

# **SUBJECT REVIEW REPORT**

**DEPARTMENT OF  
PRODUCTION ENGINEERING**



***FACULTY OF ENGINEERING  
UNIVERSITY OF PERADENIYA***

28<sup>th</sup> to 30<sup>th</sup> February 2011

**Review Team :**

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## **1. SUBJECT REVIEW PROCESS**

Subject review process of the UGC involves evaluating the quality of education within a specific subject or discipline, focusing on the student learning experience and on student achievement related to both undergraduate and taught postgraduate programs. It is understood that the final responsibility for quality and standards remains within the institution itself, since it alone has the powers to control and to change existing practices.

Subject review process at the Department of Production Engineering (DPE) of the University of Peradeniya was conducted following the guidelines provided in the Quality Assurance Handbook for Sri Lankan Universities, published by the CVCD and University Grants Commission in July 2002. The quality of education was reviewed at the Departmental level according to the aims and learning outcomes listed below as given in the Self Evaluation Report (SER):

1. Curriculum design, content and review
2. Teaching, learning and assessment methods
3. Quality of students including student progress and achievements
4. Extent and use of student feedback (both qualitative and quantitative)
5. Postgraduate studies
6. Peer observation
7. Skill development and
8. Academic guidance and counseling

The Review Team visited the DPE for three days, namely 28<sup>th</sup>, 29<sup>th</sup> and 30<sup>th</sup> of March 2011. The itinerary of the three-day visit is given in Annex 1. The information related to the eight aspects highlighted above were collected through discussions with the Vice-Chancellor, the Dean, Head of the Department, members of the academic and non-academic staff, student counselors, postgraduate students, a group of undergraduate students (see Annex 2 persons met during the visit), and by peer observation of the teaching process (see Annex 3), by observing the facilities available at the DPE and the Faculty (see Annex 4) and by examining the documents provided by the DPE (see Annex 5).

Each of the aspects was judged as good/satisfactory/unsatisfactory, examining the strengths, good practices and weaknesses in each. Considering the judgment of the eight aspects, an overall evaluation is reported at the end of this report among the three judgments confidence/limited confidence/no confidence in the academic program.

## **2. BRIEF HISTORY OF THE UNIVERSITY, FACULTY AND THE DEPARTMENT**

The University of Peradeniya is the successor to the University of Ceylon established in 1942 as the first university in Sri Lanka. It was shifted to present site in Peradeniya in 1952. At present, it has eight faculties including the Faculty of Engineering. The Faculty of Engineering was established in 1950 and shifted to the present location from Colombo in 1964. It has now eight departments including six degree offering departments. In 2001, the faculty introduced the semester based course unit system by replacing the year long courses and year end examinations.

The vision of the DPE is to be the national centre providing the needed technological know-how and skills to the manufacturing sector in Sri Lanka.

The mission of the DPE is to acquire, promote, enhance and disseminate the required technological expertise to the industrial sector in order to enhance their products and services and in particular to train the present and future graduates with necessary skills to attain professional competence.

Currently annual intake of the faculty is 415 students and they want to follow a General Programme in Engineering during the first two semesters of study. From third semester onwards students specialized in Production Engineering and the current intake to the department is around 40. The DPE has conducted a taught postgraduate programme in the recent past, but, no records can be found about completion rate. A few graduate students who are currently involved in academic supportive works are registered for a part time M.Phil. Programme under the supervision of the department senior staff.

At present, the number of permanent staff engaged in teaching activities in the department is 05. One position exists for a technical officer and two for a clerk and a laborer.

A separate Faculty library is available for the use of the students both borrowing and reference and books can be also be borrowed from the main University library.

### **3. AIMS AND LEARNING OUTCOMES**

#### **3.1 Aims**

The aim of the department (according to SER) is to acquire, promote, enhance and disseminate needed technological expertise to the industrial sector in order to enhance their products and services and in particular to train the present and future generations with necessary skills to attain professional competencies.

#### **3.2 Learning Outcomes**

For the successful completion of the program of study leading to the award of the degree of Bachelor of Science of Engineering with and without Honours in the field of Production Engineering, students are expected to (as given in SER):

- Have a sound understanding of theory, laboratory practice and design and be able to apply this knowledge to the practice of engineering;
- Be capable of using appropriate engineering methods and tools including IT;
- Be capable of carrying out tasks as an individual and as a member of a team in multidisciplinary environments;
- Be able to effectively communicate technical information orally, in the form of drawings and reports, and by state-of-the art audio-visual techniques;
- Be critically aware of the impact of engineering activities on the social, industrial and physical environment in Sri Lanka and elsewhere;
- Be able to engage in independent learning and to keep abreast of up-to-date tools and techniques;
- Be able to act professionally and ethically and take responsibility within the limits of competence and;

- Be able to integrate the knowledge and understanding of mathematics, science, computer based methods, design in the economic, social and environmental context, and engineering practice, to solve engineering problems of a complex nature.

