Bachelor of Technology – Mechanical & Automation Engineering

FLEXILEARN

-Freedom to design your degree

Programme Structure

Curriculum & Scheme of Examination

2014

AMITY UNIVERSITY CHHATTISGARH

RAIPUR

B.Tech-Mechanical & Automation Engineering

Programme Structure

THIRD SEMESTER

Course Code	Course Title	Lecture (L) Hours Per week	Tutorial (T) Hours Per week	Practical (P) Hours Per week	Total Credits
MAE2301	Kinematics of Machines	3	1	-	4
MAE2351	Thermodynamics	2	1	-	3
MAE2302	Mechanics of Solids	3	1	-	4
MAE2303	Material Science & Metallurgy	3	-	-	3
MAE2304	Mechanics of Fluids	3	1	-	4
MAE2305	Mechanics of Solids Lab	-	-	2	1
MAE2306	Machine Drawing Lab	-	-	2	1
MAE2307	Kinematics of Machines Lab	-	-	2	1
MAE2308	Mechanics of Fluids Lab	-	-	2	1
Concentration Electives					**2**
MAE2309	Electronics	2	-	-	2
MAE2310	Independent Study	-	-	-	1
MAE2331	Term Paper	-	-	-	2
MAE2332	Project (With Presentation & Evaluation)	-	-	-	2
MAE2333	Workshop/ Certificate (Discipline Specific) **(1 Credit per workshop)**	-	-	-	1
MAE2334	Study Abroad (8 Days)	-	-	-	2
Open Electives					**4*+3**
CSS2151	Effective Listening*	1	-	-	1
BEH2351	Group Dynamics and Team Building*	1	-	-	1
	Foreign Language – III*	2	-	-	2
LAN2351	French-III				
LAN2352	German-III				
LAN2353	Spanish-III				
LAN2354	Russian-III				
LAN2355	Chinese-III				
LAN2356	Portuguese-III				
LAN2357	Korean-III				
LAN2358	Japanese-III				
	TOTAL				**31**

*** Compulsory**

Syllabus – Third Semester

KIMEMATICS OF MACHINE

Course Code: MAE2301 **Credit Units: 04**

UNIT I

Introduction

Links-types, Kinematics pairs-classification, Constraints-types, Degrees of freedom of planar mechanism, Grubler‟s equation, linkage mechanisms, inversions of four bar chain, slider crank chain and double slider crank chain

Velocity in Mechanisms

Velocity of point in mechanism, relative velocity method, Velocities in four bar mechanism, slider crank mechanism and quick return motion mechanism, Rubbing velocity at a pin joint, Instantaneous center method, Types & location of instantaneous centers, Kennedy‟s theorem, Velocities in four bar mechanism & slider crank mechanism

UNIT II

Acceleration in Mechanisms

Acceleration of a point on a link, Acceleration diagram, Coriolis component of acceleration, Crank and slotted lever mechanism, Klein‟s construction for Slider Crank mechanism and Four Bar mechanism, Analytical method for slider crank mechanism

Mechanisms with Lower Pairs

Pantograph, Exact straight line motion mechanisms-Peaucellier‟s, Hart and Scott Russell mechanisms, Approximate straight line motion mechanisms–Grass-Hopper, Watt and Tchebicheff mechanisms, Analysis of Hooke‟s joint, Davis and Ackermann steering gear mechanisms.

UNIT III

FRICTION

Laws of friction, Friction on inclined plane, Efficiency on inclined plane, Friction in journal bearing-friction circle, Pivots and collar friction-uniform pressure and uniform wear, Belt and pulley drive, Length of open and cross belt drive, Ratio of driving tensions for flat belt drive, centrifugal tension, condition for maximum power transmission, V belt drive

Brakes & Dynamometers

Shoe brake, Band brake, Band and Block brake, Absorption and transmission type dynamometers

UNIT IV

CAMS

Cams and Followers - Classification & terminology, Cam profile by graphical methods with knife edge and radial roller follower for uniform velocity, simple harmonic and parabolic motion of followers, Analytical methods of cam design – tangent cam with roller follower and circular cams with flat faced follower

UNIT V

Gears & Gear Trains

Classification & terminology, law of gearing, tooth forms & comparisons, Systems of gear teeth, Length of path of contact, contact ratio, interference & under cutting in involute gear teeth, minimum number of teeth on gear and pinion to avoid interference, simple, compound, reverted and planetary gear trains, Sun and planet gear.

