



Internal Quality Assurance Cell

Introduction

At DYPSOEA, we firmly believe that building a quality academic institution conducting technology related courses requires a conscious and sustained effort spread over several years. That is why from its inception in 2016, there has always been an eye on future, and more importantly, a vision held by the founders of DYPSOEA who have over the years spared no effort to see this institution progressively grow in quality and reputation.

Quality enhancement is not just adequate infra-structure but much more intensive in terms of commitment and extra effort on the part of Management, Principal, Teachers and Students who go that extra mile to add value and meaning in what they do - each single day - to enhance their scope and usefulness to society at large and also more importantly general overall development in terms of growth of prosperity of our nation and hence the national economy while easing out the burden of living of the populace at large.

The development of institution and growth of students by considering this as the aim we all work at DYPSOEA. All efforts and indices that enhance preparedness of students to take up independent roles post DYPSOEA education are given top priority.

DYPSOEA's commitment to quality practices and services is reflected in its Statement of Mission and Statement of Vision (abridged version reproduced below for reference).

Our quality policy endorsed by our President, lays stress on keeping high standards of quality at DYPSOEA.

Institute Vision:

"Technological Excellence through Societal and Industrial Interaction"

Institute Mission:

- ❖ To Impart Quality Education
- ❖ To Impart Prerequisite Skills for Employment Enhancement.
- ❖ To Inculcate Entrepreneurial Talents.
- ❖ To Improve Industry-Institute Interaction.
- ❖ To Keep Abreast of Technological Advancement.
- ❖ To Incorporate Importance of Societal Values.



Management of DYP SOEA firmly hold the view that standards and excellence have to be built up from bottom most unit level to the top, with monitoring and supervision, at all levels. The quality assurance activity should be and is constantly checked and upgraded as necessary in a participatory fashion with the active involvement of all concerned.

DYP SOEA has accordingly empowered Principal, IQAC Co-coordinator, Departmental Quality Assurance cells (DQAC) and Heads of Departments (HODs) who head Departmental Quality Assurance Cells with adequate resources like manpower, infrastructure in the form of well-equipped classrooms and laboratories, equipment and necessary budgetary support to carry out this task effectively.

1.1 Institutional Mechanism for Internal Quality Checks

The quality assurance is ensured by creating QA mechanisms at three levels:

Institute Level:

At institute level quality assurance is looked after by college level Internal Quality Assurance Cell (IQAC) and Academic Monitoring Committee (AMC) Services comprising of Principal, IQAC Co-ordinator, AMC Co-ordinator and other co-opted senior faculty members by conducting academic audit twice a year.

HOD Level:

At the HOD level, Departmental Quality Assurance Cell (DQAC) sets assurance policy and ensures adherence to departments by conducting internal audit once in a semester.

Teaching staff and Student Level:

At the teaching staff and student level, Departmental Quality Assurance Cell (DQAC) of each department ensures implementation of processes prescribed and perform department level audit.

The cycle of changes required for enhancing quality in teaching and learning consists of a bottom up process that begins with the students who provide valuable feedback and this travels upwards all the way up to IQAC. The corrective action is conceived at the top and travels downwards and ends with the students feeling those desired changes. This biannual or semester wise cycle and for some aspects annual cyclic process is detailed below.

The overall bottom up process is conducted in the following manner;

The students interact with concerned course faculty and give feedback on all aspects of the conductance of the courses. This includes course content, course coverage, quality of presentations, span/depth of coverage, making the content palatable and relevant to exam readiness etc.



The students are encouraged to give this feedback without any fear whatsoever. The feedback form is made digital and on-line to make it convenient to fill this form and save time and effort in its analysis.

Feedback is discussed with concerned HODs in the presence of Senior Professors and their appointed members in DQAC level meetings. The feedback is analyzed and salient, valid important points are noted for further action. The possible implementable steps are also indicated in the HOD reports which are then passed on to the next higher level for deliberations.

Principal and IQAC Co-ordinator conduct HOD meetings and collect feedback and deliberate on the same. They generate remedial action and the steps for the same are prepared in the form of instructions to be passed on for implementation in various departments.

This is followed by the top down corrective process.

Heads of the Departments or DQAC's conduct faculty meeting and monitors effective implementation of good teaching and learning principles and directives. Heads of the Departments are also responsible to ensure quality of all the activities in the department.

