PAKISTAN INSTITUTE OF DEVELOPMENT ECONOMICS, ISLAMABAD

Department of Econometrics and Statistics

Self-Assessment Report

For

MSc Econometrics and Statistics
Faculty Members

Dr. Abdul Qayyum                  Head of Department
Dr. Muhammad Iqbal               Chief of Research
Dr. Sofia Ahmed                  Research Economist
Ms. Amena Urooj                  Assistant Professor
Ms. Saba Anwar                   Assistant Professor
Ms. Saima Bashir                 Assistant Professor
Dr. Zamir Hussain                Lecturer
Ms. Hafsa Hina                   Lecturer

Programme Team

Ms Amena Urooj,                  Assistant Professor
Dr. Zamir Husair,                Lecturer
PIDE VISION

PIDE to Function as a World Class Centre of Excellence for Research and Teaching

PIDE MISSION

A world-class research and teaching institute building on the strengths and high standards it has achieved over the last fifty years.
CRITERION 1: PROGRAM MISSION, OBJECTIVES AND OUTCOMES (S: 4)

Standard 1.1: The program must have documented measurable objectives that support college and institution mission statements.

Vision:
To develop a department as a world class center of excellence in econometrics

Mission:
To produce highly skilled econometricians by imparting state of the art knowledge in econometric theory, statistical methods and their applications in diversified fields.

Objectives:
1. To provide theoretical knowledge: these include basic econometric theory, applied econometrics, time series analysis, financial econometrics and micro econometrics.
2. To teach application of theories: there is an emphasis on the application of econometrics and statistics, through exercises and seminars, to policy issues and empirical questions.
3. To provide skills to use Econometrics and Statistical packages.
4. Awareness about the different national and international sources of data.
**Standard 1.2**: The program must have documented outcomes for graduating students. It must be demonstrated that the outcomes support the program objectives and that graduating students are capable of performing these outcomes.

**Table 1.1: Program Objective Assessment**

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Objective</th>
<th>How Measured</th>
<th>When measured</th>
<th>Improvement Identified</th>
<th>Improvement Made</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>To Provide Theoretical Knowledge</td>
<td>Appendix (C) Performa 03; Question (4, 8, 9, 10) Performa 05; Question (15, 16) Performa 07; (Sec 1, Question 03, Section 05)</td>
<td>Spring 2012 (25 May 2012)</td>
<td>Satisfied</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>To Teach Application of Theories</td>
<td>Appendix (C) Performa 03; Question (4, 8, 9, 10) Performa 05; Question (15, 16) Performa 07 See 1, Question (02, 03, 04, 06), Section 05, Sec 7, Question 1</td>
<td>-Do-</td>
<td>Satisfied</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>To Provide Skills To Use Econometrics And Statistical Packages</td>
<td>Appendix (C) Performa 03; Question (5, 8, 9, 10, 11, 12) Performa 05; Question (15, 16) Performa 07; Sec 1, Question (02, 03, 04, 06), Section 05, Sec 7 Question 1</td>
<td>-Do-</td>
<td>Need for separate computer labs for econometrics with latest Statistical Packages.</td>
<td>Purchase of Statistical Packages • E-Views • Ox-Metrics 6</td>
</tr>
<tr>
<td>4.</td>
<td>Awareness About The Different National And International Source Of Data</td>
<td>Appendix (C) Performa 3; Question (5, 8, 9, 10, 11, 12) Performa 05, Question (15, 16) Performa 07, Sec 1, Question (02, 03, 04, 06) Section 05, Sec 7; Question 1</td>
<td>-Do-</td>
<td>Satisfied</td>
<td></td>
</tr>
</tbody>
</table>
**Standard 1.3:** The results program’s assessment and the extent to which they are used to improve the program must be documented.

<table>
<thead>
<tr>
<th>Program</th>
<th>Strengths</th>
<th>Weaknesses</th>
<th>Future Development</th>
<th>Activities taken for improvements</th>
</tr>
</thead>
<tbody>
<tr>
<td>M.Sc Econometrics and Statistics</td>
<td>Student Teacher ratio</td>
<td>Low Student enrollment</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Highly qualified faculty</td>
<td>No Departmental Library Facilities</td>
<td>Proposal for HEC grant for the construction of departmental library is under process</td>
<td></td>
</tr>
<tr>
<td>Curricula in line with international standards</td>
<td>Advance Statistical Packages are needed to cater future needs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Well established computer labs, lecture room and video conferencing lab</td>
<td></td>
<td></td>
<td>Recently purchase Eviews 7, OxMetrics 6 and MiFit</td>
<td></td>
</tr>
<tr>
<td>Very good infrastructure to support teaching and research program</td>
<td>More space is required to accommodate the need of increased number of students</td>
<td></td>
<td>Two new Academic Blocks are constructed.</td>
<td></td>
</tr>
</tbody>
</table>
Standard 1.4: The department must assess its overall performance periodically using quantifiable measures.

**Table 1.3: Student’s Enrollment**

<table>
<thead>
<tr>
<th>Year</th>
<th>Graduate</th>
<th>Student Faculty Ratio</th>
<th>Average GPA</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>7</td>
<td>7:5</td>
<td>2.99</td>
</tr>
<tr>
<td>2009</td>
<td>13</td>
<td>13:7</td>
<td>3.14</td>
</tr>
<tr>
<td>2010</td>
<td>10</td>
<td>10:8</td>
<td>3.1</td>
</tr>
</tbody>
</table>

Did the department conduct employer survey? (Use employer survey form)
(1) No; Department of Econometrics and Statistics was established with an initial enrollment of 7 students in 2008. So employer survey is not possible at this stage as department is newborn.