Books and References:

1. Theory of Machines - Thomas Bevan
2. Theory of Machines and Mechanisms- Shigley
3. Theory of Machines and Mechanisms-Ghosh & Mallik
4. Theory of Machines and Mechanisms- Rao & Dukkipati
5. Theory of Machines-S.S. Rattan
6. Kinematics of Machines-Dr. Sadhu singh
7. Mechanics of Machines – V. Ramamurti
8. Theory of Machines – Khurmi & Gupta
9. Theory of Machines – R. K. Bansal
10. Theory of Machines – V. P. Singh
11. Theory of Machines – Malhotra & Gupta

THERMODYNAMICS

Course Code: MAE2351 **Credit Units: 03**

Course Objective:
Objective of this course is to impart in depth understanding of the principles of thermodynamics and heat transfer. This course also helps students understand the application of basic fluid mechanics, thermodynamic, and heat transfer principles and techniques, including the use of empirical data, to the analysis of representative fluid and thermal energy components and systems encountered in the practice of electrical, electronic, industrial, and related disciplines of engineering.

Course Contents:

Module I: Basic concepts
Thermodynamic system, intensive and extensive properties, cyclic process, Zeroth Law of Thermodynamics, Work and heat, Flow work

Module II: First Law of Thermodynamics
Mechanical equivalent of heat, internal energy, Analysis of non-flow system, flow process and control volume, steady flow, energy equation, flow processes

Module III: Second Law of Thermodynamics and Entropy
Heat Engine, heat pump, Kelvin Planck and Clausius statement of Second Law of Thermodynamics, Perpetual motion machine, Reversible cycle- Carnot Cycle, Clausius inequality, entropy, Principle of entropy increase, concepts of availability, irreversibility.

Module IV: Air-Cycles
Carnot cycle, Otto cycle, Diesel cycle, Dual cycle, Stirling cycle, Erricsson cycle, Brayton cycle; Reversed Carnot cycle.

Module V: Properties of Steam
Use of steam tables, wet steam, superheat steam, different processes of vapour, Mollier Diagram.

Module VI: Reciprocating Air compressors
Single stage compressor, Isothermal efficiency, adiabatic efficiency, clearance volume, volumetric efficiency, and multi-stage compression with intercooling.

Examination Scheme:

Components	A	CT	S/V/Q	HA	EE
Weightage (%)	5	10	8	7	70

CT: Class Test, HA: Home Assignment, S/V/Q: Seminar/Viva/Quiz, EE: End Semester Examination; Att: Attendance

Text & References:
Text:
- P.K. Nag, "Engineering Thermodynamics", Tata McGraw Hill
- Incropera, "Engineering Thermodynamics", John Willy

References:
- Engel, T. and Reid, P., Thermodynamics, Statistical Thermodynamics & Kinetics, Pearson Education, 2006
- Cengel & Boles, "Thermodynamics", Tata McGraw Hill.
- Sonntag/Vanhylene, Fundamentals of Thermodynamics, Wiley
- Rahul Gupta, Engineering Thermodynamics, Asian Books P. Ltd.
- Y.V.C. Rao, Engineering Thermodynamics, Khanna Publications
- Onkar Singh, Applied Thermodynamics, New Age Publications.
- Dhomkundwar Kothandaraman, "A Course in Thermal Engineering", Dhanpat Rai Publications

MECHANICS OF SOLIDS

Course Code: MAE2302 **Credit Units: 04**

Course Objective:
The objective of this course is to make the students understand the concept of stress and strain in different types of structure/machine under different loading conditions. The course also covers the simple and compound stresses due to forces, stresses and deflection in beams due to bending, torsion in circular section, strain energy, different theories of failure, stress in thin cylinder thick cylinder and spheres due to external and internal pressure.

Course Contents:

Module I: Simple stresses and strains
Concept of stress and strain; Hooke‟s law, Young‟s modulus, Poisson ratio, stress at a point, stress and strains in bars subjected to axial loading. Modulus of elasticity, stress produced in compound bars subject to axial loading. Temperature stress and strain calculations due to applications of axial loads and variation of temperature in single and compound walls.