#### **4. FINDINGS OF THE REVIEW TEAM**

The Review Team findings are given in the following sub sections under the headings 4.1 through 4.8.

- Curriculum design, content and review
- Teaching, learning and assessment methods
- Quality of students including student progress and achievement
- Extent and use of student feedback
- Postgraduate studies
- Peer observation
- Skill development and
- Academic guidance and counseling.

##### **4.1 Curriculum Design, Content and Review**

A semester based curriculum of the department was introduced in 2001 with new by-laws relating to the Degree of Bachelor of the Science of Engineering at the Faculty of Engineering

This curriculum had been styled in conformity with the existing practices at the faculties of engineering at the Universities of Moratuwa and Ruhuna. Minor revisions of the curriculum were reported from time to time by taking into consideration of feedbacks from the graduates engaged in Peradeniya Engineering, Faculty Alumni Association (PEFAA) and practicing engineers in the industry through Industry-University Liaison Committee. However, the present curriculum has been adopted for more than 10 years and a major revision of the curriculum has not been considered yet catering for the needs of the industry and the Sri Lankan society.

On a general perspective, a clear indication of the attributes of engineering graduates with and without Honours is not provided. This is an important element that establishes the generic rules in setting up syllabi and program learning outcomes and has to be clearly and strongly stated.

The presence of two supportive departments namely Engineering Management and Engineering Mathematics in the faculty enhances the opportunities available to the students to widen their outlook and capabilities by acquiring knowledge and skills in non-technical modules.

From third year or semester 5 onwards, students are allowed to follow a number of modules under the categories of Technical and General Electives and they can earn 25% - 30% of the total credits required by the overall Programme by selecting suitable technical and general elective modules in order to get specialized knowledge on a particular areas under Production Engineering.

The department has recently undergone the accreditation process conducted by the Institution of Engineer Sri Lanka (IESL).

Documents were made available to the Review Team during the evaluation that displayed not only the outline syllabi of all modules but details such as module objectives, the coverage of contents, laboratory works as applicable, together with the time allocation for each topic. But, it was observed that for some of the modules Intended Learning Outcomes (ILOs) were not clearly stipulated.

The Review Team is of the view that the coverage of depth and breadth of the various modules in the curriculum would positively contribute to the formation of an engineering graduate well suited to meet the needs of the country.

The Review Team further notes, that the in-course assessment procedures are reviewed regularly and appropriate changes implemented by the Department as and when required.

*Even though a major curriculum revision has not taken place with the participation of relevant stakeholders, the above facts confirm that the Department has adopted its full strength in Curriculum Design, Content and Review.*

***In relation to the Curriculum Design, Content and Review, the rating of the Review Team is GOOD.***

#### **4.2 Teaching, Learning and Assessment Methods**

Workload of the student over a period of 8 Semesters is observed to be distributed uniformly (18 credits per semester) without overloading any particular semester. Teaching and Learning is facilitated through a combination of lectures, laboratory work, tutorials, project work, guest lectures, field visits and industrial training.

The method of evaluation adopted by the Department comprises of continuous assessment through laboratory work in selected modules, tutorials and assignments and the end of semester examination. Evidence was produced to the Review Team that the end of semester examination question papers in almost all the modules had been moderated by internal senior academics in the Faculty. But, it would be a more rigorous practice and ensure quality if moderations of the question papers are done by senior academics drawn from the Faculties of Engineering in other universities. Furthermore, the practice of overall moderation by an external examiner could also be introduced even though it is practically difficult under semester course unit system.

The commitment and dedication of the staff were evident by the fact that the results of the end of the semester examination are usually released within four weeks from the end of examinations.

The review Team observed a deficiency in supervision and participation of senior academics including module coordinators in conducting laboratory work. In addition, the laboratory reports submitted by the students at the conclusion of a laboratory session are scrutinized only temporary staff members (Instructors), in contrast to the practices observed elsewhere. These are matters of concern for the Review Team and thus recommended to be addressed by the DPE.