Did the department get filled out student’s course evaluation form by the students? (Use of Student Course Evaluation Form)
(2) Yes

**Table 1.4: Departmental Overall Performance**

<table>
<thead>
<tr>
<th>Name of Faculty member</th>
<th>Journal Publications (HEC Recognized only) and Conference publications</th>
</tr>
</thead>
</table>
5. Khan, Muhammad Arshad and A. Qayyum, 2011, Exchange Rate Determination in Pakistan: Role of Monetary Fundamentals, the Journal of Economic Cooperation and Development, Volume 32, Number 2  
<table>
<thead>
<tr>
<th></th>
<th>Publication Details</th>
</tr>
</thead>
</table>


<table>
<thead>
<tr>
<th>Dr. Muhammad Iqbal</th>
</tr>
</thead>
<tbody>
<tr>
<td>4. “Sustainable Cotton Production through Skill Development among Farmers: Evidence from Khairpur District of Sindh,</td>
</tr>
</tbody>
</table>


Dr. Muhammad Arshad Khan


| Demand in Pakistan: A Disaggregate Analysis,"MPRA Paper 15056, University Library of Munich, Germany. |

| Dr. Zamir Hussain |
CRITERION 2: CURRICULUM DESIGN AND ORGANIZATION

A. Programme Title:
M. Sc Econometrics and Statistics

B. Definition of Credit Hour
It is three hour teaching per week.

C. Scheme of Studies for the Degree of M. Sc Econometrics and Statistics

Table 2.1: Scheme of Study

<table>
<thead>
<tr>
<th>Course code</th>
<th>Course Title</th>
<th>Pre-Requisite</th>
<th>Core/Optional</th>
</tr>
</thead>
<tbody>
<tr>
<td>ETS-501</td>
<td>Microeconomic Theory</td>
<td></td>
<td>Core</td>
</tr>
<tr>
<td>ETS-504</td>
<td>Macroeconomic Theory</td>
<td></td>
<td>Core</td>
</tr>
<tr>
<td>ETS-510</td>
<td>Probability Theory I</td>
<td></td>
<td>Core</td>
</tr>
<tr>
<td>ETS-515</td>
<td>Statistical Methods</td>
<td></td>
<td>Core</td>
</tr>
<tr>
<td>ETS-530</td>
<td>Mathematical Methods</td>
<td></td>
<td>Core</td>
</tr>
<tr>
<td>ETS-511</td>
<td>Probability Theory II</td>
<td>ETS-510</td>
<td>Core</td>
</tr>
<tr>
<td>ETS-516</td>
<td>Statistical Inference I</td>
<td></td>
<td>Core</td>
</tr>
<tr>
<td>ETS-540</td>
<td>Basic Econometrics</td>
<td></td>
<td>Core</td>
</tr>
<tr>
<td>ETS-520</td>
<td>Sampling Techniques</td>
<td></td>
<td>Core</td>
</tr>
<tr>
<td>ETS-533</td>
<td>Stochastic Processes</td>
<td></td>
<td>Core</td>
</tr>
<tr>
<td>ETS-541</td>
<td>Econometrics Methods</td>
<td>ETS-540</td>
<td>Core</td>
</tr>
<tr>
<td>ETS-517</td>
<td>Statistical Inference II</td>
<td>ETS-516</td>
<td>Core</td>
</tr>
<tr>
<td>ETS-543</td>
<td>Time Series Econometrics I</td>
<td>ETS-540</td>
<td>Core</td>
</tr>
<tr>
<td>ETS-544</td>
<td>Time Series Econometrics II</td>
<td>ETS-543</td>
<td>Core</td>
</tr>
<tr>
<td>ETS-522</td>
<td>Simulation Techniques</td>
<td></td>
<td>Core</td>
</tr>
<tr>
<td>ETS-546</td>
<td>Applied Financial Econometrics</td>
<td></td>
<td>Core</td>
</tr>
<tr>
<td>ETS-561</td>
<td>Bayesian Econometrics</td>
<td></td>
<td>Optional</td>
</tr>
<tr>
<td>ETS-519</td>
<td>Multivariate Statistics</td>
<td></td>
<td>Optional</td>
</tr>
<tr>
<td>ETS-562</td>
<td>Micro-Econometrics</td>
<td></td>
<td>Optional</td>
</tr>
<tr>
<td>ETS-550</td>
<td>Statistical Packages</td>
<td></td>
<td>Optional</td>
</tr>
<tr>
<td>ETS-555</td>
<td>Non-Parametric Statistics &amp; Categorical Data</td>
<td></td>
<td>Optional</td>
</tr>
<tr>
<td>ETS-523</td>
<td>Official Statistics</td>
<td></td>
<td>Optional</td>
</tr>
<tr>
<td>ETS-571</td>
<td>Panel Data Analysis I</td>
<td></td>
<td>Optional</td>
</tr>
<tr>
<td>ETS-572</td>
<td>Panel Data Analysis II</td>
<td></td>
<td>Optional</td>
</tr>
<tr>
<td>ETS-552</td>
<td>Exploratory Data Analysis</td>
<td></td>
<td>Optional</td>
</tr>
<tr>
<td>ETS-599</td>
<td>Thesis</td>
<td></td>
<td>Optional</td>
</tr>
</tbody>
</table>
### Table 2.2: Course Requirements

