

Entrance Examination and Admission Procedures of Bachelor (Engineering) Programs



at

Pokhara University
Faculty of Science and Technology
School of Engineering

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1. Pokhara University

Pokhara University (PU) is a public and non-profit university in Nepal which was established by the Govt. of Nepal, formulating PU Act 1997. It is the second largest university in the country in terms of students' enrollment. Over the period of 25 years since its inception, Pokhara University is playing an active role in promoting higher education. Currently, PU offers 65 programs which includes about thousand courses in various undergraduate, graduate, and doctoral programs. Approximately 40,000 regular students are enrolled in its four constituent, three joint-constituent and 58 affiliated colleges. Above mentioned colleges are governed by four faculties; namely *Science and Technology*, *Humanities and Social Sciences*, *Management Studies*, and *Health Sciences*. The number of programs offered under different faculties as shown in Table 1 given below:

Table 1: Number of programs offered under faculties.

SN	Faculties	Established on	No. of Program		Total	Remarks
			Undergraduate	Graduate*		
1	Faculty of Management Studies (FMS)		7	8	15	Ph.D. (1), PG (1)
2	Faculty of Humanities and Social Sciences (FHSS)		4	6	10	Ph.D. (2), MPhil (1)
3	Faculty of Science and Technology (FST)		11	13	24	Ph.D. (1)**
4	Faculty of Health Sciences (FHS)		10	7	17	-
			32	34	66	

* 7 graduate programs and other mentions in remarks.

** committee is formed and is under preparation

PU generates most of its revenue through the maximum participation of the private sector in higher education. Pokhara University has collaboration with 64 institutions across the globe. Annually, more than 1000 full scholarships are offered to students all over Nepal in bachelor level programs.

1.1 Objectives

The main objectives of PU are as follows:

- a. To produce high-quality skilled human resources in the area of science, technology, management, social sciences, law, humanities, education, and other professional areas for national development.
- b. To encourage participation of the private sector in the development of higher education.
- c. To create healthy, respectful and result-oriented and disciplined academic environment by improving quality in higher education.
- d. To promote the quality and standard of higher education through the healthy competition in higher education.
- e. To contribute to the community development by operating extension programme.

1.2 Vision

- a. To be a leader in the promotion of education through quality higher education, health and community service.

1.3 Mission

- a. Develop the institution into a Center of Excellence for Higher Education by enhancing teaching, learning and research activities; to accelerate the national development process by producing job market-driven, responsible, productive, welfare focused and committed human resources; to link the university system with community services.
- b. Unfold the potential and creativity of learners, advocating humanism, reason, innovation, and search for truth.

1.4 Goal

The goals of Pokhara University are as follows:

- a. To build the university system into an advanced center of learning, and research including frontier approach to study like open learning.
- b. To produce high-level human resources equipped with knowledge, skill, personality, leadership, and human values, who can meet present day work challenges, act as change agents, and give direction for the future.
- c. To serve as an institution to make higher education accessible to the underprivileged section of the society.

- d. To make a positive contribution to academic scholarship, research and publication that will underpin and strengthen the teaching curriculum and generate knowledge.
- e. To build a dynamic institution capable of withstanding changes.
- f. To pursue excellence and quality in all aspects of the university's activities and services.
- g. To link the knowledge, research, and publication with the productivity to serve the nation for the creation of knowledge economy, especially the weaker section of the society.
- h. To increase the competitiveness of the University in regional and international level.

2. Pokhara University Research Center (PURC)

Pokhara University Research Center was established to promote the scientific and quality research in the university. Faculties of constituent school and affiliated colleges are receiving financial support to carry out research work by PURC which ultimately enhance for quality education to the students. PURC has mandatory authority to approve research proposals, conduct multidisciplinary research and monitor their progress and publish the work.

3. Curriculum Development Center (CDC)

Curriculum Development Center (CDC) was established to develop curricula of all the programs of the university. The major functions of the center includes designing curriculum, developing teaching pedagogies and evaluation tools, organizing various workshops, orientation, and training programs to enhance and upgrade teaching-learning practices, developing manuals, books and reference materials conducting small scale research projects. Besides, CDC has periodically revised the existing curriculum as per the national and international need.

4. International Relation Centre (IRC)

The International Relation Centre has been established with the responsibility to initiate and implement international cooperation and coordination in academic and research activities between Pokhara University and other esteemed educational institutions, companies and industries for the exchange for acclaimed programs and bilateral interests around the globe. The centre supports foreign students, scholars, faculties, researchers and other freelancers coming to carry out study, research and participate in seminar, conferences and other activities. Now PU has around 65 partners institution around the globe through IRC. IRC also started short-term student mobility programs among the partner institution around the globe in order to share their knowledge and learn new academic environment.

5. Pokhara University Central Library

Pokhara University Central Library was established along with the academic programs of University. It began with a collection of 200 volumes of books. Now, the collection exceeds 40,000 textbooks, reference books, CDs, DVDs, and other resources. Additionally, there are a number of periodicals, theses, journals, magazines and newspapers. The library is automated with LIBRA software from which all internal tasks such as book and patron management are being carried out. The Royal Thai Embassy has established a Thai Corner having publications related to Thailand and academic institutions in Thailand, audio visual facilities within the premises of the Pokhara University Central Library. The library also provides online access for academic enhancement.



6. Student's Accommodation

For girls studying under the constituent's school, Pokhara University has a Girls' hostel having capacity of 60 students. Deserving students can get the hostel facility based on their academic performance and criteria set by the university. The hostel was operated with modern facilities under the close supervision of hostel warden. It is located adjacent to the academic complex.

7. Free Student Union

The students are the major stakeholders of the University. For better academic environment and the students' welfare FSU was also established.

8. Scholarship

A scholarship quota is available for the students studying under the Faculty of Science and Technology. A quota of 20% and 10% is available for constituent and affiliated colleges

respectively. For this purpose, a separate application and entrance examination is required as per PU Scholarship procedure to select the students.

9. Projects and Club Activities

Students in School of Engineering take part in various extra-curricular activities. Annually students organize a week long sport meet and participate in different sports tournaments. The students from all schools are involved in various clubs and associations related to their future professional careers. (Robotics club, civil club, Microsoft innovation center and so on).



Talent Expo- 2018 (15th Feb, 2018)



1st Engineering Exhibition at PU central college, 2018 (Creative Group)

10. Teaching Hospital

Pokhara University has established 100 bed hospital operating from fiscal year 2078/79 with the aim of providing teaching practice for the students and medical facility to the public, students, faculties, and staffs of Pokhara University.



11. Information Access Centre

The government of the Republic of South Korea has established “Nepal-Korea Information Centre (IAC)” in the premises of main academic complex to enhance the academic activities in the school. The centre is well equipped with different kinds of hardware’s, software’s and video conferencing facility, which help in bridging the digital device.

12. Faculty of Science and Technology (FST)

The Faculty of Science and Technology (FST) was established with the commitment to

- lead in the field of the development of skilled and research-oriented human resources in the various areas of science and technology.
- build robust community infrastructures for promoting human activities in a safe and resilient environment.

The modality of teaching and learning includes lots of laboratory work, workshop projects, internships, field visits, guest lectures, and consultation services. Currently, the FST is running undergraduate and graduate programs through three different types of colleges i.e., constituent, joint constituent colleges, and affiliated colleges. The School of Engineering (SoE) is only one constituent college of FST, which is central College.

13. School of Engineering

School of Engineering (SoE) was established in 2009 as a constituent school under the Faculty of Sciences & Technology of Pokhara University. SoE is committed to pursuing high standard professional and academic excellence in the field of Engineering. Currently, SoE is offering five Engineering programs in Bachelor’s level.



All the Engineering courses are interdisciplinary course with new focus in technology along with internship course. It aims to deal with the emerging thrust of 21st century on technical minds by producing highly committed and competent professionals, engineering, entrepreneurs, enthusiast academics and researchers in the international market of related sector.



13.1 Vision

The vision of the School is to facilitate transformation of students into good human beings, responsible citizens and competent professionals, focusing on assimilation, generation and dissemination of knowledge.

13.2 Mission

The school is committed to:

- impart quality education to meet the needs of profession and society, and achieve excellence in teaching-learning and research activities.
- attract and develop talented and committed human resource, and provide an environment conducive to innovation, creativity, team-spirit and entrepreneurial leadership.
- facilitate effective interactions among faculty and students, and foster networking with alumni, industries, institutions and other stakeholders.
- practice and promote high standards of professional ethics, transparency and accountability.

Table 2: List of undergraduate programs offered under School of Engineering

S.N.	Name of Undergraduate Programs
1.	Bachelor of Civil Engineering (BE Civil)
2.	Bachelor of Civil and Rural Engineering (BE Civil and Rural)
3.	Bachelor of Electrical and Electronics Engineering (BE Electrical and Electronics)
4.	Bachelor of Computer Engineering (BE Computer)
5.	Bachelor of Software Engineering (BE Software)

13.3 Offered Programs

The program offered by School of Engineering in undergraduate level is tabulated as shown in Table 2.

13.3.1 Bachelor of Civil Engineering

Civil Engineering is one of the most popular and broadest fields of Engineering. It is a branch of Engineering that deals with the construction and design of structure, highways, dams, buildings, irrigation, tunnels, bridges, reservoirs, and other similar facilities. It is the application of physical and scientific principles for solving the problems of society, and its history is intricately linked to advances in understanding of physics and mathematics in relation to structures, material science, geography, geology, soils, hydrology, environment, mechanics, and other fields. The aim of the Civil Engineering program is to prepare the students for successful careers in Civil Engineering by providing a high quality, practice-oriented education that emphasizes design project experiences, "hands-on" laboratory activities, and teamwork. School of Engineering is offering Civil Engineering program beginning from its establishment. It is of 4 years program with wide variety of subjects. The area and scope of its application is wide in developing countries especially in context of Nepal.