IQAC offer necessary suggestions and take collective decisions if needed for effective implementation of the DYP SOEA quality assurance policy to ensure smooth conductance of academics and assurance of good teaching and learning environments.

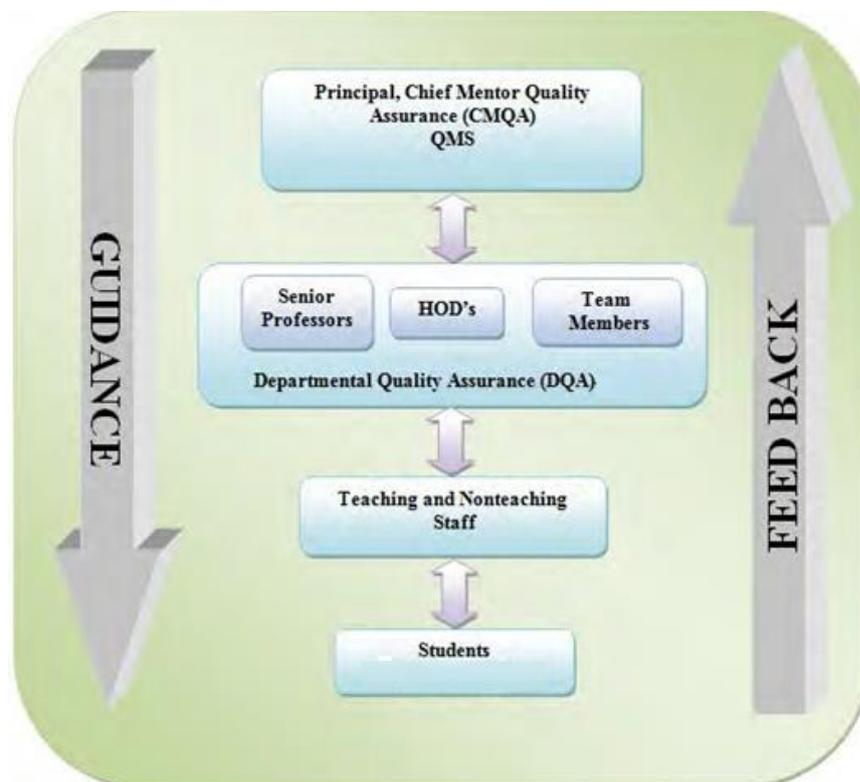


Fig. 1: The Overall Flow of Work in Assuring Good Academic Quality and Support Services at DYP SOEA



This self-correcting loop (Fig. 1) running through continuously bi-annually or for some aspects annually ensures a steady positive movement towards higher quality standards year after year while keeping in step with changes of syllabi or any other developments or decisions handed out by university or any of the academic bodies that controls technical education in our country.

To summarize, the QA system is structured enough to be interactive and participative and hence effective at all levels and yet flexible to enable it to adapt itself to changes if necessary which inevitably happens from time to time owing to say change in syllabi as a result of developments in the concerned area of study. It also does result in introduction of new areas of study that spring forth owing to rapid technology development by way of new courses.

We state that;

QA activities follow a flexible approach to adapt to necessary and desired changes. The QA system is also modular while being structured and this makes it easily adaptable.

The purpose of it is to provide quality education for students and they (student fraternity) are often a good judge for the quality of education. In other aspects, the faculty which teaches the students directly perceives what should be done in specific instances. The remaining, long term and deep issues which the feedback mechanism raises are discussed at the highest level consisting of Principal, IQAC Co-ordinator and Academic Monitoring Committee (AMC) Members can almost perceive what is needed.

This high level team then translates their solution strategy into decisions comprising of clear instructions and implementable steps that are passed on to DQA Cells operating under the guidance of HODs of various departments.

The level of interaction between the HODs and teaching and non-teaching staff is on a daily basis and intense. Hence, implementation and dissemination of quality policy and quality culture is best achieved at this level.

To put it in the right perspective, IQAC at DYPSOEA follows a well-structured, modular, participative and transparent approach. Since the whole documentation is made digital, the subsequent processes are made easy to analyze and implement as data bank is rich in potency to reflect trends that show betterment.

The process of generating feedback, analysis of feedback have been decoupled from the corrective action implementation to enable smooth functioning of each phase of quality assurance. Each can be optimized separately without much interference and complication.