The Engineering Computing Centre facilitates about 200 users at a time for long hours (till 20:00 hrs). A Local Area Network links the Computing Centre with other units of the University. The speed of access to the Internet was observed to be appropriate.

The Faculty has a library with about 35,000 volumes and 43 subscribed journals to serve the academic community (staff and students). It provides books to students on loan for a period up to two weeks and for overnight reference. There exist other standard practices available in similar libraries for accessing wider resources. Differences of opinion between the library staff and the students surfaced regarding the availability of multiple copies of recommended textbooks.

Good practices adopted in other established faculties in respect of undergraduate projects and industrial training are in place in this Department too. Both the staff and students emphasized the usefulness of student presentations in the course of project work. It was reported that this would enhance their communication skills. This contributes significantly to the moulding of a well-rounded engineer with supplementary skills.

It is a matter of concern that the Department is severely handicapped due to an acute shortage of senior academic staff and those with professional qualifications related to engineering. This requires immediate attention of the higher authorities, especially in a situation where the Faculty is planning to increase its intake of students. The excessive dependency on visiting academic staff cannot be accepted as a solution to this issue.

The Review Team notes with satisfaction the use of modern technologies in the delivery of modules. Especially, the Department has established an e-learning culture among the students. The students have access to Faculty of Engineering e-Learning System (FEeLS) and find details of academic activities such as delivering of lecture materials, tutorials, assignments, projects and laboratory sessions. It was reported that this system facilitates discussion forums and chat sessions among staff and students and may create a better interactive teaching and learning environment.

The cleanliness and orderliness of lecture rooms, seminar rooms, drawing room, Computer centre and library deserve special mention.

*In spite of the few drawbacks identified by the Review Team, it is of their view that the teaching, learning and assessment methods currently in place are adequate to achieve the objectives that the Department had set for itself.*

***The Review Team rates this aspect as GOOD.***

#### **4.3 Quality of Students, including Student Progress and Achievements**

The intake to the Department for specialization in Production Engineering (PE) is based on both the preference and the performance during the first two semesters (General Programme) that are common to all students. However, it is noteworthy that the statistics provided by the department and the meeting with students prevail that a significant number of high achievers tend to opt for specialization in PE.

Although, it is perceived that students gaining admission to the Faculty of Engineering of the University of Peradeniya is of moderate achievers at the G.C.E. (A-Level), the DPE has been successful in producing good quality engineers acceptable to the industry.

It was also observed that in the General Convocation of the University, one of the Production Engineering Students has won a prestigious student award such as “Manamperi Award”.

Out of the past three batches (E02 in 2007, E03 in 2008 and E04 in 2009) of students numbering 95, all undergraduate have successfully completed the course. This can be considered as a creditable achievement by the Department.

Following the practices in other universities, the graduates with highest achievement have been absorbed to the academic staff as probationary lecturers while others have been employed as temporary instructors.

It is observed that the last three batches (E02 in 2007, E03 in 2008 and E04 in 2009) of graduates have successfully completed their studies and have secured employment. According to the SER, out of the 95 graduates produced by the Department, 5 have secured first classes while 12 have second class upper division passes. It was revealed during the discussion with the staff that some of these graduates have secured admission to read for PhDs in reputed foreign universities.

*The Review Team noted that the quality of students admitted to the Department has not been an impediment in producing good quality engineers. In this context, it is judged that the performance of the Department is commendable.*

***Thus, it is the view of the Review Team that the Quality of Students, Student Progress and Achievements of the Department be rated as GOOD.***

#### **4.4 Extent and Use of Student Feedback, Qualitative and Quantitative**

Evidence presented to the Review Team revealed the existence of two types of questionnaires given to the students at the end of each semester, with a view of obtaining feedback on the evaluation of,

- Course content, and
- Teacher performance.

Information received from students is available with the Head of Department and relevant teachers.

In addition to that the department maintains and analyzes students feedbacks based on web based (e-Learning System) forms which are filled by the students during mid of each semester.

Although the practice of compiling such information is commendable, the Review Team was not convinced that the information had been put to effective use by further analysis. This hinders the process of improving teaching quality.

It is reported that student representatives on the Faculty Board make regular representation regarding contemporary issues of importance to the student community.