Objectives:

- to prepare students to successfully perform essential engineering functions in Civil Engineering practice;
- to prepare students to communicate effectively with industry professionals and community members;
- to prepare students to work in an ethical and professional manner to positively impact the environment and society;
- to encourage students to pursue life-long learning through continuing education opportunities, graduate degrees and/or other certification; and
- to encourage students to progress toward professional activator.

Course Structure and Curriculum of Civil Engineering

Semester I			Semester II		
Course Code	Course Description	Credit Hours	Course Code	Course Description	Credit Hours
CHM110	Applied Chemistry	2	MTH150	Algebra and Geometry	3
PHY110	Applied Physics	3	MEC150	Applied Machines	4

MTH110	Calculus-I	3	ELE112	Basic Electrical and Electronics Engineering	3
ENG110	Communication Techniques	2	CVL110	Civil Engineering Materials	2
CMP112	Computer Programming	3	CVL112	Civil Engineering Workshop	1
MEC112	Engineering Drawing	2	GTE150	Engineering Geology	3
			MEC114	Introduction to Energy Engineering	2

Semester III			Semester IV		
Course Code	Course Description	Credit Hours	Course Code	Course Description	Credit Hours
ARC150	Building Technology	2	MGT250	Engineering Economics	3
MTH210	Calculus-II	3	WRE250	Hydraulics	3
WRE212	Fluid Mechanics	3	MTH252	Numerical Methods	2
MTH216	Probability and Statistics	2	GTE252	Soil Mechanics	3
STR216	Strength of Materials	3	STR252	Structural Analysis I	3
CVL216	Surveying I	3	CVL252	Surveying II	3

Semester V			Semester VI		
Course Code	Course Description	Credit Hours	Course Code	Course Description	Credit Hours
WRE310	Engineering Hydrology	2	CVL350	Civil Engineering Project I	1
CVL318	Estimating and Valuation	3	STR214	Concrete Technology and Masonry Structure	3
GTE310	Foundation Engineering	3	STR354	Design of Steel and Timber Structure	3
STR314	Structural Analysis II	3		Elective I	3
TRP310	Transportation Engineering I	3	WRE352	Irrigation and Drainage Engineering	3
ENV310	Water Supply Engineering	3	ENV352	Sanitary Engineering	3
			CVL316	Survey Field Project	1
			TRP352	Transportation Engineering II	3

Semester VII			Semester VIII		
Course Code	Course Description	Credit Hours	Course Code	Course Description	Credit Hours
CVL450	Civil Engineering Project II	3		Elective III	3
CVL412	Construction Project Management	3	INT484	Internship	6
STR352	Design of R.C.C. Structures	3			

	Elective II	3			
CVL416	Engineering Professional Practice	2			
WRE410	Hydropower Engineering	3			

Career Opportunities in Civil Engineering

Engineering knowledge has increased through the years where each of these specialties, such as Structural, Geo-technical, Transportation, Hydrology, Hydropower, Irrigation require its own training. Each of them again has its own vast area of knowledge, requiring dedicated, talented individuals who want to learn and grow.

In addition, the graduates of Civil Engineering program have ample scope of opportunity to build their career in following sectors.

- All Government offices of development Sectors
- Civil Aviation Authority
- Nepal Electricity Authority
- Nepal Telecom
- Private Consulting Service
- Private construction companies
- INGOS
- NGOS
- Research Institutions

13.3.2 Bachelor of Civil and Rural Engineering

In Nepal, endemic rural poverty, food insecurity and poor quality of rural life exist as outstanding development challenges. Inseparable relationship between agriculture and rural development demands that agriculture must be looked from a standpoint of holistic rural development.

Strong inter-linkages exist among technology, infrastructure, and services, producing positive impacts to rural economy and quality of rural life. This has created demand for cadre of technical manpower who could apply the knowledge of engineering and technology in rural development.

School of Engineering has started Bachelor program in Civil and Rural Engineering from this academic year (2018) which is a unique initiative in the country and in the region. The graduates in Civil and Rural Engineering are expected to serve in numerous government and development agencies working in the areas of rural infrastructure development, natural resources management, agro-industries, and rural credit institutions, apart from conventional Civil Engineering projects.

Course Structure and Curriculum of Civil and Rural Engineering

Semester I			Semester II		
Course Code	Course Description	Credit Hours	Course Code	Course Description	Credit Hours
ELE112	Basic Electrical and Electronics Engineering	3	MTH150	Algebra and Geometry	3
MTH110	Calculus-I	3	CHM110	Applied Chemistry	2
CVL110	Civil Engineering Materials	2	MEC150	Applied Mechanics	4
CVL112	Civil Engineering Workshop	1	PHY100	Applied Physics	3
ENG110	Communication Techniques	2	ARC150	Building Technology	2
CMP112	Computer Programming	3	MEC112	Engineering Drawing	3
MEC114	Introduction of Energy Engineering	2			

Semester III			Semester IV		
Course Code	Course Description	Credit Hours	Course Code	Course Description	Credit Hours
MTH210	Calculus-II	3	MGT250	Engineering Economics	3
GTE150	Engineering Geology	3	WRE250	Hydraulics	3
WRE212	Fluid Mechanics	3	CVR250	Rural Infrastructure Engineering	3
MTH214	Statistics and Numerical Methods	3	GTE252	Soil Mechanics	3
STR216	Strength of Materials	3	STR252	Structural Analysis I	3
CVL216	Surveying I	3	CVL252	Surveying II	3

Semester V			Semester VI		
Course Code	Course Description	Credit Hours	Course Code	Course Description	Credit Hours
STR214	Concrete Technology and Masonry Structure	3	STR352	Design of RCC Structures	3
WRE310	Engineering Hydrology	2		Elective I	3
GTE310	Foundation Engineering	3	CVL318	Estimating and Valuation	3
STR314	Structural Analysis II	3	WRE352	Irrigation and Drainage Engineering	3
CVL316	Survey Field Project	1	CVR350	Rural Engineering Project I	1
TRP310	Transportation Engineering I	3	ENV352	Sanitary Engineering	3
ENV310	Water Supply Engineering	3	TRP352	Transportation Engineering II	3

Semester VII			Semester VIII		
Course Code	Course Description	Credit Hours	Course Code	Course Description	Credit Hours
CVL412	Construction Project Management	3		Elective-III	3
STR354	Design of Steel and Timber Structure	3	INT486	Internship	6
	Elective II	3			
CVL416	Engineering Professional Practice	2			
WRE410	Hydropower Engineering	3			
CVR450	Rural Engineering Project II	3			

This field also have same opportunities as that of civil engineering along with rural infrastructure development agencies.

13.3.3 Bachelor of Electrical and Electronics Engineering

The Department of Electrical and Electronics Engineering strives to be a center of excellence in education, training, and research, producing high quality engineers and researchers. In this endeavor, the department will continually develop knowledge and quality of staff, upgrade and create new laboratory facilities, revise the teaching program, acquire adequate new equipment to keep abreast, contribute and progress in the emerging technologies and committed for rendering the best service to the society. Electrical and Electronics Engineering program is one of few most demanding courses in the rapidly growing field of engineering and only one in serene city Pokhara (Western Region), educating the next generation of Electrical & Electronic Engineers, who will create the technology of tomorrow that work effectively and efficiently. Integrating both the knowledge of Electrical and Electronics, the course technically focuses on the application and design of equipment in electrical sector. Further, the program educates students in an academic environment through inter disciplinary projects and hands-on-learning. The confidence in managing new knowledge society requires continuous learning a novel approach supported with research and development works in the areas of power and energy. Thus, Department of Electrical and Electronics Engineering impress students to inculcate these values and support the mission of Faculty of Science & Technology, Pokhara University.

Objectives:

- produce graduates with a strong foundation in the basic sciences and mathematics that will enable them to identify and solve electrical engineering problems;
- provide students with a solid foundation in Electrical Engineering that prepares them for life-long careers and professional growth in fields of their choice;

- provide the basic skills to communicate effectively and to develop the ability to function as members of multi-disciplinary teams;
- provide a broad-based education so that they can appreciate diversity of opinion, better understand ethical issues, and develop a more global perspective;
- provide a relevant engineering design experience that is integrated across the four-year curriculum which will develop an understanding of the relationships between theory and practice.