Module II: Compound stress and strains
The two dimensional system; stress at a point on a plane, principal stresses and principal planes; Mohr‟s circle of stress. Graphical and Analytical methods for stresses on oblique section of body. Shear force and bending moment diagrams for cantilever, simply supported and overhanging beams.

Module III: Bending Stress
Theory of bending stresses in beams due to bending, assumptions in the simple bending theory, derivation of formula: its application to beams of rectangular, circular and channel sections, composite / flitched beams, bending and shear stresses in composite beams.

Module IV: Torsion
Derivation of torsion equation and its assumptions. Applications of the equation of the hollow and solid circular shafts torsional rigidity, combined torsion and bending of circular shafts principal stress and maximum shear stresses under combined loading of bending and torsion, analysis of close-coiled-helical springs.

Module V: Thin cylinders and spheres
Derivation of formulae and calculation of hoop stress, longitudinal stress in a cylinder and sphere subjected to internal pressure.

Module VI: Columns and struts
Columns and failure of columns, Euler‟s formulas; Rankine-Gordon‟s formula, Johnson‟s empirical formula for axially loaded columns and their applications.

Module VII: Slope and deflection
Relationship between moment, slope and deflection, Mohr‟s theorem; Moment area method; method of integration; Macaulay‟s method: Use of all these methods to calculate slope and deflection for the following:
a) Cantilevers
b) Simply supported beams with or without overhang
c) Under concentrated loads, uniformly distributed loads or combination of concentrated and uniformly distributed loads

Examination Scheme:

Components	A	CT	S/V/Q	HA	EE
Weightage (%)	5	10	8	7	70

CT: Class Test, HA: Home Assignment, S/V/Q: Seminar/Viva/Quiz, EE: End Semester Examination; Att: Attendance

Text & References:

Text:

- Jindal U.C., "Strength of Materials", Galgotia Publication, New Delhi, 1998.
- Ryder G.H., "Strength of Materials", Macmillan, Delhi, 2003.
- R.K. Bansal, "Strength of Materials", Laxmi Publication, New Delhi, 2001.

References:

- Sadhu Singh, "Strength of Materials", Khanna Publishers, New Delhi, 2000.
- Timoshenko S.P., "Elements of Strength of Materials", East-West affiliated, New Delhi, 2000.
- Hibbler R.C., "Mechanics of Materials", Prentice Hall, New Delhi, 1994.
- Popov Eger P., "Engg. Mechanics of solids", Prentice Hall, New Delhi, 1998.
- Fenner, Roger. T, "Mechanics of Solids", U.K. B.C. Publication, New Delhi, 1990.
- Srinath L.S. et.al., "Strength of Materials", McMillan, New Delhi,2001

MATERIAL SCIENCE AND METALLURGY

Course Code: MAE2303 **Credit Units: 03**

Course Objective:
Metallurgy and Materials deal with the structure and properties of all materials, which have engineering applications. Metallurgists and Materials Engineers are responsible for designing, producing, examining and testing materials as diverse as metallic engineering alloys, semiconductors and superconductors, ceramics, plastics and composites. This course will help students understand the properties of different types of materials and their applications.

Course Contents:

Module I
Atomic structure of metals crystal structure, crystal lattice of (i) Body centered cubic (ii) face centered cubic (iii) closed packed hexagonal, crystallographic notation of atomic planes, polymorphism and allotropy, solidification of crystallization (i) nuclear formation (crystal growth) (ii) crystal imperfection Elementary treatment of theories of plastic deformation, phenomenon of slip twinning, dislocation, identification of crystallographic possible slip planes and direction in FCC, BCC, C.P., recovery, re-crystallization, preferred orientation causes and effects on the property of metals.

Module II
Introduction to Engineering materials, their mechanical behaviour, testing and manufacturing properties of materials, physical properties of materials, classification of engineering materials.

Module III
General principles of phase transformation in alloys, phase rule and equilibrium diagrams, Equilibrium diagrams of Binary system in which the components form a mechanical mixture of crystals in the solid state and are completely mutually soluble in both liquid state. Equilibrium diagrams of a systems whose components have complete mutual solubility in the liquid state and limited solubility in the solid state in which the solid state solubility deceases with temperature. Equilibrium diagram of alloys whose components have complete mutual solubility in the liquid state and limited solubility in solid state (Alloy with a peritectic transformation) Equilibrium diagrams of a system whose components are subject to allotropic change. Iron carbon equilibrium diagram. Phase transformation in the iron carbon diagram (i) Formation of Austenite (ii) Transformation of austenite into pearlite (iii) Martensite transformation in steel, time temperature transformation curves.