Fig.1 aims to show the Quality Assurance structure at DYPSOEA and also schematically shows the full cycle starting with students and running to the top from where desirable changes are affected and travel all the way back to the students in a cyclic fashion.



2. WORKFLOW

2.1 Allocation

As a routine, before every academic year and before every semester starts, HODs take stock of work load and available resources to conduct the academic activities. Any gaps identified are brought to the notice of the management through proper channel via Principal, DYPSOEA where a solution strategy is worked out and action is initiated at the Management, Principal or HOD level.

The HODs plan deployment of resources (men and material) based on the stipulated norms and constraints (if any). Subject allocation meeting is held with attending staff before allocation is finalized to accommodate individual choices and preferences as far as possible. To take care of any unplanned exigency, each faculty has to name an alternate course faculty who can substitute for any absence on the part of primary teaching staff.

The alternate faculty and HOD is updated about the progress or current status of the concerned course including question banks and test details at least twice in every semester and this is recorded in Digital Course Files (DCFs) of each teaching faculty. This makes it easy and effective to cover up for any contingency that may arrive during the conduction of courses.

2.2 Assurance Mechanisms and Functions

The quality Assurance action or implementation begins at Department level.

HODs conduct faculty meeting and monitors effective implementation of good teaching and learning principles and directives.

HODs are also responsible to ensure quality assurance for all the activities in the department. Departmental sub committees constituted by HODs viz. QA Committee (DQAC) work under directions of HODs and take steps necessary to assure quality.

At the end an action taken report (ATR) is prepared that reflects the schedule and stages of the extent of corrective action.

2.3 Deployment Mechanism for QA

HODs in each department appoint sub-committees or groups formed out of faculties within her/his control and sometimes members from other departments also to complete a task. The action and its effect on the field use is monitored and reported back to HODs.

IQAC can also be approached directly if the situation warrants this.

Following sub-committees are appointed in DYPSOEA:

- Academic Monitoring Committee
- Training and Placement Committee
- Alumna Committee
- Entrepreneurship Development Cell
- Anti-Ragging Committee
- Women's Grievance Cell/Internal Complaint Committee
- Sports Committee
- Kalagaar Cell

A strong feature of mechanism to ensure Quality Assurance is encouragement to use a digital recording system for as much activities as possible. Digital facility is used to record all aspects of the teaching process, attendance, question banks, term test details, mark sheets, top performing and weak students, help necessary for both top performing and weak students and much more. This digital facility (use of DCFs) is also used to ascertain the extent of implementation and correctness of quality assurance activities.

The culture of digital records makes it easy for management at IQAC level to take stock of what is happening and facilitates them to take further decisions. Maintaining of DCFs is now made mandatory in DYPSOEA.

2.3.1 Course Curriculum:

Many faculty members of DYPSOEA are selected by Savitribai Phule Pune University for assisting in curriculum design of various courses. DQAC of DYPSOEA and these faculty members hold deliberations and offer suggestions on the course curriculum before the teaching process begins at the start of each semester. The faculty in conjunction with Chairman Board of Studies conducts orientation Programme for faculty members from other colleges of SPPU for content, delivery and evaluation process to be followed in teaching and student evaluation activities during each semester.

2.3.2 Course Outcomes or COs:

The course outcomes as laid out in the university document are examined with respect to program outcomes or POs and a mapping is prepared between the two. COs listings as seen in university curriculum are extended to have a broad based and better overlap between COs and POs for achieving better Programme educational objectives.

2.3.3 Program Outcomes or POs:

The POs are ultimate goals to be achieved through the courses run by various departments at DYPSOEA. They can also be looked as the desirable attributes that the



graduating engineers need to have as they move on to take up professional roles in society.

If these are met adequately, our students turn out to be industry ready to take up assignments as deemed desirable by relevant recruiters. They are chosen so as to build students ability with respect to technical ability and general overall proficiency. Development in the academic courses and also many more factors that aid their all round development such as having a good problem grasp, becoming a solution provider, positive attitude towards professional life and so on are included in PO list. A good overlap or rather a broader and wider overlap of POs with the COs is hence always a desirable objective.

2.3.4 Syllabus:

Each teaching staff plans the level of depth and extent of material to be covered, keeping in mind the guidelines set by the university through their communications.

The faculty plans are also tempered through expert guidance available through university appointed experts and also departmental seniors in their counseling lectures.