<table>
<thead>
<tr>
<th>Semester</th>
<th>Course code</th>
<th>Core Course Title</th>
<th>Optional Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>ETS-501</td>
<td>Microeconomic Theory</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ETS-504</td>
<td>Macroeconomic Theory</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ETS-510</td>
<td>Probability Theory I</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ETS-515</td>
<td>Statistical Methods</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ETS-530</td>
<td>Mathematical Methods</td>
<td></td>
</tr>
<tr>
<td>II</td>
<td>ETS-511</td>
<td>Probability Theory II</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ETS-516</td>
<td>Statistical Inference I</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ETS-540</td>
<td>Basic Econometrics</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ETS-520</td>
<td>Sampling Techniques</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ETS-533</td>
<td>Stochastic Processes</td>
<td></td>
</tr>
<tr>
<td>III</td>
<td>ETS-541</td>
<td>Econometrics Methods</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ETS-517</td>
<td>Statistical Inference II</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ETS-543</td>
<td>Time Series Econometrics I</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ETS-</td>
<td>Optional Course</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ETS-</td>
<td>Optional Course</td>
<td></td>
</tr>
<tr>
<td>IV</td>
<td>ETS-544</td>
<td>Time Series Econometrics II</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ETS-522</td>
<td>Simulation Techniques</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ETS-546</td>
<td>Applied Financial Econometrics</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ETS-</td>
<td>Optional Course</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ETS-</td>
<td>Optional Course</td>
<td></td>
</tr>
</tbody>
</table>

**List of Optional Courses**

<table>
<thead>
<tr>
<th>Course code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ETS-561</td>
<td>Bayesian Econometrics</td>
</tr>
<tr>
<td>ETS-519</td>
<td>Multivariate Statistics</td>
</tr>
<tr>
<td>ETS-562</td>
<td>Micro-Econometrics</td>
</tr>
<tr>
<td>ETS-550</td>
<td>Statistical Packages</td>
</tr>
<tr>
<td>ETS-555</td>
<td>Non-Parametric Statistics &amp; Categorical Data</td>
</tr>
<tr>
<td>ETS-523</td>
<td>Official Statistics</td>
</tr>
<tr>
<td>ETS-571</td>
<td>Panel Data Analysis I</td>
</tr>
<tr>
<td>ETS-572</td>
<td>Panel Data Analysis II</td>
</tr>
<tr>
<td>ETS-552</td>
<td>Exploratory Data Analysis</td>
</tr>
</tbody>
</table>

| Total       | 16 | 9 |
| Minimum Requirement | 16 | 4 |
E. Course Contents

Department of Econometrics and Statistics

Course Contents

CORE COURSES:

ETS-501  Microeconomic Theory  [credits 3]

Pre Requisite: Nil

Theory of consumer behavior and demand analysis; Market demand and elasticity; production functions; cost of production; profit maximization and supply; the theory of market behavior; monopoly; monopolistic competitive conditions; oligopolistic conditions; pricing of factors of production.

Text Book


Recommended Books


ETS-504  Macroeconomic Theory  [credits 3]

Pre Requisite: Nil

Basic concepts of macroeconomics; national income; theories of consumption and their implications; saving and investment; money market: the demand and supply of money; aggregate demand, supply and stabilization policy; long run economic growth; the
demand and supply of money; the IS-LM analysis; economic fluctuations and business cycles.

**Text Books**


**Recommended Books**


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**ETS-510 Probability Theory-I**

[credits 3]

**Pre Requisite: Nil**


**Text Books**


Books Recommended


ETS-515 Statistical Methods [credits 3]

Pre Requisite: Nil

Population, sample, Parameter, Statistic, Applications of Binomial, poisson and Normal distributions, Basic Sampling distributions (Chi-square, t and F) and their quantiles, Type I and Type II errors, confidence interval, estimation, testing, simple and composite hypotheses about means, proportions, variances, regression coefficient and correlation coefficients, power and O.C. Functions, goodness of fit test, Independence in contingency tables, test of normality and randomness, Introduction to one statistical package like MINITAB, SPSS etc.

Text Book


Books Recommended

ETS-530  Mathematical Methods  [credits 3]

Pre Requisite: Nil

Text Book

Books Recommended:
4. Kaplan, W.C. Advance Calculus, Addison and Wiley

ETS-511  Probability Theory-II  [credits 3]

Pre-requisite: ETS-510 Probability Theory-I
Text Books

Books Recommended

ETS-516 Statistical Inference-I [credits 3]

Pre Requisite: Nil

Text Book

Books Recommended
ETS-540 Basic Econometrics [credits 3]

Pre Requisite: Nil

Simple linear regression: Assumptions and least squares estimates, General linear model: Least Squares solution, maximum likelihood estimators, test of hypotheses and confidence intervals about parameters, Residual Analysis: Testing and dealing with multicolinearity, heterosecdasticity and auto-correlation, Use of instrumental, lagged and dummy variables, Simulation of Beta

Text book


Books Recommended


ETS-520 Sampling Techniques [credits 3]

Pre Requisite: Nil

Description and properties of simple random sampling. Sampling for proportions and percentages. Estimation of variances, standard errors and confidence limits. Sample size determination under different conditions. Description and properties of stratified random sampling. Formation of strata, Different methods of allocation of sample size. Systematic sampling. Ratio and regression estimates, Best linear unbiased estimator (BLUE), Lahiri, Midzuno and Hartley-Ross estimators. The linear regression estimator under a linear model, Cluster sampling, Sampling with probability proportional to size (PPS) (with and without replacement), Double Sampling, Multistage sampling, Multiphase sampling and Questionnaire Designing.