Module IV
Principles and applications of heat treatment processes viz. annealing, normalizing hardening, tempering; harden ability & its measurement, surface hardening processes. Defects in heat treatment and their remedies; effects produced by alloying elements on the structures and properties of steel. Distribution of alloying elements (Si, Mn. Ni. Cr. Mo. TL. Al) in steel.

Examination Scheme:

Components	A	CT	S/V/Q	HA	EE
Weightage (%)	5	10	8	7	70

CT: Class Test, HA: Home Assignment, S/V/Q: Seminar/Viva/Quiz, EE: End Semester Examination; Att: Attendance

Text & References:

Text:

- V. Raghavan, "Material Science & Engineering", Prentice Hall India Ltd., 2001.
- Shackelford, J.F. and Muralidhara, M.K., Introduction to Material Science for Engineers (6/e), Pearson Education, 2007
- S.K. Hazra Chaudhuri, "Material Science & Processes", Indian Book Publishers, Calcutta, 1983.
- R.B. Gupta, "Material Science Processes", Satya Prakashan, New Delhi, 2000.

References:

- Degarmo E. Paul et.al, “Materials & Processes in Manufacture”, Prentice Hall India, New Delhi, 2001.
- Raymond A Higgim., “Engineering Metallurgy Part 1”, Prentice Hall India, New Delhi, 1998.
- L. Krishna Reddi, “Principles of Engineering Metallurgy”, New Age Publication, New Delhi, 2001.
- Buduisky et al, “Engineering Materials & Properties”, Prentice Hall India, New Delhi, 2004.
- Peter Haasten, “Physical Metallurgy”, Cambridge Univ. Press, 1996.

MECHANICS OF FLUIDS

Course Code: MAE2304 **Credit Units: 04**

Course Objective:
The objective of Fluid Mechanics subject is that students should understand the, properties of fluids, pressure measurement devices, hydraulic forces on surfaces, bouncy and flotation in fluids, kinematics and static behaviour of fluids, dimension and model analysis, laminar and turbulent flow, flow through pipes and orifices, boundary layer theory.

Course Contents:

Module I: Fluid Properties and Fluid Statics
Newtonian and Non-Newtonian Fluids; Viscosity; Incompressible and compressible fluids, compressibility. Forces on plane surfaces, forces on curved surfaces, buoyant forces, and stability of floating bodies, metacentre and metacentre height.

Module II: Kinematics of Fluid Motion
Steady and unsteady flow; uniform and non-uniform flow; Laminar and turbulent flow; streamline, path line and streak line; continuity equation, irrotational and rotational flow, velocity potential and stream function, vortex flow, free and forced vortex.

Module III: Dynamics of Fluid Flow
Euler‟s equation of motion and its integration to yield Bernoulli‟s equation, its practical applications – Pilot tube, Venturi meter; steady flow momentum equation, force exerted on a pipe bend.

Module IV: Dimensional Analysis and Principles of Similarity
Buckingham π-Theorem and its applications, Geometric, Kinematics and Dynamic similarity; Dimensionless numbers-Reynolds, Froude, Euler, Mach, Weber Number and their significance.

Module V: Laminar and Turbulent Flow
Reynold‟s experiment, critical velocity, steady laminar flow through a circular tube, flow between parallel plates. Transition from laminar to turbulent flow, courses of turbulence, velocity distribution law near a solid boundary, velocity distribution in rough pipes, Hazen – Williams‟s formula.

Module VI: Analysis of Pipe Flow
Energy losses, minor losses in pipe lines, concept of equivalent length, flow between two reservoirs, and multiple pipe systems – in series and parallel, siphon.

Module VII: Flow Measurements
Measurement of flow using Venturi meter, orifice meter, Pitot tube, measurement of flow in open channels – rectangular, triangular, trapezoidal weir, Cipoeletti weir.