*The Review Team observes that a concentrated effort must be made to make use of the feedback information that has been so carefully collected. It should continue to make use of this information to make qualitative and quantitative improvements in the teaching and learning process.*

***It is the view of the Review Team that the Extent and Use of Student Feedback of the Department be rated as SATISFACTORY.***

#### **4.5 Postgraduate Studies**

The SER submitted by the Department indicates that the Department had started a Postgraduate Programme in Management Engineering in 2000. But, details about the first intake and the completion rate of the programme are not reported precisely. At present, there is no evidence of conducting a Postgraduate Programme on a regular basis. The acute shortage of qualified senior staff has resulted in the delay of such commencement of postgraduate programs. This is an important aspect that would have a spil-over effect on the undergraduate program as well.

Senior staff members of the Department are currently supervising 4 M.Phil students who are registered through the Department in Engineering Research and Postgraduate Studies Unit of the University of Peradeniya.

At present, two probationary lecturers are undergoing overseas postgraduate training, a requirement in their carrier development. One lecturer is attached to National University of Singapore, specializing in Control of Manufacturing Systems. Other probationary lecturer is undertaking research in Performance Measurement Methods and Application of Industrial Assets at University of Stravanger, Norway. During the discussions the Team had with both staff and the students, it was made clear that the Department currently lacks both human and physical resources for future expansion in postgraduate programs

With the return of the staff undergoing training abroad, the capacity to undertake research and launch postgraduate programme is likely to improve.

There are positive indicators for better prospects in the near future if the University makes a concerted effort to create an environment conducive for postgraduate activities.

*The Review Team observes the prevailing situation as one in which the Department by itself has no control.*

***It is the view of the Review Team that the Postgraduate Studies of the Department be rated as SATISFACTORY.***

#### **4.6 Peer Observation**

There are no formal arrangements to conduct peer observations in the classroom sessions. Even there is no evidence about informal peer interactions taking place in the Department as meetings are not held regularly. The Review Team strongly recommends that the formal classroom peer observation and evaluation mechanism be introduced.

*It was evident from the interactions the review team had with the staff, non-familiarity of this practice, possibly due to the lack of senior academic staff and insufficient evidence of informal peer reviewing. However, it is observed that serious consideration is being given to formalize this peer reviewing process in the near future.*

***It is the view of the Review Team that the present status of the Peer Observation adopted by the members of the staff be rated as SATISFACTORY.***

#### **4.7 Skills Development**

Skills development process forms a part of the curriculum and it is evident from the initiative taken to offer many modules related to skills development in several stages. The English Language Teaching Unit (ELTU), the supportive departments of Mathematics and Management and other departments in the University continue to provide the services by teaching the communication skills in the formative stages and several other modules in non-engineering electives in the later semesters. These modules include personnel development, humanities and social sciences, economics and finance, and management and entrepreneurship.

The Department has made arrangements to support the development of practical communication skills in making presentations using information and communication technologies. A case in point is the presentations the students are required to make during the final year in relation to the research and industrial projects.

The healthy habit of arranging eminent personalities to deliver guest lectures at regular intervals is viewed as a positive development.

*The Review Team views the achievements of the Department on this regard successful and beneficial to the students.*

***In relation to the Skill Development, the rating of the Review Team is GOOD.***

#### **4.8 Academic Guidance and Counseling**

Well established and fully functional academic guidance and counseling system is in place. During the formative years (first phase – first two semesters) each student is assigned an academic staff member from the Faculty, whilst an academic advisor from the Department is assigned to the student when they are pursuing their studies in the field of specialization (second phase – third to eighth Semester).

The advisers role during the first phase would be to facilitate smooth transition from widely varying socio economic and competitive environment in which they received their secondary education to one in which they are to embark on tertiary education in University environment, where they become self reliant and acquire maturity. They also provide general academic guidance and monitor the student discipline related behaviour while on campus.

Encouraged by the positive outcomes of academic counseling, the faculty has ventured into a new arrangement, where the role of the academic councilor has been enlarged to that of a mentor.

*The Review Team is highly impressed by the approach adopted by the Faculty in general, and the Department in particular, in developing an excellent staff student relationship resulting from the academic guidance and mentoring arrangement in place.*

***It is the view of the review team that the present situation with regard to Academic Guidance and Counseling adopted by the Department be considered as GOOD.***

## 5. CONCLUSION

**Curriculum Design, Contents and Review:** The Department has been able to do minor revision to its existing curriculum taking into consideration the views of all stakeholders. It is noted as difficult for the department to take initiative to make major revision to the curriculum unless the Faculty makes a collective effort to make way for it. The Review Team indicates its satisfaction to the minor changes affected to the existing curriculum. Judgment: *Good*.