Text Book

Books recommended

**ETS-533**  Stochastic Processes  
**[credits 3]**  
**Pre Requisite:** Nil  
**Course Contents:**


**Books Recommended**


**ETS-541**  Econometrics Methods  
**[credits 3]**  
**Pre-requisite:** ETS-540 Basic Econometrics  
**Text Book**


**Books Recommended**


**ETS-517 Statistical Inference-II** [credits 3]

**Pre-requisite: ETS-516 Statistical inference-I**


**Text Book**


**Books Recommended**


ETS-543 Time Series Econometrics-I [credits 3]

Pre-requisite: ETS-540 Basic econometrics

Decomposition of Time Series, Stochastic Process, Stationary Time-Series, Exponential smoothing techniques, auto-correlation and auto-covariance, estimates functions and standard error of the auto-correlation function (ACF) and PACF, spectral density functions, comparison with ACF, Linear stationary models: Auto regressive, Moving Average and mixed models, Nonstationary models, general ARIMA notation and models, minimum mean square forecasting. ARIMA Seasonal Models, ARCH, Garch Model, Forecasting and application with monetary and macro data

Text book

Books Recommended


ES-544 Time Series Econometrics II [credits 3]

Pre-requisite: ETS-543 Time Series Econometrics-I

Testing for unit roots in univariate and multivariate time series, Vector Autoregressive Models(VAR), Unrestricted and restricted VAR, Impulse response function, Bivariate Granger Causality, Transfer Function models, Their identification, fitting and checking, Intervention analysis models, Outlier analysis for time series, Co integration, Testing of Hypothesis about Cointegration, Estimation of Vector Error Correction Model(VECM), Kalman Filter and State Space.

Text book


Recommended Books:


Simulation Techniques

Pre Requisite: Nil


Books Recommended


Pre Requisite: Nil

Stochastic Processes and Financial time series, Shock Persistence and impulse response analysis, Estimating Capital Asset Pricing Models (CAPM), Modeling of equity returns, trading day effects, and volatility estimations. In addition, recent advancements in financial time series including the unit root phenomenon, co-integration, Autoregressive Conditional Heteroscedasticity (ARCH) and Generalized Autoregressive Conditional Heteroscedasticity (GARCH), stochastic volatility modeling, trend break analysis and nonlinearity will be covered. Measure of Stock Market Integration, varying parameters.

Text Books
1. Articles Based Latest Books

Books Recommended

OPTIONAL COURSES

ETS-561 Bayesian Econometrics [credits 3]

Pre Requisite: Nil

Prior information, prior distributions, methods of elicitation of prior distributions, posterior distributions: the posterior mean, medians (Bayes estimator under loss functions) and variances of univariate and bivariate posterior distributions, noninformative priors: methods of elicitation of non informative priors, Bayesian hypotheses testing: bayes factor; the highest density region; posterior probability of the hypothesis.
Text Book


Books recommended


ETS-519 Multivariate Statistics [credits 3]

Pre Requisite: Nil
Multivariate normal distribution, Distribution of linear function of normal variates, Distribution of quadratic forms, Wishart distribution, Hotelling’s $T^2$ distribution, canonical variate analysis, discriminant analysis, principal component and factor analysis, factor analysis versus principle component analysis, cluster analysis, MANOVA

Text Book


Books Recommended


**ETS-562Micro- Econometrics**

**Pre Requisite:** Nil

Discrete choice models, Truncated and censored regression models, Duration models, Quantile regression, Variance estimation and power, Bootstrapping, Non-parametric, regression and matching, Heckman bivariate normal selection model, Instrumental variables models, Regression discontinuity designs, Difference-in-differences and panel data models.

**Books recommended**

2. Cameron, Colin and Pravin Trivedi (2005), Microeconometrics: Methods and Applications, Cambridge University Press.

**ETS-550 Statistical Packages**

**Pre Requisite:** Nil

Three statistical packages will be offered from the following statistical packages for the application of statistical techniques.

- SAS, SPSS, EVIEWS, STATA, PC GIVES, MINITAB
Pre Requisite: Nil
Scales of measurement, Non-parametric problems, when to use non parametric procedures, parametric versus nonparametric tests, Trimmed and Winsorized means, One sample tests: binomial test, Sign test, wilcoxon signed ranks test, Rank sum test, Kolmogrov-Smirnov test, rum test, Tests for two related samples: sign test, run test, Chi-Square test, Test for two independent samples: Mann-whitney test, Medain test, Chi-Square test, Wald-wolfwitz test, Kolmogrov-smirnov test. Categorical data, association in r × c contingency tables, Partition of $\chi^2$, binomial and Poisson, Homogeneity tests, Log-Linear models

Books recommended
10. Everitt, B.s. the analysis of contingency table (1977)
ETS-523    Official Statistics    [credits 3]

Pre Requisite: Nil

Population and Demographic Methods, Sources of Demographic data, Testing of accuracy of
demographic data, Basic demographic measures, Life tables, Population estimates and projections,
Statistical Systems in Pakistan, Statistics Divisions and Bureaus of Statistics: their functioning and
publications. National Accounts: measures of production, income and expenditure, the national
income and product, Gross Domestic product, saving and Wealth, Index Numbers, Social
Indicators, capital market data: KSE indices, SBP indices, International Statistics.

RECOMMENDED BOOKS:

1. Govt. of Pakistan, Provisional Results of Fifth Population and Housing Census
   held in March 1998, P.C.O. Islamabad.
   (1982).
4. Speigleman, M. Introduction to Demography, Cambridge University Press,
5. Publications of Statistics Division I, State Bank of Pakistan, provisional Bureaus
   of Statistics and other Departments.