Examination Scheme:

Components	A	CT	S/V/Q	HA	EE
Weightage (%)	5	10	8	7	70

CT: Class Test, HA: Home Assignment, S/V/Q: Seminar/Viva/Quiz, EE: End Semester Examination; Att: Attendance

Text & References:

Text:

- R.K. Bansal, “Fluid Mechanics & Hydraulic Machines”, Laxmi Publications (P) Ltd., 2002.
- Gupta, S. C., Fluid Mechanics and Hydraulic Machines, Pearson Education, 2007
- D.S. Kumar, “Fluid Mechanics and Fluid Power Engineering”, S.K. Kataria & Sons, 2000.

References:

- F. M. White, Introduction to Fluid Mechanics, McGraw Hill
- I.H. Shames, “Mechanics of Fluids”, Tata McGraw Hill
- Douglas, J. F., Gasiorek, J.M. and Swaffield, J., Fluid Mechanics, Pearson Education, 4/e, 2006
- V.L. Streeter and E.B. Wylie, “Fluid Mechanics”, Tata McGraw Hill
- Massey B S, Mechanics of Fluids, Van Nostrand Reinhold Co

MECHANICS OF SOLIDS LAB

Course Code: MAE2305 **Credit Units: 01**

Course Contents:
Experimental work will be based on the following papers:
Mechanics of Solids
Fluid Mechanics

List of Experiments:

MECHANICS OF SOLIDS LAB

1. Universal Testing Machine
2. Tensile Test (MS)
3. Double Shear Test (MS)
4. Compression Test (CI)
5. Brinell Hardness No.
6. Izod Impact
7. Testing Machine
8. Rockwell Hardness Tester
9. Spring Stiffness (Spring Compression Testing machine)
10. Torsion testing machine

MACHINE DRAWING LAB

Course Code: MAE2306 **Credit Units: 01**

Course Contents:

Free-Hand Sketching & Shaft Scale Drawing
Components like cotter joint, knuckle joint; rivets and riveted joints; couplings; flywheels, pulleys, bush bearings, Engine parts. Isometric views from Orthographic Projections of Machine Components.

Examination Scheme:

IA				EE	
A	**PR**	**LR**	**V**	**PR**	**V**
5	10	10	5	35	35

Note: IA –Internal Assessment, EE- External Exam, PR- Performance, LR – Lab Record, V – Viva.

Text & References:

- Pohit, G and Gosh, G., Machine Drawing with Auto CAD, Pearson Education, 2007
- PS Gill, Machine Drawing, S. Chand.
- ND Bhatt, Machine Drawing, Charotar publications
- N Sidheshwar, Machine Drawing , Tata McGraw Hill
- CL Tanta, Mechanical Drawing , “Dhanpat Rai”

KINEMATICS OF MACHINE LAB

Course Code: MAE2307 **Credit Units: 01**

1. To study inversion of 3 R-IP Kinematics chain
2. To study inversions of 2R-2P Kinematics Chain
3. To carry out computer implementable kinematics analysis of 4 R mechanisms
4. To carry out computer implementable kinematics analysis of slider bar mechanism
5. To study gear box, clutch and differential gear
6. To find coefficient of friction for clutch plate
7. To determine gear ratio for an epicyclical gear train and verify it by analytical method
8. To study different types of Cam follower systems
9. To determine moment of inertia of the given object using of Trifler suspension.
10. To plot slider displacement, velocity and acceleration against crank rotation for single slider crank mechanism.
11. To find coefficient of friction between belt and pulley.
12. . To study various types of gears – Helical, cross helical, worm, bevel gear.
13. . To study the different types of brakes and dynamometers.

Examination Scheme:

IA				EE	
A	**PR**	**LR**	**V**	**PR**	**V**
5	10	10	5	35	35

Note: IA –Internal Assessment, EE- External Exam, PR- Performance, LR – Lab Record, V – Viva.

MECHANICS OF FLUIDS LAB

Course Code: MAE2308 **Credit Units: 01**

FLUID MECHANICS LAB

1.Verification of Bernoulli‟s Theorem

2.Experiment using Venturimeter

3.Determination of coefficient of Discharge C_d, C_c, $C_!$ Using

4.Circular/triangular/rectangular orifice

5.To find major head losses in a pipe line

6.To find minor head losses in a pipe line (sudden expansion/contraction/bend)

Examination Scheme:

IA				EE	
A	**PR**	**LR**	**V**	**PR**	**V**
5	10	10	5	35	35

Note: IA –Internal Assessment, EE- External Exam, PR- Performance, LR – Lab Record, V – Viva.