**Teaching, Learning and Assessment Methods:** Despite the fact that there is an acute shortage of academic staff in the Department, it was evidence that teaching, learning and evaluation is carried out through a combination of lectures, tutorials, laboratory work and assignments, field visits as applicable and the end of semester examination. The work load of the students was observed to be evenly distributed over the 8 semesters. The Review Team recommends that the laboratory work be carried out under the supervision of academic staff, and not solely by the academic supportive staff. Judgment: *Good*.

**Quality of Students, including Student Progress and Achievement:** The final results of the three batches (E02, E03 and E04) who have completed the Degree program indicate that a success rate of almost 100%. Almost all of them have obtained full employment while a few have been able to secure admission in reputed foreign universities for higher studies. Judgment: *Good*.

**Extent and Use of Student Feedback:** The Review Team notes with satisfaction the collection of feedback information compiled by the Department with reference to the evaluation of course contents and Teacher performance. However, the review team is not convinced that this information is made use of effectively for qualitative and quantitative improvement in the teaching and learning. Judgment: *Satisfactory*.

**Postgraduate Studies:** The Review Team was presented with evidence that the Department had attempted to start a Postgraduate Programme in Manufacturing Engineering in past time, but had not been successful due to shortage of senior staff members and various other reasons. However, in the absence of adequate senior staff, it is unlikely that the Department could show any meaningful progress in postgraduate studies in the foreseeable future. Judgment: *Satisfactory*.

**Peer Observation:** This process is observed to be still in the formative stage and needs to be further developed. Judgment: *Satisfactory*.

**Skills Development:** The existence of supportive departments of Mathematics and Management and English Language Teaching Unit (ELTU) at the Faculty of Engineering to

provide services to other academic Departments is a good practice. The students have the choice of non-engineering modules to choose from. This is laudable. Judgment: *Good*.

**Academic Guidance and Counseling:** There is a well developed academic guidance and counseling system in place. Judgment: *Good*.

Based on the observations made during the visit by the Review Team, the eight aspects under reference are judged as follows:

<b>Aspect Reviewed</b>	<b>Judgment</b>
Curriculum Design, Content and Review	Good
Teaching, Learning and Assessment Methods	Good
Quality of Students including Student Progress and Achievements	Good
Extent and Use of Student Feedback, Qualitative and Quantitative	Satisfactory
Postgraduate Studies	Satisfactory
Peer Observation	Satisfactory
Skills Development	Good
Academic Guidance and Counselling	Good

## **6. RECOMMENDATIONS**

The Review Team makes following recommendations to improve the quality of teaching, learning and evaluation process. The recommendations are given under three categories titled ‘human resources’, ‘physical resources’ and ‘procedures and processes’.

### **Human Resources**

- Although, provision is made for adequate cadre positions in the DPE, recruitment and retention of senior staff is observed to be difficult. As a result there is a heavy dependency on temporary and visiting staff. The University should make a concerted effort to attract and retain qualified academic staff. Involving qualified Visiting Staff is much encouraged.
- It is recommended that the junior academic staff is provided with training required for their promotion and the non-academic staff with training required for handling respective equipment and their maintenance.
- Department should extend its efforts to enhance the number of staff with relevant professional qualifications.

### **Physical Resources**

- The physical facilities available such as office room space for lecturers and laboratory space in the Department are inadequate. Acquiring new equipment in the areas of traditional Production Engineering including measuring instrumentation is recommended.

- The computer laboratory in the Department has a very few computers and it is difficult to conduct an application software class in it. Continuous updating of the computer laboratory, IT equipment and software is recommended.

### **Procedures and Practices**

- A major curriculum revision with the supports of other departments of the Faculty and all stakeholders is recommended.
- Question Papers of end-semester examinations are recommended to be sent to outside moderators, especially relevant senior academics in other Engineering faculties. Examination paper moderation should be made more formal and comments recorded/archived. Further, encourage model solutions during moderation
- Proper use of the information collected from the student feedback to improve the teaching-learning process is recommended.
- Department could envisage establishing an IT based Management Information System (MIS)
- General non-participation of senior staff in conducting laboratory classes and leaving this activity in the hands of the temporary staff is inappropriate. The Review Team recommends that the senior academic staff take active participation in Laboratory teaching. Department should envisage having more field/industry visits for the students to get more confidence in applications and use of engineering principles/design