2.3.5 Time-tables:

Time tables are prepared to cater to designed loads for theory, tutorial and practical sessions, so as to meet the CO/PO requirements as set forth in the curricula by course designers. The relative weight of any CO is decided in proportion to the number of lectures set forth in the course designer's handout through the university.

2.3.6 Lesson Plans & Lecture Schedules:

Lesson plans are prepared for each theory subject and practical sessions in advance prior to commencement of the semester and are approved by HODs. Care is taken to see that lesson plans and lecture schedules are so designed to meet the overall objectives as per the curricula designers thereby ensuring COs & POs are met.

2.3.7 Evaluation of Lesson Plans & Lecture Schedules:

The teaching staff prepares and evaluates the efficacy of lesson plan to begin with at the start of every semester. The plans take into account the relative importance of COs and POs as laid down in the DCF files. During execution of lectures, the students grasp is evaluated from time to time by asking questions at the end of each session. With the nature of replies received, the teaching faculty adjusts the tempo and content of lectures to improve the grasp of students.

The IQAC discusses with each teaching faculty about teaching/learning issues from time to time (twice during a semester or more). This is done in a group so that points of common interest that emerge are shared immediately to all the teaching staff.

2.3.8 Adherence to Lesson Plans and Schedules:

HODs carry out checks to ascertain whether lesson plans and schedules set are being followed or not. This is done frequently so as to enable mid-course correction and ensure the subject matter is covered to a large extent. HODs also carry out inspection of subject file and also attendance registers once in 30 days to ensure adherence.

HODs observations and points that need action are recorded in the DCF files for future reference.

2.3.9 Lecture Delivery:

With growing trend towards modernization, each Department at DYPSOEA has Information and Communications Technology (ICT) enabled class rooms wherein LCD projector, Laptop facility, PA system etc. ICT enabled class rooms have also been provided with Wi-Fi enabled internet for demonstration and net based learning. Central facilities such as Seminar rooms and Auditoriums and virtual class room can also be made use of by the staff. An on-line access to technical journals subscribed to by DYPSOEA library also ease out the information reach of students and staff.

The conventional class room deliveries are also maintained side by side ICT equipment. This is used by teaching staff who favor spontaneous execution of lectures as demanded by the student audience who wish to clear some points from time to time. The question answer and problem solving activity is higher in these executions.

2.3.10 Project work based Learning:

Teaching by example is rendered possible owing to well-equipped laboratories available with each department. Whenever necessary, a live demonstration is shown to make clear the practical import of the lesson at hand. This is also sometimes covered through judiciously chosen project work. The idea is that an example can often replace many hours of explanation to home in a point and show the link between theory and practice.

2.3.11 Guest Lecture/Expert Lecture:

Many topics that fall in the area of collateral learning, latest developments or highly developed industrial applications of curricula are covered through expert lectures. This not only broadens the horizon of learning but also extends the vision of every student in that area of study.

The motivation to reach higher levels of grasp over the topics and also for dealing with motivational nourishment to students, this activity is an important component of QA activity at DYPSOEA.

2.3.12 Technical Seminars and Workshops:

At least once in semester, each department organizes technical seminars and/or workshops to bring to the attention of faculty as well as students the latest developments that happen in the area of interest to each department. Some fields are developing so fast that content of text books is either old fashioned or in some cases incomplete. To cover the gap in learning these areas, seminars and workshops catering to latest developments serve a very important need towards making our students industry ready. Attendance of staff and students in such seminars and workshops is highly encouraged within DYPSOEA.

2.3.13 Digital Course File(DCF):

This is a semi-permanent digital record that serves as a handy source material to fall back on for carrying out Academic Audit and subsequent analysis year after year. It also serves the purpose of tackling unanticipated bottlenecks such as a faculty becoming unavailable due to unforeseen circumstances. The replacement faculty can use the DCF file to quickly do replacement lectures. The progress of course during semester, course execution and coverage can be adjudged through the DCF file.

DCF is a tool which helps to obtain COs and POs attainment directly in percentage for every course and hence throws light on achievement of desirable attributes that the graduating engineers need to have.

2.3.14 Term Test Evaluation:

Term tests are conducted after completion of certain COs as they figure in the Course hand-out from university. The guidelines and methodologies handed out by university pertaining to term tests are meticulously followed.