ETS-571    Panel Data Analysis I    [credits 3]

Pre Requisite: Nil

Introduction to Panel Data, its Benefits and Limitations, one-way and two-way error component
regression models, Fixed Effect and Random Effect Models, Maximum Likelihood Estimation,
prediction, Hypothesis Testing with Panel Data, test for poolability of data, test for individual and
time effects, Hausman’s specification tests, Heteroskedasticity and Serial Correlation, Seemingly
Unrelated Regressions, one way and two way model with applications, Simultaneous Equations
with error Components, single equation and system estimation.

Recommended Books:

ETS-572  Panel Data Analysis II  [credits 3]

**Pre Requisite: ETS-571 Panel Data Analysis I**
Dynamic Panel data models, Unbalanced Panel Models, Unbalanced one-way and two-way error component models, testing for individual and time effects using Unbalanced Panel data, the unbalanced nested error component models, limited dependent variable and panel data, fixed and random Logit, Probit and Tobit models, simulation, estimation of limited dependent variable models, heterogeneity and selection bias in panel data, Nonstationary Panels, panel unit root test, spurious regression in panel data, panel co integration test.

**Recommended Books:**

ETS-552  Exploratory Data Analysis  [credits 3]

**Pre Requisite: Nil**
Exploratory Data Analysis (EDA) is an approach/philosophy for data analysis that employs a variety of techniques (mostly graphical) to maximize insight into a data set; uncover underlying structure; extract important variables; detect outliers and anomalies; test underlying assumptions; develop parsimonious models; and determine optimal factor settings.

**Text Book**

ETS-599  THESIS  [credits 6]

A practical statistical project involving non-trivial statistical methodology. The project may stress a phases of the statistical process from the design aspects or data collection to data analysis and the complete analysis must be written in a formal way. A good review of literature related to topic of project will also be included in the thesis.
Standard 2.1: The curriculum must be consistent and supports the program’s documented objectives.

Table 2.3: Course Objectives

<table>
<thead>
<tr>
<th>Objectives</th>
<th>Courses</th>
</tr>
</thead>
</table>

Standard 2.2: Theoretical background, problems analysis and solution design must be stressed within the program’s core material.

Table 2.4: Program’s Core Material

<table>
<thead>
<tr>
<th>Elements</th>
<th>Courses</th>
</tr>
</thead>
</table>
Standard 2.3: The curriculum must satisfy the core requirements for the program, as specified by the respective accreditation body.

The curriculum satisfies both the core requirements of credit hours and criteria of admission laid down by PIDE and HEC.

Standard 2.4: The curriculum must satisfy the major requirements for the program as specified by the respective accreditation body.

The curriculum satisfies the major requirements for the program as specified by HEC.

Standard 2.5: The curriculum must satisfy general education, arts and professional and other discipline requirements for the program, as specified by the respective accreditation body.

The curriculum satisfies general education and professional disciplines requirements as approved by academic council.

Standard 2.6: Information technology component of the curriculum must be integrated throughout the program.

In Econometrics and Statistics education and research computer applications are very extensive not only in analytical and quantitative courses but also in theoretical subjects. Students are adept users of information technology for their assignments, projects, presentations and research work.

Standard 2.7: Oral and written communication skills of the student must be developed and applied in the program.

In order to develop strong written and oral communication skills in students class presentations and seminars are a regular part of all courses of the program.
CRITERION 3: LABORATORIES AND COMPUTING FACILITIES

For the students, the computing facilities are provided in terms of two Computer Labs (Details of which are provided in the following tables). Personal computer with internet facility along with the printer is provided to each faculty member in their room.

Table 3.1: Computer Lab Information

<table>
<thead>
<tr>
<th>Title of the Lab</th>
<th>Computer Lab I</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location and Area</td>
<td>Main building, Computer Cell, PIDE</td>
</tr>
<tr>
<td>Objectives</td>
<td>To provide skills to use Econometrics and Statistical Packages</td>
</tr>
<tr>
<td>Adequacy for Instruction</td>
<td>2 lab assistants are sitting in the lab whole time and help is always available to the students</td>
</tr>
<tr>
<td>Courses taught</td>
<td>Statistical Packages (ETS-550), Simulation Techniques (ETS-522)</td>
</tr>
<tr>
<td>Software available</td>
<td>SPSS, EVIEWS, STATA, MINITAB</td>
</tr>
<tr>
<td>Major Equipment</td>
<td>17 computers with internet facility, 4 air conditioners, 1 printer, 1 projector, 1 scanner</td>
</tr>
<tr>
<td>Safety regulations</td>
<td>We are striving to provide as many manuals of instructions as possible</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Title of the Lab</th>
<th>Computer Lab II</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location and Area</td>
<td>West Block, PIDE</td>
</tr>
<tr>
<td>Objectives</td>
<td>To provide skills to use Econometrics and Statistical Packages</td>
</tr>
<tr>
<td>Adequacy for Instruction</td>
<td>1 lab assistant is sitting in the lab whole time and help is always available to the students</td>
</tr>
<tr>
<td>Courses taught</td>
<td>Statistical Packages (ETS-550), Simulation Techniques (ETS-522)</td>
</tr>
<tr>
<td>Software available</td>
<td>SPSS, EVIEWS, STATA, MINITAB</td>
</tr>
<tr>
<td>Major Equipment</td>
<td>20 computers with internet facility, 5 air conditioners, 1 printer, 1 projector, 1 scanner</td>
</tr>
<tr>
<td>Safety regulations</td>
<td>We are striving to provide as many manuals of instructions as possible</td>
</tr>
</tbody>
</table>

Standard 3.1: Laboratory manuals/documentation/instructions for experiments must be available and readily accessible to faculty and students.