## 7. ANNEXES

### Annex 1. ITINERARY OF THE 3 DAY VISIT

#### Day – 1 (1: 28<sup>th</sup> March 2011)

From	To	Activity
08.00	09.00	Private Meeting of Review Panel with QAA Council Representatives
09.00	09.30	Discuss the Agenda for the Visit
09.30	10.30	Meeting with the Dean Faculty of Engineering
10.30	11.30	Department Presentation on the Self Evaluation Report (Working Tea)
11.30	12.30	Discussion
12.30	13.30	Lunch
13.30	14.30	Meeting with Department Academic Staff
14.30	15.00	Observing Practical Classes
15.00	16.00	Observing other facilities of other entities support Production Engineering degree programme
16.00	17.00	Observing Practical Classes
17.00	18.00	Brief Meeting of Reviewers

#### Day – 2 (1: 29<sup>th</sup> March 2011)

From	To	Activity
09.00	09.30	Observing Teaching – Lecture session
09.30	10.00	Observing Teaching – Practical Class
10.00	11.00	Observing Documents (working tea)
11.00	11.30	Observing Teaching – Lecture session
11.30	12.30	Observing Departmental Facilities
12.30	13.30	Lunch
13.30	14.00	Observing Teaching – Lecture session
14.00	14.30	Meeting with Postgraduate Students
14.30	15.00	Meeting with Student counselors / Academic Advisors
15.00	15.45	Observing Students' presentations
15.45	16.30	Meeting with Undergraduate Students
16.30	17.30	Meeting of Reviewers

#### Day – 3 (1: 30<sup>th</sup> March 2011)

From	To	Activity
08.00	09.30	Students' Presentations
09.30	10.15	Meeting with Technical Staff and Other Non-Academic Staff
10.15	11.00	Reviewers Private Discussions
11.00	12.00	Meeting with Head and Staff for Reporting
12.00	13.00	Lunch

## **Annex 2. PERSONS MET DURING THE VISIT**

### **Academic Staff Members**

Prof. S.D. Pathirana, Professor, Dept. of Production Engineering  
Dr. V. Gowreesan, Senior Lecturer, Dept. of Production Engineering  
Mr. A.K. Kulathunga, Lecturer, Dept. of Production Engineering  
Mr. R.D.M.M. Rajamuni, Lecturer, Dept. of Production Engineering  
Mr. R.A. Ekanayake, Lecturer, Dept. of Production Engineering  
Mr. P. Gamage, Lecturer, Dept. of Production Engineering  
Mr. R.P. Manorathna, Lecturer (Temporary), Dept. of Production Engineering

### **Non - Academic Staff Members**

Mr. W. Raj Epa, Technical Officer, Dept. of Production Engineering  
Mr. A.K. Basnayake, Clerk, Dept. of Production Engineering  
Mr. K.M. Bandula Bandara, Laborer, Dept. of Production Engineering  
Mr. R.A. Samarakoon, Mechanic, Engineering Work shop  
Mr. M.G.C.U.P. Egodawatta, Mechanic, Engineering Work shop

### **M.Phil. Students**

04 Nos.of Students

## **Annex 3. TEACHING SESSIONS OBSERVED**

1. Lecture (GP113: Fundamentals of Manufacturing, First Academic Year by Dr. Manjula Nanayakkara)
2. Lecture (PR302: Production Planning and Control II , Semester 6 by Mr. Asela Kulathunga)
3. Practical (PR308: Production Engineering )
4. Practical (GP113Fundamentals of Manufacturing)
5. Practical (GP108: Electricity )

## **Annex 4. FACILITIES OBSERVED**

1. Lecture theatres
2. All laboratories
3. Office space and staff rooms
4. Faculty library and computer centre

## **Annex 5. DOCUMENTS OBSERVED**

1. Lecture notes and tutorials
2. Laboratory (Practicals) sheets – Old and new curriculum
3. Module contents – Old andnew curriculum
4. Lists of academic advisors
5. Training programmes offered
6. Academic calendar
7. Corporate plan
8. Result sheets
9. Industrial visits (places)
10. List of examiners and moderators
11. Moderator comments on question papers

12. Marked assignments (Course work reports on practicals)
13. Industrial training analysis
14. Graduates feed back on old curriculum
15. Questionnaire for final year students and fresh graduates
16. Students hand book 2010
17. Amended rules and regulations together with students comments
18. Minutes of Departmental meetings
19. Personal files of lectures who are on study leave
20. Reports on industrial training and daily diaries
21. Project reports