After term test examination at the end of each semester, the DQAC collects feedback from the students on the conduct of the course in terms of quality and delivery. This forms the basis of vital feedback process that subsequently becomes the basis of corrective measures.

2.3.15 Result Analysis:

The analysis of scores in term tests is a reflection of the learning pattern by the students year after year. This is analyzed to bring out patterns of learning and lessons drawn from the same are discussed and corrective steps with regard to course content or method of teaching are suggested by IQAC of DYPSOEA.

2.3.16 Academic Audit:

This is carried out by team comprising of Principal, CMQA, HODs, Senior Professors

and co-opted Members (refer Figure 1) by examining DCF files of each faculty conducting at least one course from time to time and through in person counseling to teaching staff and members of IQAC finally ending with signatures of Principal DYPSOEA to ensure overall uniformity and compliance with IQAC policies of DYPSOEA. Faculties who conduct more than one course during any semester are required to maintain DCF record for each of the courses.

2.3.17 Feedback Mechanisms:

This is the first step towards the correction step in the QA process. Every student who takes a course is expected to fill a digital form. He grades each course taking faculty by giving points on 0-5 scale for the attributes mentioned in the digital feedback form. The student can add more comments if she/he so desires. The feedback forms content is analyzed for trends by DQA cells and reported to IQAC, DYPSOEA who then suggest appropriate remedial action as deemed fit.

2.3.18 Feedback from students:

The timing of the feedback process is a little before the mid-term of the teaching process in each semester. The students are encouraged to give this feedback fearlessly without any conditions imposed. This valuable input is collected by the concerned HODs of each Department. It is then compiled and stored digitally and kept with concerned HODs.

This process is also digitized to facilitate quick and easy feedback generation through digital forms with a flexibility to add attributes if the students so desire.

2.3.19 Feedback to HODs:

The HODs of all departments of DYPSOEA receive the feedback from students on course content, delivery and effectiveness as detailed above. This feedback is discussed with concerned faculty members and reviewed by the CMQA team of DYPSOEA. The analysis carried out keeps in mind the relevance, consistency and reliability of the remarks received and outlines the recurring points of significance. IQAC at DYPSOEA then conveys this corrective action pertaining to each department to the HOD concerned who then calls department level meetings to ensure compliance.

2.3.20 Consolidated Report by HOD:

This is a full report prepared department-wise which is submitted to IQAC of DYPSOEA for further action. The detailed deliberations ensure point by point coverage of all major and minor points. Issues that can be resolved at the HOD level are done so promptly and mentioned in the report. Those that require further discussions and those that require infrastructural changes are referred to in the report and passed on to IQAC to figure in subsequent higher level committee discussions. The IQAC then hold meetings to take

decisions on these points.

2.3.21 Review by IQAC:

The review process is attended by senior professors and HODs of each department. IQAC looks for points of omission, points that need elaboration or points that can be avoided to prevent duplication etc in each of the courses. The reliability and consistency of feedback is kept in mind before suggesting corrective or remedial action.

2.3.22 Remedial Measures Suggested by IQAC:

The remedial measures are tuned well so as to be effective. The problem nature, the faculty viewpoint and institute quality standards are all taken into account before the remedial measures are communicated for the purpose of implementation. IQAC suggests these measures to HODs who then brief the concerned faculty members and ensure implementation.

2.3.23 Corrective Action:

The corrective action is crucial final thread in the overall IQAC of DYP SOEA. This is implemented via the following steps.

IQAC conducts HODs meetings and collects feedback and offers necessary suggestions and takes collective decisions if needed for effective implementation of quality policy and smooth conduct of academics and assurance of good teaching and learning environments.

2.4 Academic Audit by College

DYP SOEA recognizes the primacy of good learning environments for the sustenance and growth of the institution and meeting Programme Educational Objectives and accordingly has put in Quality Assurance Team headed by AMC Coordinator as secretary and Principal as Chairman. The members of the audit committee include Principal, AMC, and other co-opted members. The college audit committee reviews the working of each department in respect of following standards in teaching and learning environments, research and consultancy, faculty involvement and development, sufficiency or otherwise of resources of the department and submit the report to secretary for further necessary supportive actions. The frequency of Academic Audit is twice in a year.