Not applicable

Standard 3.2: There must be adequate support personnel for instruction and maintaining the laboratories.

Not applicable

Standard 3.3: The University computing infrastructure and facilities must be adequate to support program’s objectives.

Table 3.2: Computer Infrastructure

<table>
<thead>
<tr>
<th>Total number of computers for students</th>
<th>37 (Each having internet facility)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total number of printers</td>
<td>02</td>
</tr>
<tr>
<td>Total number of scanners</td>
<td>02</td>
</tr>
<tr>
<td>Total number of projectors</td>
<td>02</td>
</tr>
</tbody>
</table>
CRITERION 4: STUDENT SUPPORT AND ADVISING

Standard 4.1: Courses must be offered with sufficient frequency and number for students to complete the program in a timely manner.

Table 4.1: Frequency of Courses Offered

<table>
<thead>
<tr>
<th>Type of Course</th>
<th>Courses Offered/Semester</th>
<th>Repetition of courses (semester-wise)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core</td>
<td>8</td>
<td>All students are allowed to repeat their failed courses along with their regular courses in the next semesters, provided that the total number of registered courses, in a semester, should not exceed 6.</td>
</tr>
<tr>
<td>Optional</td>
<td>2</td>
<td>Regularly offered in the fall and spring Semester but with no choice due to low enrolment.</td>
</tr>
</tbody>
</table>

- ETS-501: Microeconomic Theory and ETS-504: Macroeconomic Theory are offered outside the department every year.

Standard 4.2: Courses in the major must be structured to ensure effective interaction between students, faculty and teaching assistants.

The courses offered are well structured to ensure effective interaction between faculty member, students and teaching assistants. Double teaching courses are generally not offered and no TA has been appointed to handle courses.

Standard 4.3: Guidance on how to complete the program must be available to all students and access to qualified advising must be available to make course decisions and career choices.

- Brochure is given at the time of admission and the PIDE official website is updated time-to-time.

- There are well formulated advisory groups comprising of faculty members who are all time available to solve and advice on concerned issues of students. Students have full and easy access to their allotted advisors. Student-advisor meetings are arranged on weekly basis and evaluation of advisory system is conducted at the end of each semester.(See Appendix 4)
Students have membership of Pakistan Society of Development Economics (PSDE) and participate in PSDE international conference annually.

Table 4.2: List the Opportunities Provided by The Department to Students

<table>
<thead>
<tr>
<th>Sr. No</th>
<th>Opportunities for students</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Provision of Internet facility and computers for assignment preparation/search journals/ Books/ References etc.</td>
</tr>
<tr>
<td>2</td>
<td>Provision of multimedia for presentation/ seminars</td>
</tr>
<tr>
<td>3</td>
<td>Provision of modern equipment for research</td>
</tr>
<tr>
<td>4</td>
<td>Easy access to National and International data sources</td>
</tr>
</tbody>
</table>

Appendix 4
CRITERION 5: PROCESS CONTROL

Standard 5.1: The process by which students are admitted to the program must be based on quantitative and qualitative criteria and clearly documented. This process must be periodically evaluated to ensure that it is meeting its objectives.

Admission criteria at university level

ADMISSIONS

a) A person holding a (two years) Bachelor's degree from a Pakistani Institute recognized by Higher Education Commission (HEC), or an equivalent degree from any other HEC recognized Institute, with at least a second division (annual system) or B grade (semester system), shall be eligible for admission to the Master's programme of study provided that the applicant meets the other eligibility requirements of the concerned departments.

b) Admissions shall be made once a year in the Fall semester.

c) Each candidate shall submit an application for admission on a prescribed form in response to an advertisement.

d) Admission shall be made on the basis of PIDE entry test/GRE score, academic record, and interview.

(i) The allocation of marks for determining merit shall be as follows:

<table>
<thead>
<tr>
<th>Pakistan Nationals</th>
<th>40 marks</th>
<th>50 Marks</th>
<th>10 Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academic Record</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Admission Test</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interview</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Foreign Students</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Academic Record</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GRE and TOEFL Scores</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(ii) Distribution of Marks allocated for the academic record shall be as under:-

<table>
<thead>
<tr>
<th>Class</th>
<th>1st Division/ A-Grade</th>
<th>2nd Division/ B-Grade</th>
<th>3rd Division/ C-Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>B.A./B.Sc/B.Com/BBA</td>
<td>20</td>
<td>15</td>
<td>(not allowed)</td>
</tr>
<tr>
<td>FA/F.Sc/A-level</td>
<td>20</td>
<td>15</td>
<td>Zero</td>
</tr>
</tbody>
</table>

(iii) The candidates awaiting results of their Bachelor’s degree may get admission subject to obtaining at least 2nd Division/B-Grade

(iv) All the admissions shall be approved by the Dean of the Faculty concerned on the recommendations of the Admission Committee of the concerned department.

(v) PIDE may revise criteria for determining merit for admission from time to time.

c) Admission to one department shall not give a student a right to migrate to another department.
(f) The students who have ceased to be a student of the institute under rule 7c of these Regulations shall not be eligible for admission to the Master's programme.