Course Structure and Curriculum of Electrical and Electronics Engineering

Semester I			Semester II		
Course Code	Course Description	Credit Hours	Course Code	Course Description	Credit Hours
PHY110	Applied Physics	3	MTH150	Algebra and Geometry	3
ELE130	Basic Electrical Circuits	3	MEC170	Basic Mechanical Engineering	3
MTH110	Calculus-I	3	ENG110	Communication Techniques	2
CMP112	Computer Programming	3	ELE174	Electrical Engineering Material	3
ELE132	Electrical Installation Safety and Practice	2	ELX174	Electronics Devices	3
MEC116	Basic Engineering Drawing	1	ELE178	Network Theory	3
MEC136	Engineering Workshop	1			

Semester III			Semester IV		
Course Code	Course Description	Credit Hours	Course Code	Course Description	Credit Hours
MTH210	Calculus-II	3	MTH250	Applied Mathematics	3
ELX110	Digital Logic	3	ELE270	Control System	3
ELX230	Electrical Machine I	3	ELE272	Electrical Machine II	2
ELX234	Electromagnetic Fields and Waves	3	ELX270	Microprocessors	3
ELX232	Electronics Circuits	3	MTH252	Numerical Methods	3
ELE172	Instrumentation	3	ELE274	Transmission and Distribution Systems	3

Semester V			Semester VI		
Course Code	Course Description	Credit Hours	Course Code	Course Description	Credit Hours
ELE334	Control System Design	2	MGT320	Engineering Management	3
ELE336	Electrical Machine Design	3	ELE372	High Voltage Engineering	3

MGT250	Engineering Economics	3	ELX370	Modern Communication System	3
ELE342	Power Electronics	3	MTH216	Probability and Statistics	3
ELE340	Power System Analysis	3	ELE374	Switch Gear and Protection	3
ELX330	Signals and Systems	3	ELE378	Utilization of Electrical Energy	3

Semester VII			Semester VIII		
Course Code	Course Description	Credit Hours	Course Code	Course Description	Credit Hours
	Elective I	3		Elective III	3
	Elective II	3	INT488	Internship	3
ELE434	Power Plant Technology	3	PRJ452	Major Project	3
ELE436	Renewable Energy and Grid Integration	3			
ELE338	Research Methodology	2			
ELE440	Transmission and Distribution Design	3			

Career Opportunities in Electrical and Electronics Engineering

The graduates of Electrical & Electronics Engineering program have ample scope of opportunity to build their career in following sectors.

- Government Sectors
- Civil Aviation Authority
- Nepal Electricity Authority
- Nepal Telecom
- Private Consulting Service
- Private Electrical & Electronics Companies
- INGOS
- NGOS
- Research Institutions

13.3.4 Bachelor of Computer Engineering

Computer engineering blends together computer science, electronics engineering and electrical engineering to further advancements in digital technology, computer networking and computer systems. In turn, computer engineers use their extensive knowledge of hardware and software design and computer programming to make computing platforms and applications more efficient and effective. Seamlessly integrating the latest innovations, computer engineers develop new computer hardware, design and implement software applications, and enhance the capabilities of networks and communications systems.

Computer engineers work with hardware and software, ensuring that the two are seamlessly integrated and functioning properly. Computer engineers focus on innovation-making computing systems safer, faster and more powerful.

At the career level, there are two main avenues: hardware and software engineering. Hardware engineers focus their skills on computer systems and components, designing microprocessors, circuit boards, routers and other embedded devices. On the software side, these engineers create, test and debug programs and applications that run on computers, mobile devices and more.

Objectives:

The main aim of this degree is to provide you with knowledge of programming, hardware organization, operating systems, and theory of computation and principles of programming language. These skills will prepare students to enter technological fields such as systems programming, technical support, research and teaching.

The educational objectives of BE Computer Engineering from School of Engineering, Pokhara University is to produce graduates who, within few years after graduation, are able to:

- practice computer engineering to serve at industries, government agencies, or national and international industries;
- work professionally in computer hardware and software design, computer networks and security, system integration, and electronic design automation;
- achieve personal and professional success with awareness and commitment to their ethical and social responsibilities, both as individuals and in team environments;
- maintain and improve their technical competence through lifelong learning, including entering and succeeding in an advanced degree program in a field such as engineering, science, or business.

Course Structure and Curriculum of Computer Engineering

Semester I			Semester II		
Course Code	Course Description	Credit Hours	Course Code	Course Description	Credit Hours
ELE120	Basic Electrical Engineering	3	MTH150	Algebra and Geometry	3
MTH110	Calculus-I	3	CHM110	Applied Chemistry	2
ENG110	Communication Techniques	2	PHY110	Applied Physics	3
CMP122	Computer Workshop	1	MEC116	Basic Engineering Drawing	1
ELX110	Digital Logic	3	CMP160	Data Structure and Algorithms	3
ELX120	Electronics Devices and Circuits	3	ELE172	Instrumentation	3
CMP124	Programming in C	3	CMP162	Object Oriented Programming in C++	3

Semester III			Semester IV		
Course Code	Course Description	Credit Hours	Course Code	Course Description	Credit Hours
MTH210	Calculus-II	3	CMP228	Advanced Programming with Java	3
CMP234	Computer Graphics	3	MTH250	Applied Mathematics	3
CMM220	Data Communication	3	CMP262	Computer Architecture	3
CMP222	Database Management System	3	MTH252	Numerical Methods	3
CMP224	Microprocessor and ALP	3	CMP270	Research Fundamentals	2
CMP232	Operating Systems	3	CMP264	Theory of Computation	3

Semester V			Semester VI		
Course Code	Course Description	Credit Hours	Course Code	Course Description	Credit Hours
CMP346	Artificial Intelligence	3	CMP344	Computer Networks	3
CMM344	Digital Signal Analysis and Processing	3	CMP360	Data Science and Analytics	3
ELX320	Embedded System	2		Elective I	3
MGT320	Engineering Management	2	CMP362	Image Processing and Pattern Recognition	3
MTH216	Probability and Statistics	3	CMP364	Machine Learning	3
CMP348	Software Engineering	3	PRJ360	Project I	1
			CMP338	Simulation and Modeling	3

Semester VII			Semester VIII		
Course Code	Course Description	Credit Hours	Course Code	Course Description	Credit Hours
CMP424	Cloud Computing and Virtualization	3		Elective III	3
CMP422	Compiler Design	2	INT492	Internship	3
	Elective II	3	PRJ452	Project II	3
MGT250	Engineering Economics	3			
MGT332	Entrepreneurship and Professional Practice	2			
CMP426	Network and Cyber Security	3			

Career Opportunities in Computer Engineering

Individuals interested in a career in computer engineering are not beholden to pursuing specific careers in hardware engineering or software development. In fact, a degree in computer engineering opens the door to multiple employment avenues, from networking to systems development, web development to information technology. Below is a list of example career paths for graduates of computer engineering programs to consider.

- Computer Hardware engineer
- Software developer
- Computer programrs
- Electrical and Electronics engineer
- Computer system analyst
- Computer user support analyst
- Web developer
- Computer network architect
- Database administrator
- Information security analyst
- Industrial engineer

13.3.5 Bachelor of Software Engineering

In the strictest sense, software engineering is the application of engineering principles to the design, development and implementation of software. Because software engineering is such as a unique, scientific and technically-driven field, special training and formal degrees are required. By getting a degree in software engineering, graduates can work in any number of fields creating video games, developing internet applications, running computer networks or implementing computer security measures for an organization. Find out more about software engineering degrees and careers, and learn about salaries and employment projections for this specialized field. Combining business sense with programming know-how, software engineers devise software application solutions for business problems. Software engineers work with different platforms such as the internet, mobile devices, and desktop computers. The practice of software engineering blends engineering, computing, project management, and software development. Software engineers manage a comprehensive list of critical functions across broad knowledge areas such as web and mobile applications, embedded systems, networking, data, security and system administration. Their critical functions span the entire development process, which often includes business needs and use analysis, design and development, implementation, quality assurance testing and product release.

Objectives:

The aim of this program is to produce graduates that are competent in the production of software and to be able to design and implement suitable software applications on a wide scale. The educational objectives of the BE Software Engineering program is to:

- practice software engineering to serve state and regional industries, government agencies, or national and international industries;
- make strong contributions to teams that are responsible for the specifications, design, construction, testing, deployment, maintenance, or use of software systems;
- achieve personal and professional success with awareness and commitment to their ethical and social responsibilities, both as individuals and in team environments.
- maintain and improve their technical competence through lifelong learning, including entering and succeeding in an advanced degree program in a field such as engineering, science, or business.

Course Structure and Curriculum of Software Engineering

Semester I			Semester II		
Course Code	Course Description	Credit Hours	Course Code	Course Description	Credit Hours
MEC116	Basic Engineering Drawing	1	MTH150	Algebra and Geometry	3
MTH110	Calculus-I	3	PHY110	Applied Physics	3
CMP122	Computer Workshop	1	ENG110	Communication Techniques	2
ELX110	Digital Logic	3	ELX176	Microprocessor and Computer Architecture	3
CMP116	Discrete Structure	3	CMP162	Object Oriented Programming in C++	3
MTH120	Problem Solving Techniques	3	CMP168	Web Technology	3
CMP124	Programming in C	3			

Semester III			Semester IV		
Course Code	Course Description	Credit Hours	Course Code	Course Description	Credit Hours
CMP288	Advanced Programming with Java	3	CMP272	Analysis and Design of Algorithm	3
MTH210	Calculus-II	3	CMP274	Computer Graphics and Multimedia	3
CMP160	Data Structure and Algorithms	3	MTH252	Numerical Methods	3
CMP222	Database Management System	3	CMP278	Object Oriented Desing and Modeling through UML	3
MTH216	Probability and Statistics	3	CMP270	Research Fundamentals	2
CMP230	Software Engineering Fundamentals	3	CMP280	System Programming	3

Semester V			Semester VI		
Course Code	Course Description	Credit Hours	Course Code	Course Description	Credit Hours
CMP266	Applied Operating Systems	3	CMP376	Agile Software Development	3
CMP342	Artificial Intelligence and Neural Networks	3	CMP378	Cloud Application Development Foundation	2
CMP344	Computer Networks	3		Elective-I	3
CMP336	Data Science and Machine Learning	3	MGT320	Engineering Management	2
CMP338	Simulation and Modeling	3	CMP380	Network Programming	3
CMP340	Software Design and Architecture	3	PRJ360	Project I	2
			CMP382	Software Dependability	3

Semester VII			Semester VIII		
Course Code	Course Description	Credit Hours	Course Code	Course Description	Credit Hours
CMP442	Distributed Systems and Cloud Computing	3		Elective III	3
	Elective II	3	INT496	Internship	3
MGT250	Engineering Economics	2	PRJ452	Project II	3
MGT332	Entrepreneurship and Professional Practice	2			
CMP438	Software Project Management	2			
CMP440	Software Testing, Verification, Validation and Quality Assurance	3			

Career Opportunities in Software Engineering

Below is a list of example career paths for graduates of computer engineering programs to consider.

