSESSMENT AND ACCREDITATION (A&A) FRAMEWORK
QUALITY INDICATOR FRAMEWORK (QIF) - DESCRIPTION
ELIGIBILITY FOR ASSESSMENT AND ACCREDITATION BY NAAC
PROCEDURAL DETAILS
ASSESSMENT OUTCOME
RE-ASSESSMENT
MANDATORY DISCLOSURE ON HETI WEBSITE
DIFFERENCE IN PREVIOUS & CURRENT ASSESSMENT AND ACCREDITATION PROCESS BY NAAC
INSTITUTIONAL PREPAREDNESS FOR NEP

MOTIVATING LEARNERS
• Less than 10% of the students who...
• Most participants participate...
• Some students do not care whether they could complete a course...
• Instead, they wanted to learn something based on specific needs.
• The most basic solution to the problem of poor completion rates is to introduce the concept to...
• The most basic solution to the problem of poor completion rates is to introduce the concept to...
Prof. Madhukar Tullu for the meeting

SANJEEVAN

GROUP OF SCHOOLS, PANHALA

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SANJEEVAN ENGINEERING & TECHNOLOGY INSTITUTE, PANHALA

- Sanjeevan Knowledge City, Somwar Peth, Panhala, Tal. Panhala, Dist. Kolhapur 416 201 (Maharashtra)
- Approved by AICTE- New Delhi
- Recognized by Govt. of Maharashtra & DTE
- Affiliated to Dr. Babasaheb Ambedkar Technological University, Lonere (Raigad)
- NAAC Accredited
- Website : www.seti.edu.in
- Email : principal@seti.edu.in / office@seti.edu.in