ELECTRONICS

Course Code: MAE2309 **Credit Units: 02**

Course Objective:
Basic knowledge of Electronics is very essential for an engineer, it will help in building up the electronics & automation skills in Mechanical Engineers.

Course Contents:

Module I
Review of Diodes LED, Zener and Tunnel Diode and their characteristics, Applications of diodes-Rectifiers (Half and full wave, Bridge).

Module II
BJT-construction and characteristics, Transistor as an amplifier, CE, CB and CC configurations, Introduction to MOSFET.

Module III
Coupling, RC coupled Amplifiers, Transformer coupling,, Introduction to feedback-Positive and negative, Introduction to oscillators.

Module IV
Introduction to OPAMP characteristics and specifications, OPAMP as adder, subtractor. Integrator, differentiator.

Module V
Introduction to digital electronics, logic gates, basic laws and theorems of Boolean algebra, Introduction to Combinational Circuits, Concept of memory cell and introduction to Flip-flops R S, J K, D and T.

Examination Scheme:

Components	A	CT	S/V/Q	HA	EE
Weightage (%)	5	10	8	7	70

CT: Class Test, HA: Home Assignment, S/V/Q: Seminar/Viva/Quiz, EE: End Semester Examination; Att: Attendance

Text & References:

Text:
- Boylestead & Neshlesky, “Electronics Devices & Circuits”. PHI
- Millman & Halkias, “Integrated Electronics”, TMH.

References:
- Schilling & Belove “Electronics”.
- R P Jain, Digital Electronics.

TERM PAPER

Course Code: MAE2331 **Credit Units: 02**

GUIDELINES FOR TERM PAPER

A term (or research) paper is primarily a record of intelligent articulation through several sources on a particular topic of a given subject.

The students will choose the topic at the beginning of the session in consultation with the faculty assigned/chosen. The progress of the paper will be monitored regularly by the faculty. At the end of the semester the detailed paper on the topic will be submitted to the faculty assigned/chosen. The evaluation will be done by Board of examiners comprising of the faculties.

The procedure for writing a term paper may consists of the following steps:

1. Choosing a topic
2. Finding sources of material
3. Collecting the notes
4. Outlining the paper
5. Writing the first draft
6. Editing & preparing the final paper

1. Choosing a Topic

The topic chosen should not be too general. Student will normally consult the faculty guide while finalizing the topic.

2. Finding Sources of material

- The material sources should be not more than 5 years old unless the nature of the paper is such that it involves examining older writings from a historical point of view.
- Begin by making a list of subject-headings under which you might expect the topics to be listed.
- The sources could be books and magazines articles, news stories, periodicals, journals, internet etc.

3. Collecting the notes

Skim through sources, locate the useful material, make notes of it, including quotes and information for footnotes.

- ***Get facts, not just opinions***. Compare the facts with author's conclusion(s)/recommendations.
- In research studies, notice the methods and procedures, results & conclusions.
- Check cross references.

4. Outlining the paper

- Review notes to find main sub-divisions of the topic.
- Sort the collected material again under each main division to find sub-sections for outline so that it begins to look more coherent and takes on a definite structure. If it does not, try going back and sorting again for main divisions, to see if another general pattern is possible.

5. Writing the first draft

Write the paper around the outline, being sure that you indicate in the first part of the paper what its purpose is. You may follow the following:

- statement of purpose/objectives
- main body of the paper
- statement of summary and possible conclusion(s)/recommendations

Avoid short, bumpy telegraphic sentences and long straggling sentences with more than one main ideas.

6. Editing & preparing the final paper

a) Before writing a term paper, you should ensure you have an issue(s) which you attempt to address in your paper and this should be kept in mind throughout the paper. Include only information/ details/ analyses that are relevant to the issue(s) at hand. Sometimes, the relevance of a particular section may

be clear to you but not to your readers. To avoid this, ensure that you briefly explain the relevance of every section.

b) Read the paper to ensure that the language is not awkward, and that it "flows" smoothly.
c) Check for proper spelling, phrasing and sentence construction.
d) Check for proper form on footnotes, quotes, and punctuation.
e) Check to see that quotations serve one of the following purposes:
   (i) Show evidence of what an author has said.
   (ii) Avoid misrepresentation through restatement.
   (iii) Save unnecessary writing when ideas have been well expressed by the original author.
f) Check for proper form on tables and graphs. Be certain that any table or graph is self-explanatory.