- Software developer
- Business Information Analyst
- Web developer
- Help desk support specialist
- Computer system analyst
- Information security analyst
- Database administrator
- Mobile application developer
- Quality assurance engineer
- Applications

The future plan of the faculty is to strengthen the courses of engineering by launching new disciplines and starting various other programs.

14. Research Management Cell

Faculty of Science and Technology has established Research and Management Cell (RMC) for boosting the research environment in the field of Science and Technology. RMC is an integral part of the activities of School of Engineering. The key goal of the cell is to provide a creative atmosphere in which higher studies and research thrive amongst the faculty and students. Encouraging and sustaining innovation and research in the regular academics of the institution requires a strong administrative courage and strong concern for academic excellence.

15. Intake Capacity and Admission

The following subsection describes the intake capacity in different programs and admission procedures for fee-paying students.

15.1 Intake Capacity

Currently, School of Engineering offers five programs (as given in Table 2) at the undergraduate level in constituent school with intake capacity of total 288. The intake capacity of constituent college is shown in Table 3.

Table 3: The intake capacity of the different programs at constituent campus.

Programs offered	Total Intake Capacity	Fee-paying Capacity	Scholarship Quota
BE Civil	96	78	18
BE Civil and Rural	48	39	9
BE Computer	48	39	9
BE Software	48	39	9
BE Electrical and Electronics	48	39	9
Total	288	234	54

Note: School of Engineering will admit only for fee-paying capacity.

15.2. Admission Procedure (Fee-Paying)

The admission procedure under this category, the fee-paying student's selection will be conducted by the school level entrance examination conducted by admission committee. The committee will

call application for entrance examination, conduct the entrance examination, publish merit-list of passed student, provide deadline for correction of published merit-list, publish revised updated merit-list (if required) and notice for first spot-admission. The merit-list will publish according to the procedure mention under Section 10 (**Selection criteria and merit-list publication**) in this document.

In order to achieve effective, transparent and systemic admission in constituent school, the admission procedure will be conducted by the merit-based spot-admission process.

The general process for the admission after publication of merit-list is given as below:

- The information regarding admission process will be provided to students at official website of the school/university.
- Reporting/registration/documentation verification:
 - Student will visit school on the notified day and time with academic, other documents (both photocopy and original).
 - Student will be provided an admission form in order to fill up all necessary information online in university website and submit filled up form to the school administration who is responsible for the process.
- Spot admission:
 - Student will visit school on the notified day and time with original academic and other documents including admission fee prescribed by school.
 - Student sitting-waiting and counseling room will be assigned rank-wise in a group for a room with time schedule by school for the process of spot admission.
 - Student will be called rank-wise for admission from the published merit-list and time schedule.
 - According to the priority of program filled in admission form, student will get admission in the program of first priority. If the quota in the program of first priority requested by student is full, student will get admission in the program of second priority. If the quota in the program of second priority requested by student is also full, student will get admission in the program of third priority and so on.
 - In case the quota of prioritize program requested by student is full and admitted in another program, student will be asked to fill the transfer form.
 - As soon as quota of program is vacant by any reason the transfer process will be done immediately. Student will be informed and get admitted. However, if student wants to remain in same program then transfer chance will be given to another student on merit based as well as priority-wise.

- Student who did not fill the transfer form will not be eligible for transfer process.
- The transfer process will not be carried out after 15 days of commencement of class in school.
- Student is required to pay NRs 2000/- as transfer process. This fee may be change as per the decision of executive council of PU.
- After completing the admission, student will be provided an admission confirmation document.

If the fee-paying students' seats are not fulfilled on first spot admission; the notice of second spot admission will be published on the same day after the completion and summing up the first spot admission. The second spot admission will also follow the similar procedure of first spot admission.

16. Entrance Examination

The following subsection describe the eligibility to apply for a program, its entrance examination, evaluation and admission procedure.

16.1 Minimum Requirement

a. **Requirements for score in SLC exam or equivalent:**

- Candidates should have completed SLC examination of NEB or equivalent level from a recognized academic institution. Candidates should have studied at least one course on Mathematics, Physics and Chemistry.
- Candidates should have scored a minimum of 45% or CGPA of 2 (in a scale of 4) and at least Grade C (in case of A-level: at least Grade D) or 45% in each subject (P, C, M). The minimum criteria for Grade C (in case of A level, Grade D) does not apply to other courses or extra courses if any.

b. **Requirements for mathematics in SLC examination of NEB or equivalent:**

- Candidates should have studied mathematics of at least 100 marks in SLC examination taken by NEB or equivalent level.

16.2 Application Procedure

- Publication of entrance notice:** The entrance notice for fee-paying shall be published at least 35 days ahead of the entrance schedule/date. The notice should contain at least name of school, program detail with intake capacity, eligibility criteria, application deadline, entrance examination date, bank details, fee structure, and contact detail for further

information, etc.

b. **Mode of application submission**

The application shall be submitted online portal of respective school for fee-paying student.

c. **Required Documents:**

- Citizenship certificate in case of Nepali citizen and copy of passport and/or national identity document in case of foreign student.
- Original certificates (transcript/mark-sheet/grade-sheet, certificate, and character certificate) of SEE (or equivalent) and (10+2) examination of NEB or equivalent level from a recognized academic institution.
- Equivalence certificate for those who passed the examination from other than NEB/ CTEVT.
- Students waiting for results may also apply provisionally, but they are required to submit all/complete documents at the time of admission.

16.3 Syllabus Weightage and Contents

The entrance examination shall be conducted according to the mentioned subject weightage and syllabus.

- a. **Weightage in Mathematics (M), Physics (P), Chemistry (C) and English (E):** The weightage for M, P, C and E for the entrance examination syllabus shall be 40%, 30%, 20% and 10%, respectively.
- b. **Syllabus contents:** The contents of syllabus for **P**, **C**, **M** and **E** are elaborated in Appendix A.

16.4 Entrance Examination Pattern

- a. **Number of questions:** Total number of questions will be 100.
- b. **Duration of exam:** A minimum duration of entrance exam will be of 2 hours.
- c. **Types of questions:** All the questions will be of multiple-choice question (MCQ).
- d. **Provision for re-entrance examination:** The respective school shall decide on, the requirements for the re-entrance examination.
- e. **Provision for the international students:** University shall decide, appropriate model to allow foreign students for the entrance examination.

16.5 Evaluation and Results Publication Procedure

- a. **Weightage of entrance examination for merit-list:** The merit-list shall be prepared with 100% weightage to score of entrance examination.
- b. **Threshold to include in merit-list:** A minimum threshold to include in the merit-list shall be 40%, however, in special circumstances, threshold can revise and adjust by entrance examination committee.
- c. **Time-line for publishing results:** Results will be published within 7 working days after completion of the entrance examination.
- d. **Medium for publishing results:** Results of the entrance examination will be published through website/notice board of university/school/college.

16.6 Selection criteria and merit-list publication

The selection criteria and merit-list publication for fee-paying category are done as mentioned below:

- a. The total marks obtained in the entrance examination is considered as entrance score of merit which is the main criteria for the selection of candidates and for the purpose; the merit-list of candidates will be published.
- b. The merit-list will be published for the candidates who have secure minimum threshold and above prescribed by entrance examination committee.
- c. While publishing merit-list, if the entrance score of two or more candidates are equal, then the result of total mark obtained in percentage up to 3-decimal places in SLC examination or equivalent will be considered. While considering this, higher score will be given priority for publishing merit-list.
- d. If the mark obtained after considering as in (c) is equal, then the result of total mark obtained in percentage up to 3-decimal places in SEE examination or equivalent will be considered. If candidate fall to submit certificate SLC examination or equivalent, the candidates will be given a secondary priority.
- e. Even if the mark obtained after considering as in (d) is equal, marks obtained in entrance examination of mathematics, physics and chemistry are priority-wise considered (i.e, mathematics -1st, physics-2nd and chemistry-3rd).
- f. Even after the mark obtained after considering as in (e) is equal, female candidate will be given first priority.

16.7 Required Documents for Admission

- Original citizenship certificate in case of Nepali citizen and copy of passport and/or national identity document in case of foreign students.
- Original certificates (transcript/certificate and character) of SEE or equivalent and SLC or equivalent classes.
- Original migration certificate of SEE or equivalent and SLC or equivalent classes.
- Equivalent certificate for those who passed exam other than NEB/CTEVT or outside Nepal.
- Passport size photo- 2 copies.
- Application form (duly-filled) provided by school/college.
- Proof of payment of first installment (provided by account section of school/college).
- Letter of official sponsorship from the organization/institution for sponsored student.