At departmental level HOD conducts internal Academic Audit through Departmental QA committee (DQAC) once in a semester and takes corrective actions. The following auditing is done by HOD to ascertain whether

- The time table is being followed as planned.



- Attendance Registers is being updated and topics covered regularly.
- Coverage of syllabus is being done as per Lesson Plan.
- Internal Marks are being entered in Attendance Registers on time.
- Course Files are being updated regularly.
- Lab Attendance Registers are being updated and internal assessments are carried out at the end of lab session.
- Personal files are updated and inspected once in a month.
- Counseling and remedial actions are carried out by class counselors.
- Review feedback is being received from Students on academics and facilities in the department once a semester.
- Term test evaluation of performance of the students is carried out and corrective actions such as providing enhancement tutorials or additional periods for removal of short comings are taken.
- Adequate encouragement steps are being taken to involve faculty in active research.
- Necessary steps are taken and monitored to prepare the students for placements by organizing additional training programmes.
- Departmental Stock registers are being maintained and maintenance of lab equipment's is being monitored.
- End term performance appraisal of academic work is carried out based on the performance of the students in the end term university examinations and corrective actions are taken.

HODs send an Action Taken Report to IQAC on the Academic Audits done from time to time. Class counselor of each division informs parents and guardians of the students if their performance and attendance is below acceptable norms monthly and the report is submitted to HOD. HODs then prepare counseling report. The reports filed by HOD to CMQA and then Principal DYPSOEA are detailed in Table 1.

Staff training prior to commencement of semester in the areas identified by the department is organized. This training is due to changed or modified syllabus or upgrading the skill set of teaching faculty.

DYPSOEA conducts several in house faculty development programmes (FDPs) based on the recommendations of IQAC and HODs during summer and winter breaks. Further, faculties are deputed to attend FDP and workshops and seminars at IITs and other prestigious institutions.

Faculties are encouraged for Research and Development and qualifications, like PhD and

their skills are enhanced.

Faculty appraisal systems ensure that each faculty adheres to goals set by himself and HODs and provides feedback to faculty on levels of attainment.

Adherence to procedures on Lesson plans and lecture schedules is ensured.

Collateral and supportive learning via web-enabled learning is included.

It is ascertained whether laboratory equipment are fully functional and internal and final assessments carried out as per university guidelines.

It is ensured that feedback is obtained at least twice from the students on conduct of courses and the feedback reports are analyzed for adequacy or otherwise of the course conducted.

Remedial courses for below average performers are conducted.

Parental guidance and involvement is ensured through regular feedback to parents on Mid Term performance and also attendance of the Student.

2.5 Quality Assurance within existing Academics and Administration

The Institution's Quality Assurance Process has been translated into implementable Modules right down to the Department level. This has resulted in an effective Quality Assurance Methodology. Academic and Quality Audit ensures Quality Assurance and continuous improvement.

Complaints and suggestions are incorporated by following different ways:

- Departmental Faculty and Staff Grievance Redressal Committee
- Grievance Redressal Committee/Internal Complaint Committee
- Student Suggestion Book
- Student Complaint Box

All complaints are analyzed to understand their nature and frequency of occurrence and of course the genuineness. Central Grievance Redressal Committee recommendations include (but not restricted to) the following corrective actions:

- Counseling the Faculty, Staff and Students.
- Removing the short falls that are clearly reflected in the discussions.
- Creating additional facilities that are found deficient with respect to space, laboratory equipment, pedagogical software packages and reference and collateral reading books in the DYPSOEA and Departmental Libraries.



A unique feature of DYP SOEA has been development of machine based administration which has resulted in high level of automation in administrative work. This has been done through project works handed out to BE and ME students.

The culture of building projects that are ready to use and meaningful and relevant is seen to enhance student satisfaction and motivation. Of course, the administrative staff is all happy to become the end users for this as it eases their day to day burden. The students also tend to gain as their precious time is saved. Some noteworthy recent contributions in this are:

- Issue of E-bonafide student certificates
- Issue of railway concession forms
- E-payment of regular and exam fees
- Issue of transfer certificate
- Online results

The kiosks that handle this activity are now deployed at many places to enhance student comfort.

The Quality Assurance activity is an ongoing activity at DYP SOEA and as we clarified before it is flexible, adaptable and participative with respect to all the people associated with DYP SOEA namely management, teaching and non-teaching staff and finally the body of students who are the focus of this activity.