Term papers should be composed of the following sections:

1) Title page
2) Abstract
3) Introduction
4) Review of the Literature
5) Discussion & Conclusion
6) References
7) Appendix

Generally, the introduction, discussion, conclusion and references should account for a third of the paper and the review part should be two thirds of the paper.

Discussion

The discussion section either follows the results or may alternatively be integrated in the results section. The section should consist of a discussion of the results of the study focusing on the question posed in the paper.

Conclusion

The conclusion is often thought of as the easiest part of the paper but should by no means be disregarded. There are a number of key components which should not be omitted. These include:

a) summary of objectives and issues raised.
b) summary of findings
c) summary of limitations of the study at hand
d) details of possibilities for related future research

References

From the very beginning of the research work, one should be careful to note all details of articles or any other material gathered. The Reference part should list ALL references included in the paper. References not included in the text in any form should NOT be listed here. The key issue here is consistency. Choose a particular convention and stick to this.

Conventions

Monographs

Crystal, D. (2001), *Language and the internet.* Cambridge: Cambridge University Press.

Edited volumes

Gass, S./Neu, J. (eds.) (1996), *Speech acts across cultures. Challenges to communication in a second language.* Berlin/ NY: Mouton de Gruyter.

[(eds.) is used when there is more than one editor; and (ed.) where there is only one editor. In German the abbreviation used is (Hrsg.) for Herausgeber].

Edited articles

Schmidt, R./Shimura, A./Wang, Z./Jeong, H. (1996), Suggestions to buy: Television commercials from the U.S., Japan, China, and Korea. In: Gass, S./Neu, J. (eds.) (1996), *Speech acts across cultures. Challenges to communication in a second language.* Berlin/ NY: Mouton de Gruyter: 285-316.

Journal articles

McQuarrie, E.F./Mick, D.G. (1992), On resonance: A critical pluralistic inquiry into advertising

rhetoric. *Journal of consumer research* 19, 180-197.

Electronic book
Chandler, D. (1994), *Semiotics for beginners* [HTML document]. Retrieved [5.10.'01] from the World Wide Web, http://www.aber.ac.uk/media/Documents/S4B/.

Electronic journal articles
Watts, S. (2000) Teaching talk: Should students learn 'real German'? [HTML document]. *German as a Foreign Language Journal [online] 1.* Retrieved [12.09.'00] from the World Wide Web, http://www.gfl-journal.com/.

Other websites
Verterhus, S.A. (n.y.), Anglicisms in German car advertising. The problem of gender assignment [HTML document]. Retrieved [13.10.'01] from the World Wide Web, http://olaf.hiof.no/~sverrev/eng.html.

Unpublished papers
Takahashi, S./DuFon, M.A. (1989), Cross-linguistic influence in indirectness: The case of English directives performed by native Japanese speakers. Unpublished paper, Department of English as a Second Language, University of Hawai'i at Manoa, Honolulu.

Unpublished theses/ dissertations
Möhl, S. (1996), Alltagssituationen im interkulturellen Vergleich: Realisierung von Kritik und Ablehnung im Deutschen und Englischen. Unpublished MA thesis, University of Hamburg.

Walsh, R. (1995), Language development and the year abroad: A study of oral grammatical accuracy amongst adult learners of German as a foreign language. Unpublished PhD Dissertation, University College Dublin.

Appendix
The appendix should be used for data collected (e.g. questionnaires, transcripts etc.) and for tables and graphs not included in the main text due to their subsidiary nature or to space constraints in the main text.

The Layout Guidelines for the Term Paper

- A4 size Paper
- Font: Arial (10 points) or Times New Roman (12 points)
- Line spacing: 1.5
- Top and bottom margins: 1 inch/ 2.5 cm; left and right margins: 1.25 inches/ 3 cm

Assessment Scheme:

Continuous Evaluation: (Based on abstract writing, interim draft, general approach, research orientation, readings undertaken etc.)	40%
Final Evaluation: (Based on the organization of the paper, objectives/ problem profile/ issue outlining, comprehensiveness of the research, flow of the idea/ ideas, relevance of material used/ presented, outcomes vs. objectives, presentation/ viva etc.)	60%