16.8 Admission Cancellation and Refund

- While verifying submitted documents with original documents, if the obtain marks or other information or name published in merit-list due to any mistake are found to be different, then admission of candidate will be cancelled. Even if candidate get admitted, and found such mistake, admission of that candidate will be cancelled.
- After commencement of class in school, if the student is absent up to 15 days without information as well as appropriate reason and also fails to fill-up PU registration form; then the admission will be cancelled. New admission list based on merit will be published for the remaining candidates of first merit-list and seat of the student will be replaced by new candidate. If candidate/s is/are not available from the first merit-list, admission re-call notice will be published for interested candidate/s and admission will be done in merit base.
- In case a student desires to withdraw admission for any reason prior to the orientation class at the school, 50% of the tuition fee and the student deposit will be refunded. Conversely, if a student wish to cancel admission after the orientation class at the school, only the student deposit amount will be subject to a refund. It's important to note that this rule doesn't apply to students transferring within the same school program.
- If the student wants to cancel admission with any reason after 15 days of commencement of class in school, the first installment amount except deposit will be forfeited and admission will be cancelled. Original migration certificate will be recommended to return for the student who duly follows the rule of cancellation of admission.

- The student who admitted in any school under FST can re-join/re-admit for the lapsed/dropped out year/semester of the academic program with condition. The seat must be available in the program for the year/semester. The student must duly submit application with appropriate reason clarifying about the lapsed/dropped out year/semester of the academic program prior to 15 days of commencement of class in school/college. This provision will not be valid for new admission process and first semester. Admission of such student will be cancelled.

17. Fee structure

The fee structure of constituent school (School of Engineering) is given in Appendix B.

18. PU Registration

Admitted students of school/college are required to register at PU for PU registration number.

- If a student admitted at PU has already PU registration number, then it is required to submit a copy of PU registration card to college administration. If not, PU registration number can be obtained from PU.
- School will inform for the application and application form can be obtained from school.
- Student are required to duly-fill the PU registration form prescribed by PU and submit all document mentioned in Section 11 (Documents Requirements for Admission).

19. Student ID/Library Membership Cards

- Student identity card and library membership card will be provided by respective school following the rules and requirements of respective school.
- Student is required to be individually present.

20. Program Duration

The normal and the maximum duration for the completion of the requirements for the various programs are as follows:

Nature of Program	Normal Duration	Maximum Duration
Technical Programs	4 Years (8 Semesters)	8 Years (16 Semesters)

21. Attendance Requirements

A student must attend every scheduled lecture, tutorial, seminar and practical classes. However, to accommodate for late registration, sickness and other contingencies, the attendance requirements will be a minimum of 80% of the classes actually held. If the student is absent from the school/college for more than four weeks without permission of the principal/director, his/her name will be removed from the school/college roll.

22. Course Registration

The Academic record of a student is maintained in terms of the courses he/she has registered in a semester and the grades he/she obtains in those courses. Registration for courses is done at the beginning of each semester. Since registration is a very important procedural part of the credit system, it is essential that all students present themselves for registration at the college. In case of illness or any emergency circumstances, he /she must inform the director or head of the institution. Only in rare cases, the director or head of the institution may allow registration in the candidate's absence. The student's nominee cannot register for the courses but may complete other formalities.

23. Evaluation System

A student's performance in a course is evaluated in two phases: a) internally by the concerned faculty member through quizzes, tutorials, lab works, home assignments, class tests, assessment examination, term papers, etc. and b) externally by the office of the controller of examinations through semester end examinations. The student must pass both the internal and the external examinations separately.

The grades awarded to a student in a course are based on his/her consolidated performance in both these types of evaluations. The weight age given to internal evaluation is 50% for the undergraduate program, and 60% for the graduate program. Similarly, 50% weightage in undergraduate programs and 40% weight age in graduate programs are assigned to the end of the semester examinations.

23.1 Grading System

Pokhara University follows a four-point letter grade system for the undergraduate level as follows:

Grade	Grade Point	Description
A	(90 and above)	Excellent
A-	(85 and above, but below 90)	
B+	(80 and above, but below 85)	
B	(75 and above, but below 80)	Good
B-	(70 and above ,but below 75)	
C+	(65 and above, but below 70)	
C	(60 and above, but below 65)	Satisfactory
C-	(55 and above, but below 60)	
D+	(50 and above ,but below 55)	
D	(45 and above, but below 50)	Minimum Requirement
F	(below 45)	Fail

Only in very rare and unusual circumstances, if a student cannot finish all the required work for the course, he/she may be awarded an incomplete grade "I". If all the required work is not completed within the following semester, the grade of I will automatically be converted to an "F". A student receiving an 'I' grade does not need to register for that subject in the following semester to complete the required work.

The performance of a student in a semester shall be evaluated in terms of the Semester Grade Point Average (SGPA) which is the grade point average for the semester. The cumulative grade point average (CGPA) is the grade point average for all completed semesters.

- The semester grade point average (SGPA) which is the grade point average for the semester and is given by:

$$\text{SGPA} = \frac{\text{Total honor points earned in a semester}}{\text{total number of credit hours taken in a semester.}}$$

- The cumulative grade point average (CGPA) which is the grade point average for all completed semester and is given by:

$$\text{CGPA} = \frac{\text{Cumulative total honor points earned}}{\text{cumulative total number of credit hours taken.}}$$

where, Honor Point = Grade point earned in a subject × Number of credits assigned to that subject

23.2 Pass marks in internal and external examinations

Pass marks for the internal examination are 45% for the undergraduate level and 60% for the graduate level. Students failing in internal examination will be “Not Qualified” to appear in the end of the semester examination. Pass marks for the end of the semester examination are also 45% for undergraduate level and 60% for the graduate level.

23.3 Congruency between internal and external marks

A slightly higher internal examination marks than external examination marks will not be considered abnormal. However, if the marks in internal examination substantially and unacceptably exceed the marks in external examination, the internal examination marks will be questionable. Internal examination marks in a subject of a batch of students of a particular school/college will be considered to substantially and unacceptably exceed the respective external examination marks, if the former exceeds the later on an average by more than 25%.

In order to discourage this tendency and to ensure greater fairness in student grades across various colleges and over a period of time, the occurrence of substantially and unacceptably higher internal examination score, no matter whatever is written in anywhere, will be penalized by reducing the weightage of the internal examination by 50% correspondingly, the weightage of the external examination will be increased.

23.4 Degree with Distinction

To obtain a degree with distinction, a student must obtain a CGPA of 3.60 or better in the undergraduate level.

24. Dismissal from the program

A student is normally expected to obtain a CGPA of 2.0 in the undergraduate level. The student, whose performance in the past semesters does not show the possibility of maintaining this CGPA, may be dismissed from the program.

25. Transfer of credit hours

A maximum of up to 25% of the total credit hours of course work completed in an equivalent program of a recognized institution may be transferred / waived for credit on the recommendation of the head of the faculty. For transfer of credit, a student must have received a grade of ‘B’ or better in the respective course. Courses taken earlier than five years may not be accepted for transfer of credit. However, a student transferring from one program of Pokhara University may

receive a credit transfer of all the compatible courses completed with at least grade 'C' in the undergraduate level.

26. Examinations and Graduation

The Controller of Examinations is responsible for conducting all the end of semester examinations of the University. The examination timetable will be released no later than two weeks prior to the start of the examination period and the time, date, duration, and examination centers will be specified. It is the candidate's responsibility to attend the end of the semester examination at the correct time and place and to comply with the examination rules.

The Controller of Examinations will publish the official results of the examinations and make the results available to the concerned college(s). It is the responsibility of the candidates to make themselves aware of their results. Students are responsible for reviewing records carefully to ensure that they are completing all degree requirements.

The Controller of Examinations will make arrangements for graduation ceremonies. A graduate wishing to attend the graduation ceremonies should complete a diploma request form with the office of the Controller of Examinations. Degrees, Diplomas, Honors and Medals will be awarded to graduates at the graduation ceremonies. Students who need official verification of apply for transcripts from the office of the Controller of Examinations.

27. Semester-Specific Scholarship and Awards

- **Semester-specific scholarship**

The selection criteria and procedure for semester-specific scholarship are given in the *PU Scholarship Rule and Regulation 2065 (Sixth amendment on 2078/03/28)*.

- **Dean's list**

The Dean's list recognizes outstanding academic performance. To qualify, a student must obtain a CGPA of at least 3.7 in the undergraduate level.

28. Student's Code of Conduct

- Follow act, rules and regulations.
- Participate in academic programme.
- Cooperating to university.
- Respecting to head chair persons, teachers and officials.

- Keep up good mutual relation and help.
- Stay and keep on student discipline.
- Dissemination of true self-identification details.
- Restricted to attend in the class and laboratory of other college.
- Restricted to put inappropriate compelling action to head-chair persons, teachers and officials.
- Restricted to damage, loss or abuse of school property.
- Timely payment of the fees and other financial liabilities for school/college.
- Student identity card to keep with self and follow dress code.
- Return of book to library and other dues to be paid on time.
- Student must not do the following activities with in university/school/college compound.
- Without prior approval from school director, or authority head, student cannot conduct or let to conduct and participate public meetings, demonstration, games, singing-dancing, drama, cinema show or entertainment programs etc.
- Restricted to be present within school premises with undesirable dangerous weapons and prohibited objects and mass gathering.
- Restricted to bring adverse effect on academic and sound intellectual environment.
- Restricted to uncontrolled mass invasion, pressures, forceful action, dirty indication, shouting, quarrellings and fighting, indecent behaviour and encirclement.
- Restricted to ugly waste producing and polluted work.
- Restricted for admission in prohibited area.
- Restricted to conduct prohibited action declared from university/school/college or head authority.
- For breaching PU rules, regulations, act and guidelines, student may be taken official action as per Rule 31 as per nature, types and quantity of breaching code of conduct.
- The student can put appeal to Dean FST as per rule 33 for official action taken within 15 days of notification of official action received by student.

Note: In case of conflict of interest regarding Entrance Examination and Admission procedure, the admission committee will take final decision.