(g) The maximum age limit for admission to the Master programme shall be 26 years. Anyone beyond the age of 26 years shall not be admitted unless the relaxation is granted by the Dean of the concerned faculty (up to 5 years) or the Vice-Chancellor (for more than 5 years) on the recommendation of the Head of the Department.

Transfer of credits is not allowed.

Standard 5.2: The process by which students are registered in the program and monitoring of students progress to ensure timely completion of the program must be documented. This process must be periodically evaluated to ensure that it is meeting its objectives.

The students are registered as per the rules and regulations of PIDE presented below:

REGISTRATION OF COURSES

(a) Within the 1st week of a semester, students shall register in the course(s) being offered by the department on prescribed registration cards.

(b) (i) A student shall normally be required to register for courses of a total of 15 credits in a semester. However, the Head of a department may allow a student to register courses of 12 credits in a semester as a special case.

(ii) A student may, in the final semester, register less than 12 credit courses if that completes the credit requirement of the degree.

(c) A student may register additional non-credit course(s) out of the prescribed courses.

(d) A student may change or drop course(s) or convert a credit course into a non-credit course, or vice-versa, within two weeks from the date of commencement of a semester. In exceptional cases a student can add/drop a course in the 3rd week from the start of the semester with the permission of the Head of the department concerned.

(e) The Head of each department shall forward in the 3rd week from the date of commencement of a semester all the course registration cards to the Controller of Examinations.

(f) (i) No registration or change of course(s) shall be allowed after three weeks from the date of commencement of the semester.

(ii) No drop of course(s) or change of a non-credit course to credit course or of a credit course to a non-credit course shall be allowed after three weeks from the date of commencement of the semester.

(g) (i) A student dropping all the registered courses or choosing not to register minimum required credits in concerned semester will deem to have dropped the semester.

(ii) The dropped semester shall be counted towards the maximum period of six semesters allowed under section 7(c) (iv) for completing the Master degree.
**Standard 5.3:** The process of recruiting and retaining highly qualified faculty members must be in place and clearly documented. Also processes and procedures for faculty evaluation, promotion must be consistent with institution mission statement. These processes must be periodically evaluated to ensure that it is meeting with its objectives.

The process of recruiting and retaining highly qualified faculty members lies with the administration and is being followed as per HEC policy guidelines. However in the need of hour visiting faculty is recommended by the department that can be hired according to general rules and regulation set so far by PIDE.

**Standard 5.4:** The process and procedures used to ensure that teaching and delivery of course material to the students emphasizes active learning and that course learning outcomes are met. The process must be periodically evaluated to ensure that it is meeting its objectives.

**Organization of Teaching at PIDE:**

- Teaching in various courses shall be organized in the department through lectures, tutorials, discussions, presentations, seminars, demonstrations, practical work in the computer labs, and any other method approved by PIDE.
- Courses are allocated to the faculty members of the department or Visiting faculty members in meeting of all faculty members of the department headed by the Head of the Department.
- Teaching in each Department shall be conducted by the University teachers or such other persons as may be declared to be teachers by the authority.

**Standard 5.5:** The process that ensures that graduated have completed the requirements of the program must be based on standards, effective and clearly documented procedures. This process must be periodically evaluated to ensure that it is meeting its objectives.

- Continuous evaluation procedure is used to ensure that graduates have completed program for completing each stage.
- The procedure is evaluated continuously.
Table 5.1: Process of Evaluate Graduate Programs

<table>
<thead>
<tr>
<th>Procedures that ensure that graduates meet the program requirements</th>
<th>Semester schedule is announced well before the start of new academic session for both semesters during the academic year. Each teacher provides teaching schedule for complete semester, outlining the course contents, time, venue, and reference material etc also showing examination schedules, assignments and field trips.</th>
</tr>
</thead>
<tbody>
<tr>
<td>when this procedure was evaluated</td>
<td>Evaluation procedure was started after the establishment of QEC at PIDE</td>
</tr>
<tr>
<td>Evaluation results used for improvements</td>
<td>Since HEC has initiated evaluation program, students Performa are being regularly filled, based on initial results improvements in teaching and research programs are being incorporated. As this evaluation program is being recently initiated as soon as we receive feedback from quality assurance cell these results will be properly use for the improvement</td>
</tr>
</tbody>
</table>
CRITERION 6: FACULTY

Standard 6.1: There must be enough full time faculty who are committed to the program to provide adequate coverage of the program areas/courses with continuity and stability. The interests and qualifications of all faculty members must be sufficient to teach all courses, plan, modify and update courses and curricula. All faculty members must have a level of competence that would normally be obtained through graduate work in the discipline. The majority of the faculty must hold a Ph.D. in the discipline.

<table>
<thead>
<tr>
<th>Program Areas of Specialization</th>
<th>Courses in the Area &amp; Average number of sections per year</th>
<th>Number of Faculty members in each Area</th>
<th>Number of Faculty members with Ph.D degree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Econometrics</td>
<td>10</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Statistics</td>
<td>10</td>
<td>3</td>
<td>1</td>
</tr>
</tbody>
</table>

- Faculty resumes of following faculty members are available in the department as per given format:

<table>
<thead>
<tr>
<th>Name</th>
<th>Designation</th>
<th>Research Publications</th>
<th>Training</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr. Abdul Qayyum</td>
<td>Professor</td>
<td>42</td>
<td>12</td>
</tr>
<tr>
<td>Ms. Saba Anwar</td>
<td>Assistant Professor</td>
<td>-</td>
<td>3</td>
</tr>
<tr>
<td>Ms. Saima Bashir</td>
<td>Assistant Professor</td>
<td>-</td>
<td>3</td>
</tr>
<tr>
<td>Ms. Amena Urooj</td>
<td>Assistant Professor</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Dr. Zamir Hussain</td>
<td>Lecturer</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Ms. Hafsa Hina</td>
<td>Lecturer</td>
<td>0</td>
<td>3</td>
</tr>
</tbody>
</table>

- Have all faculty members prepared their resume in line with HEC guidelines?