Appendix A: Syllabus of Entrance Examination

A. Mathematics [40%]

1. Set, Logic and Functions

- 1.1. Set, real number system, intervals, absolute value, logic, connectives, laws of logic
- 1.2. Function, types of functions - injective, subjective, objective, algebraic, trigonometric, exponential and logarithmic; Inverse of function, composite functions

2. Algebra

- 2.1. Matrices and determinants, types and properties, inverse of a matrix
- 2.2. Complex numbers and Polynomial equations
- 2.3. Sequence and series, Permutation and Combination
- 2.4. Binomial theorem, exponential and logarithmic series

3. Trigonometry

- 3.1. Trigonometric equations and general values
- 3.2. Inverse trigonometric functions, principal value
- 3.3. Properties of triangles, in-centre, ortho-centre and circum-centre, solution of triangles

4. Coordinate Geometry

- 4.1. Straight lines, pair of lines
- 4.2. Circles, equations of circle in different forms, tangent and normal
- 4.3. Conic sections: Parabola, Ellipse and Hyperbola, standard equations and simple properties
- 4.4. Coordinates in space, Plane and its equation

5. Calculus

- 5.1. Limit and continuity of functions, indeterminate forms, L'Hospital's rule
- 5.2. Derivatives, rules of derivatives, geometrical & physical meanings, higher order derivatives, applications of derivative: tangent and normal, rate of change, maxima and minima
- 5.3. Integration, linear properties, rules of integration, standard integrals, definite integral, applications of definite integral: area under a curve and area between two curves
- 5.4. Differential equations, order and degree, differential equation of first order and first degree: variable separable method, homogeneous, linear and exact differential equations, integrating factor

6. Vectors and their Products

- 6.1. Vectors in plane and space, algebra of vectors, linear combination of vectors, linearly dependent and independent set of vectors
- 6.2. Product of two vectors, scalar and vector product of two vectors, scalar triple product

7. Statistics and Probability

- 7.1. Measures of location and measures of dispersion

7.2. Correlation and regression

7.3. Basic terms of probability, conditional and compound probability, additive and multiplicative rules, Bayes' theorem, binomial distribution

B. Physics [30%]

1. Mechanics

1. Physical Quantities, Vector and Kinematics: Dimensions, Resolution and Polygon laws of Vector, Vector Algebra, Equations of Motions, Projectile Motion, Relative Motion
2. Newton's Laws of Motion and Friction: Conservation of linear momentum, Applications of Newton's Laws in Equilibrium and Non-equilibrium, laws of Solid Friction and verification
3. Work, Energy and Power: Work-Energy theorem, Kinetic and Potential energy, Conservation of Energy, Conservative and non-conservative forces, Elastic and inelastic collisions
4. Circular motion, Gravitation and SHM: Centripetal force, Conical Pendulum, Banking of Track, Gravitational Potential, variation of g , Motion of satellite, Rocket launch technology, Energy in SHM, Spring -Mass system, simple Pendulum, Damped and Forced oscillation, resonance
5. Rotational Dynamics: Moment of Inertia, Radius of Gyration, Rotational KE, Center of gravity and center of mass, Torque, Conservation of Angular momentum
6. Elasticity: Hook's law, Young modulus, Bulk modulus, modulus of rigidity, Poissons' ratio, elastic energy
7. Fluid Mechanics: buoyancy, flotation, Archimedes' principle, surface tension, capillarity and applications, viscosity, Newton, Stoke and Poiseuille's formula, Reynold number, continuity equation, Bernoulli's equation

2. Heat and Thermodynamics

1. Temperature and Quantity of Heat: Thermal Equilibrium, Specific heat, latent heat Method of Mixture, Measurement of specific heat and latent heat, Newton's law of cooling, triple point
2. Thermal expansion: Expansion of Solid & Liquid, Measurement and Applications of expansions
3. Transfer of Heat: Conduction, Convection, Radiation, Thermal Conductivity, Black body radiation, Stefan- Boltzmann law
4. Thermal properties of Matter: Molecular Properties of matter, Kinetic Theory of gases, heat capacities of gases and solids
5. Laws of Thermodynamics: First law, Heat and Work, relation of specific heat of gas, thermodynamics processes, Second law, Heat engine, efficiency, Carnot Cycle, Otto Cycle, Diesel cycle, Refrigerator, Entropy.

3. Geometric and Physical Optics

1. Reflection: Plane and Curved Mirror, Mirror Formula
2. Refraction: Plane Surface, Critical Angle, Total Internal Reflection, Lateral shift, Prism, Minimum Deviation, Lenses, Lens Formula, Lens maker's formula, Combination of lenses in contact, Optical Fiber
3. Dispersion: Spectrum, Dispersive Power, Chromatic Aberration, Achromatism, Spherical Aberration, Scattering of light

4. Nature and Propagation of Light: Huygen's principle, Velocity of light
5. Interference: Coherent sources, Young's double slit experiment
6. Diffraction: Fraunhofer diffraction, Diffraction grating, Resolving power
7. Polarization: Brewster's law, Transverse nature of light, Polaroid

4. Waves and Sound

1. Wave Motion: Travelling and Stationary wave
2. Mechanical Waves: velocity of sound in solid, gas and liquid, effect of temperature, pressure, humidity
3. Waves in Pipes and String: closed and Open pipes, Resonance, Resonance Tube, string, laws of vibration of fixed string
4. Acoustic Phenomena: Pressure amplitude, intensity level, quality and pitch, Ultrasonic and Infrasonic, Doppler's effect

5. Electricity & Magnetism

1. Electrostatics: Coulomb's law, Electric field and Gauss law, Potential and potential gradient, Capacitors, combination of capacitors, types of capacitors, effect of dielectrics, Energy stored by capacitors, polarization and displacement
2. DC Circuits: Ohm's law, resistivity and conductivity, work and power, Galvanometer and Ohm meter, internal resistance, Joule's law, Kirchhoff's law and applications
3. Thermoelectric Effect: Seebeck effect, Thermocouples, Peltier effect, Thermopile, Thomson effect
4. Magnetic effect: Force on a conductor and charge, Torque, Hall's effect, Biot-Savart's law, Ampere's law, Force between parallel conductors
5. Magnetic properties of matter: Earth magnetism, magnetic materials, permeability,
6. Electromagnetic Induction: Faraday's law, Induced emf, AC Generators, Self and mutual induction, energy stored by induc or, transformer
7. Alternating Currents: RMS value, Phasor diagram of capacitance, inductance and resistance, Quality factor, Power factor

6. Modern Physics

1. Electrons: Millikons's experiment, Cathode rays, specific charge
2. Photons & Quantization of Energy: Photoelectric effect, Plank's constant, Bohr's theory, spectral series, De Broglie theory, Uncertainty principle, X-ray and Bragg's law, Laser
3. Solids & Semiconductor Devices: Intrinsic and extrinsic semiconductors, P-N junction, Rectification, Zener diode, Transistor, Logic gates
4. Radioactivity & Nuclear Reaction: Atomic mass, Isotopes, Nuclear density, Einstein's mass energy relation, mass defect, fission & fusion, law of radioactive disintegration, carbon dating, health hazard
5. Recent Trends in Physics
 1. Particle Physics: Particle and anti-particle, Quarks, Lepton, Baryon, Mesons, Higgs Boson
 2. Universe: Big Bang and Hubble's Law, Dark Matter, Gravitational Wave, Black Hole
 3. Seismology: Pressure wave, Surface Wave, Internal wave

4. Telecommunication: Radio, TV and Mobile, GPS and Remote sensing
5. Environment: Energy Crisis, Environment Pollution, Ozone Layer
6. New Technology & Materials: Nano-technology, super conductor & Perfect conductor

C. Chemistry [20%]

1. Physical Chemistry

1. Chemical Arithmetic: Dalton's atomic theory and Laws of Stoichiometry, Atomic mass and Molecular mass, Empirical molecular formula and limiting Reactants, Avogadro's Hypothesis and its applications and Equivalent masses.
2. State of Matter: Gaseous state, liquid and solid states.
3. Atomic Structure and Periodic Classification of Elements:
4. Oxidation, Reduction and Equilibrium
5. Volumetric Analysis
6. Ionic Equilibrium, Acid, Base and Salt
7. Electrochemistry
8. Energetic of Chemical Reaction, Chemical Kinetics, Chemical Bonding and Shape of Molecules

2. Inorganic Chemistry

1. Non-metal: Hydrogen, Oxygen, Ozone, Water, Nitrogen and its compounds, Halogen, Carbon, Phosphorous, Sulphur, Noble gas and Environment pollution.
2. Metals: Metallurgical Principle, Alkali metal, Alkaline Earth metals, Coinage metals: Copper, Silver, Gold
3. Extraction of Metal: Zinc and Mercury, Iron Compound

3. Organic Chemistry

1. Introduction: Fundamental principles, Purification of organic compounds, Nomenclature of Organic compounds, Structure isomerism and idea of reaction mechanism
2. Hydrocarbons: Alkanes, Alkenes and Alkynes, Aromatic hydrocarbons
3. Haloalkanes and Haloarenes
4. Alcohols, Phenols and Ethers
5. Aldehydes, Ketones, Carboxylic Acid and Derivatives, Aliphatic and Aromatic
6. Nitro Compounds and Amines: Aromatic and Aliphatic

D. English [10%]

1. Vocabulary

1. Synonyms and antonyms
2. Homonyms, homophones
3. Word building, suffixes and prefixes

4. Meaning of words in context
5. Idioms and phrases
- 2. Grammar**
 1. Articles and possessives
 2. Pronouns, prepositions, adjectives, adverbs
 3. Tenses, modals, conditions
 4. Subject verb agreement
 5. Tag questions
 6. Sentence types and transformations
 7. Voice
 8. Direct and indirect narration
- 3. Reading Comprehension**
 1. Contents/ideas
 2. Reading between the lines
 3. Contextual clues
 4. Reconstruction (rewording)
- 4. Writing**
 1. Punctuations
 2. Cohesive devices
 3. Coherence
 4. Discourse markers
- 5. Sounds of English**
 1. Phonemes
 2. Phonemics symbols
 3. Word stress
 4. Intonation

Appendix B: Fee Structure

1. BE Civil Engineering and BE Civil and Rural Engineering

S . N o.	Particular	Semester									
		1st	2nd	3rd	4th	5th	6th	7th	8th	Total	
1	Admission fee	25,000									25,000
2	Registration fee	10,000									10,000
3	Tuition fee	36,000	36,000	36,000	36,000	36,000	36,000	36,000	36,000	36,000	2,88,000
4	Examination fee	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	40,000
5	Library fee	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	16,000
6	Service Fee	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	32,000
7	Laboratory fee	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	1,20,000
8	Student welfare fee	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	16,000
9	Survey Camp/ Workshop / Camp					30,000		20,000			50,000
10	P.U Development fee	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	24,000
11	Council Registration	1,000									1,000
12	FSU Fee	1,000									1,000
Total		1,04,000	67,000	67,000	67,000	97,000	67,000	87,000	67,000		6,23,000
Deposit		20,000									20,000

Note: Sponsored students pay 1.5 times, SAARC-country pay 2.0 times and Students from other than SAARC countries pay 3 times of the fees stated above.

2. BE Computer/Software/Electrical and Electronics Engineering

S.No.	Particular	Semester								
		1st	2nd	3rd	4th	5th	6th	7th	8th	Total
1	Admission fee	25,000					-	-	-	25,000
2	Registration fee	10,000					-	-		10,000
3	Tuition fee	34,400	34,400	34,400	34,400	34,400	34,400	34,400	34,400	2,75,200
4	Examination fee	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	40,000
5	Library fee	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	16,000
6	Service Fee	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	32,000
7	Laboratory fee	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	1,20,000
8	Student welfare fee	2,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	23,000
9	Workshop / Seminar							20,000		20,000
10	P.U Development fee	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	24,000
11	Council Registration	1,000								1,000
12	FSU Fee	1,000								1,000
Total		1,02,400	66,400	66,400	66,400	66,400	66,400	86,400	66,400	5,87,200
Deposit		20,000								20,000

Note: Sponsored students pay 1.5 times, SAARC-country pay 2.0 times and Students from other than SAARC countries pay 3 times of the fees stated above.

Appendix C: Laboratory/ Project Works

School of Engineering has well equipped laboratory facilities to meet the requirements of the curriculum of engineering programs in Pokhara University.



Sieve analysis (Soil mechanics lab)



Concrete mixing (Concrete/ RCC lab)



Civil Engineering Lab room



Testing of concrete cube



Thermal Lab



Mechanical lab



Computer lab



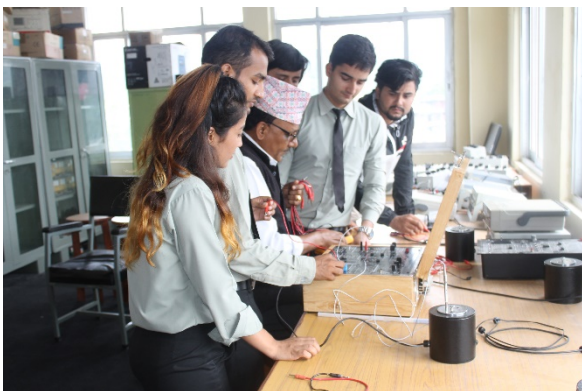
Levelling survey



Simple suspension bridge (Structure lab)



Three hinged arch (Structure lab)



Network Theory and Instrumentation lab





Microprocessor and Micro-controller lab



Project work performed by bachelor in Civil Engineering students

Appendix D: Faculties and Staffs

a) Civil Engineering and Civil & Rural Engineering

क्र.स.	नाम	पद	विषय	कैफीयत
स्थायी शिक्षकहरुको विवरण				
1	प्रा. डा. टेक राज ज्ञावली	प्राध्यापक	Structural Engineering	
2	प्रा डा.गोवीन्द प्रसाद लामिछाने	प्राध्यापक	Civil Engineering	
3	प्रा डा.विनय कुमार मिश्र	प्राध्यापक	Water Resource Engineering	
4	प्रा डा. माधव प्रसाद कोइराला	प्राध्यापक	Construction Management	कार्यक्रम संयोजक
5	डा. राजिव पोखेल	सह प्राध्यापक	Civil Engineering	कार्यक्रम संयोजक
6	श्री बुद्धि राज जोशि	सह प्राध्यापक	Civil Engineering	
7	श्री अर्जुन गौतम	सह प्राध्यापक	Water Resource Engineering	कार्यक्रम संयोजक
8	श्री प्रकाश बहादुर अधिकारी	सह प्राध्यापक	Geo.Techinal Engineering	
9	डा. हेमचन्द्र चौलागाईं	सह प्राध्यापक	Structural Engineering	कार्यक्रम संयोजक
10	श्री राजेन्द्र अर्याल	उप प्राध्यापक	Civil Engineering	
11	श्री प्रकाश बराल	उप प्राध्यापक	Civil Engineering	
12	श्री शंकर लामिछाने	उप प्राध्यापक	Water Resource Engineering	
13	श्री छविराज घिमिरे	उप प्राध्यापक	Civil Engineering	
14	श्री सञ्जय बराल	उप प्राध्यापक	Civil Engineering	कार्यक्रम संयोजक
15	श्री ओम प्रकाश गिरी	उप प्राध्यापक	Civil Engineering	स्कूल निर्देशक
16	श्री श्रीकृष्ण न्यौपाने	उप प्राध्यापक	Environment Eng.	
17	श्री आनन्द देव भट्ट	उप प्राध्यापक	Civil Engineering	
18	श्री मोहन ढकाल	सहायक प्रशिक्षक	Civil Engineering	
19	श्री फाराम सिंह थापा	सहायक प्रशिक्षक	Civil Engineering	
पूर्णकालिन करार शिक्षकहरुको विवरण				
1	श्री सौगात तिवारी	उप प्राध्यापक	Civil Engineering	कार्यक्रम संयोजक
2	श्री सुन्दर अधिकारी	उप प्राध्यापक	Civil Engineering	
3	श्री बन्नी अधिकारी	उप प्राध्यापक	Civil Engineering	
4	श्री सन्तोष खनाल	उप प्राध्यापक	Environment Engineering	कार्यक्रम संयोजक

b) Computer / Software Engineering

क्र.स.	नाम	पद	विषय	कैफीयत
स्थायी शिक्षकहरुको विवरण				
1	डा. उदय राज दुङ्गना	उप प्राध्यापक	Computer Engineering	कार्यक्रम संयोजक
2	डा. दिपाञ्जल श्रेष्ठ	सह प्राध्यापक	Computer Science	

3	अनुप आचार्य	सह प्राध्यापक	Information Technology	
4	यज्ञ नाथ रिमाल	उप प्राध्यापक	Computer Science and IT	
5	भेष बहादुर थापा	उप प्राध्यापक	Software Engineering	
6	राम चन्द्र अर्याल	सहायक प्रशिक्षक	Computer Engineering	
पूर्णकालिन करार शिक्षकहरुको विवरण				
1	रञ्जन अधिकारी	उप प्राध्यापक	Computer Engineering	
2	भरत शर्मा	उप प्राध्यापक	Computer Engineering	
3	राजेश कमार	उप प्राध्यापक	Computer Engineering	
4	शिव राम दाम	उप प्राध्यापक	Computer Engineering	
5	ऋषी शरण खनाल	उप प्राध्यापक	Computer Engineering	
6	विकास भट्टराई	उप प्राध्यापक	Computer Engineering	
7	सुसान्त पौडेल	उप प्राध्यापक	Computer Engineering	
कोर्ष करार शिक्षकहरुको विवरण				
1	Ganga Gautam	उप प्राध्यापक	Computer Engineering	
2	Pralhad Shrestha	उप प्राध्यापक	Computer Engineering	
3	Sujan Dhakal	उप प्राध्यापक	Computer Engineering	

c) Electrical / Electronics Engineering

क्र.स.	नाम	पद	विषय	कैफीयत
स्थायी शिक्षकहरुको विवरण				
1	श्री ललित विक्रम राणा	सह प्राध्यापक	Electrical Engineering	कार्यक्रम संयोजक
2	डा.मधु सुदन कायस्थ	सह प्राध्यापक	Electronics & Comm. Engineering	
3	श्री मनोज कुमार सिंह	उप प्राध्यापक	Electronics & Comm. Engineering	
4	श्री राम मणि अधिकारी	उप प्राध्यापक	Electronics & Comm. Engineering	
5	श्री संजिव थापा	उप प्राध्यापक	Electronics & Comm. Engineering	
6	श्री राजु वाग्ले	उप प्राध्यापक	Electrical Engineering	
7	श्री अनन्त अधिकारी	उप प्राध्यापक	Electrical Engineering	कार्यक्रम संयोजक
8	ऋषीकेश तिवारी	उप प्राध्यापक	Electrical Engineering	
9	पूर्ण बहादुर पुन	उप प्राध्यापक	Electrical Engineering	
10	श्री उपेन्द्र प्रसाद यादव	प्रशिक्षक	Electrical Engineering	
11	श्री केशव बस्याल	सहायक प्रशिक्षक	Electrical Engineering	
पूर्णकालिन करार शिक्षकहरुको विवरण				
1	निरज खड्का	उप प्राध्यापक	Electrical Engineering	
2	रामु पौडेल	सहायक प्रशिक्षक	Electrical Engineering	