Yes.

Standard 6.2: All faculty members must remain current in the discipline and sufficient time must be provided for scholarly activities and professional development. Also, effective programs for faculty development must be in place.

- Are all faculty members current in their disciplines?

Yes, the faculty members are current in their discipline (about 100%). The faculty comprise of two PhD doctors while four PhDs are in progress.
• **Is there sufficient time for faculty members for scholarly activities and professional development?**

Yes, the Full time faculty members observe 8:00am to 4:00pm office hours, in which weekly six hours of teaching is conducted while the remaining time is for research, scholarly activities and professional development of faculty members.

• **Is there any faculty development program?**

Yes, PDE has constructed very systematic program for faculty development in coordination with HEC.

• **Is there any process by which faculty input is obtained (e.g. faculty survey form)?**

Yes

• **How frequently faculty programs evaluated?**

Annual evaluation of Faculty program where changes are suggested and approved via Board of Study

• **Are evaluation results of faculty programs used for improvement?**

Yes, the changes suggested are discussed and approved via Board of Study annually.

**Table 6.1: Faculty Development Program**

<table>
<thead>
<tr>
<th>Name of Faculty Member</th>
<th>Title of the development programme</th>
<th>Location and organized by</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ms. Saba Anwar</td>
<td>PhD</td>
<td>HEC/QAU, Pakistan</td>
<td>In Progress</td>
</tr>
<tr>
<td>Ms. Saima Bashir</td>
<td>PhD</td>
<td>Full Bright/USA</td>
<td>In Progress</td>
</tr>
<tr>
<td>Ms. Amena Urooj</td>
<td>PhD</td>
<td>QAU, Pakistan</td>
<td>ABD</td>
</tr>
<tr>
<td>Dr. Zamir Hussain</td>
<td>PhD</td>
<td>BZU, Pakistan</td>
<td>Completed</td>
</tr>
<tr>
<td>Ms. Hafsa Hina</td>
<td>PhD</td>
<td>PIDE, Pakistan</td>
<td>ABD</td>
</tr>
</tbody>
</table>

**Standard 6.3:** All faculty members should be motivated and have job satisfaction to excel in their profession.

In order to motivate faculty members and to enhance their job satisfaction, following measures have been practiced
• Two increments on publication of working paper (but not implemented currently due to financial crises in PIDE)
• Upgradation of faculty members as per HEC rules (in process).
• Permission granted to pursue PhD degree (4 national and 1 international)

CRITERION 7: INSTITUTIONAL FACILITIES

Standard 7.1: The institution must have the infrastructure to support new trends in learning such as e-learning.

The Institute has provided the facilities, such as personal computers with internet and printing facility to each of the faculty members.

Departmental Facilities:
The department has provided following facilities to the students:
• Classrooms equipped with technological facilities, projectors, electronic access to lecture notes.
• Computer laboratory equipped with econometrics and statistical softwares for empirical research.
• Access to computers with network connection.
• Easy access to electronic databases and scientific articles.
• Academic supervisors for all students and close teacher-student relationship.

Standard 7.2: The library must possess an up-to-date technical collection relevant to the Program and must be adequately staffed with professional personnel.

Central Library of the university is shared with the department.

Standard 7.3: Classrooms must be adequately equipped and offices must be adequate to enable faculty to carry out their responsibilities.

Does the university have enough class rooms to run the academic affairs?
No

Does the university have enough offices for faculty members?
No
Table 7.1: Total Number of Computer Labs, Offices and Classrooms

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Items</th>
<th>Total</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Class rooms for students</td>
<td>2</td>
<td>Additional rooms are required due to multiple programs</td>
</tr>
<tr>
<td>2</td>
<td>Computer Labs</td>
<td>2</td>
<td>Insufficient due to increased number of students in other programs of the department (MPhil)</td>
</tr>
<tr>
<td>3</td>
<td>Offices for the faculty members</td>
<td></td>
<td>Rooms are shared by the faculty members therefore more rooms needed</td>
</tr>
<tr>
<td>4</td>
<td>Computers</td>
<td></td>
<td>More computers alongwith accessories are required for students</td>
</tr>
<tr>
<td>5</td>
<td>Multimedia</td>
<td>1</td>
<td>Atleast one more multimedia alongwith accessories is required</td>
</tr>
</tbody>
</table>
CRITERION 8: INSTITUTIONAL SUPPORT

**Standard 8.1:** There must be sufficient support and financial resources to attract and retain high quality faculty and provide the means for them to maintain competence as teachers and scholars.

PIDE fully supports its faculty members to perform all kinds of research and teaching activities and give opportunities to present work of scholarly level at all forums either inside or outside the country.

**Standard 8.2:** There must be an adequate number of high quality graduate students, research assistants and Ph.D. students.

**Standard 8.3:** Financial resources must be provided to acquire and maintain Library holdings, laboratories and computing facilities.

PIDE provide all financial resources when required.

CRITERION 9: RESEARCH WORK

**Standard 9.1:** Research Department must have regular review of its performance.

Not applicable

**Standard 9.2:** Student involved in research must submit regular progress review

Not applicable