d) Mechanical Engineering and Bioinformatics

क्र.स.	नाम	पद	विषय	कैफीयत
स्थायी शिक्षकहरुको विवरण				
1	डा.सुरेश बराल	सह प्राध्यापक	Mechanical Engineering	
2	श्री इन्द्र प्रसाद तिमिल्लीना	सहायक प्रशिक्षक	Mechanical Engineering	
पूर्णकालिन करार शिक्षकहरुको विवरण				
	डा. सुजन चन्द्र सिग्देल	उप प्राध्यापक	Bio.Informatics	कार्यक्रम संयोजक
	मदन बराल	उप प्राध्यापक	Bio.Informatics	
	श्री ऋषभ खनाल	उप प्राध्यापक	Mechanical Engineering	
	अनिल मणि भण्डारी	उप प्राध्यापक	Mechanical Engineering	परिक्षा संयोजक
	प्रश्रित सापकोटा	सहायक प्रशिक्षक	Mechanical Engineering	

e) Humanities and Sciences

क्र.स.	नाम	पद	विषय	कैफीयत
1	प्रा राजेश कुमार ठगुराठी	प्राध्यापक	Mathematics	डीन
2	डा.हिमलाल गौतम	सह प्राध्यापक	Mathematics	
3	श्री चन्द्र प्रकाश सुवेदी	उप प्राध्यापक	Physics	
4	श्री टेक बहादुर क्षेत्री	उप प्राध्यापक	English	
5	श्री माधव प्रसाद पौडेल	उप प्राध्यापक	Mathematics	
6	श्री हेमराज पाण्डे	उप प्राध्यापक	Mathematics	
7	श्री प्रकाश गौतम	उप प्राध्यापक	Chemistry	
पूर्णकालिन करार शिक्षकहरुको विवरण				
	श्री पुनम बराल	उप प्राध्यापक	Chemistry	
	प्रेम गुरुङ्ग	उप प्राध्यापक	Mathematics	
	श्री ठाकुर प्रसाद पोखरेल	उप प्राध्यापक	Mathematics	
	दुर्गेश ओझा	उप प्राध्यापक	Mathematics	

3. कर्मचारीहरुको विवरण

क्र .स.	नाम	पद	शाखा
१	श्री रवि चन्द्र सिग्देल	उप प्रशासक (प्रशासन)	प्रशासन ब्लक ए
२	श्री दुर्गा प्रसाद आचार्य	उप प्रशासक (पुस्तकालय)	पुस्तकालय ब्लक वि
३	श्री सुवास अधिकारी	उप प्रशासक (लेखा)	लेखा ब्लक ए
४	श्री शारदा वास्तोला	सहायक प्रशासक (प्रशासन)	शैक्षिक प्रशासन ब्लक ए
५	श्री अमृत थापा	सहायक प्रशासक (प्रयोगशाला)	प्रयोगशाला ब्लक ए वि
६	श्री प्रमीला भट्टराई	सहायक प्रशासक (प्रशासन)	स्टोर शाखा ब्लक ए
७	श्री पूर्ण पुन	सहायक प्रशासक (लेखा)	लेखा ब्लक ए

८	पुरुषोत्तम रानाभाट	मुख्य सहायक (प्रशासन)	शैक्षिक प्रशासन ब्लक वि
९	श्री विमल कार्की	मुख्य सहायक (प्रशासन)	स्टोर शाखा ब्लक ए
१०	श्री कर्ण कुमारी रानाभाट	मुख्य सहायक (प्रशासन)	प्रशासन ब्लक ए
११	श्री राजु अधिकारी	सहायक(प्रशासन)	शैक्षिक प्रशासन ब्लक ए
१२	श्री टेक बहादुर नेपाली	सवारी चालक	सवारी चालक
१३	श्री अनिल कुमार यादव	कार्यालय सहयोगी	कार्यालय सहयोगी ब्लक ए
१४	श्री कल्पना कमर	कार्यालय सहयोगी	कार्यालय सहयोगी ब्लक वि
१५	श्री लक्ष्मी नराल	हेल्पर	कुचिकार ब्लक ए
१६	श्री रविन्द्र पौडेल	प्रयोगशाला सहयोगी	प्रयोगशाला सहयोगी सिभिल
१७	श्री नारायण कृष्ण थापा मगर	कार्यालय सहयोगी	सवारी चालक
१८	श्री शिव देवी पौडेल	प्रयोगशाला सहयोगी	प्रयोगशाला सहयोगी मेकानिकल
१९	लक्ष्मी परियार	प्रयोग शाला सहयोगी	प्रयोग शाला सहयोगी इलेक्टिकल
२०	गुणराज पौडेल	प्रयोग शाला सहयोगी	प्रयोग शाला सहयोगी इलेक्टिकल
२१	इन्दिरा वास्तोला	कार्यालय सहयोगी	कार्यालय सहयोगी ब्लक वि

Appendix E: Model Question

Choose the correct answer and tick (✓) on the attached answer sheet.

Group A: Mathematics [40x1=40]							
1	The number of functions from $\{3,4,5\}$ into $\{1,2\}$ are						
A	4	B	12	C	8	D	16
2	Which of the following statement is true?						
A	$\phi = \{0\}$	B	$\phi = \{, \}$	C	$\phi = \{\phi\}$	D	$\phi = \{\phi, \{0\}\}$
3	The domain of the function $f(x) = \frac{1}{\sqrt{x^2 - 3x + 2}}$ is						
A	$(-\infty, 1) \cup (1, \infty)$	B	$(-\infty, 1)$	C	$(-\infty, 1) \cup (2, \infty)$	D	$(2, \infty)$
4	Let the function $f:A \rightarrow A$ is defined by $f(x) = x^2$ where $A = \{-1, 0, 1\}$. Then the function is						
A	One to one	B	into	C	onto	D	One to one and onto
5	If $\lim_{x \rightarrow 0} \frac{\sin 4x}{\tan ax} = 5$, then the value of a is						
A	4/5	B	5	C	1	D	5/4
6	The value of $\lim_{x \rightarrow 0} \frac{e^x - x - 1}{x}$ is equal to						
A	1	B	0	C	-1	D	e
7	If $f(x)=x+2$ then $f^1 f(x)$ at $x=4$ is						
A	5	B	3	C	1	D	7

8	The area bounded by the curve $y^2=8x$ and $x^2=8y$ is							
	A	16/3	B	64/3	C	32/5	D	8/3
9	The sum of n natural numbers is 36 then the value of n is							
	A	10	B	11	C	8	D	12
10	With which of the following matrices may the square matrix A not commute?							
	A	A^{-1}	B	$\text{Adj}(A)$	C	$A^{-1}B$	D	$B^{-1}A^{-1}$

Group B: Physics [30x1=30]

1	The dimensions of angular frequency are the same as that of the							
	A	Frequency	B	Time period	C	Angle	D	Angle/frequency
2	A ball is thrown vertically upwards in air. If the air resistance cannot be neglected, then the acceleration of the both at the highest point is							
	A	g	B	$>g$	C	$<g$	D	0
3	What happens to the coefficient of friction, when the normal reaction is halved?							
	A	Halved	B	Doubled	C	No change	D	Depends upon the nature of the
4	A bomb at a rest explodes into a large numbers of tiny fragments. The total linear momentum of all the fragments							
	A	Is zero	B	Depends upon the total mass of the fragments	C	Depends upon the various fragments speed	D	Is infinity

5	If two ping pong balls are suspended near each other and a fast stream of air is produced within the space between balls .The balls							
	A	Come closer	B	move farther	C	remain at original	D	fall down
6	Oxygen and hydrogen gases are at same temperature and pressure .The ratio of their rms							
	A	2:1	B	16:1	C	4:1	D	1:4
7	To correct myopia the focal length of the concave lens should be							
	A	Equal to the distance of far point	B	Less than the distance of far point	C	Less than the distance of near point	D	Equal to the distance of near point

Group C: Chemistry [20x1=20]

1	O ₃ is absorbed by							
	A	alkaline pyrogallol	B	Turpentine	C	FeSO ₄ Solution	D	Conc. H ₂ SO ₄
2	Ortho and Para nitro-phenol can be separated by							
	A	Distillation	B	Filtration	C	Crystallization	D	Steam
3	Oxidation is associated with							
	A	Loss of	B	Increase in positive	C	both a & b	D	Gains of
4	2 litre of O ₂ at NTP weights							
	A	0.71 gm	B	2.86 gm	C	2.3 gm	D	2.85 gm

5	For exothermic reaction							
	A	$\Delta H = 0$	B	$\Delta H = +ve$	C	$\Delta H = -ve$	D	None

Group D: English [10x1=10]

1	We should finish taking the examination							
	A	on time	B	timelessly	C	in time	D	at time
2	I just knew that							
	A	a sun is a star	B	the sun is a star	C	the sun is the star	D	a sun is the star
3	It took us quite a long time to get here. It was journey.							
	A	three hour	B	three-hours	C	a three-hour	D	a three-hours
4	When the police came, the dacoitsaway.							
	A	had run	B	ran	C	would	D	had been running
5	Ms. Luisine is supposed to..... a good English speaker.							
	A	be	B	to have been	C	have learnt	D	be learning
	A	Did I did my work?	B	Do I did my work?	C	Did I do my work?	D	Do I do my work?