
ADAM SMITH COLLEGE
INSPIRING LEARNING

Course Handbook

HNC Mechanical Engineering

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Welcome to Adam Smith College

This is the Course Handbook for the HNC Mechanical Engineering. On behalf of the Course Team I would like to warmly welcome you to Adam Smith College. We feel sure that you will enjoy your time spent here.

To help you make the most of your time at College and to familiarise you with your course we have produced this course handbook. In here you will find information about the structure of your course, the teaching and learning styles used and the ways in which your work will be assessed and graded.

There is a considerable amount of information contained in this handbook, some of which will be of greater relevance to you as you work through the course than it is at the start of your studies in the College. However, we recommend that you read this Course Handbook through carefully **now**, then keep it safely - you will need to use it through your course.

We hope you will find the handbook a useful guide to your course and wish you every success in your studies.

David Leslie

Curriculum Head: HNC Mechanical Engineering

Information about your course

Your course is:

HNC Mechanical Engineering

Your Curriculum Head is:

David Leslie

His/Her office is:

ES04, Stenton Campus

His/Her telephone number is:

01592 223355

His/Her email address is:

davidleslie@adamsmith.ac.uk

Scheduled guidance time:

As per timetable

Your Curriculum Head

Each course in the Adam Smith College is assigned a Curriculum Head, whose role is to provide you with advice and support through your course of study. This falls roughly into two categories – guidance related to your studies and pastoral care to help you deal with any difficulties you might encounter of, for example, a personal, financial or health-related nature.

At the beginning of your course you will agree your learning targets with your Curriculum Head. These will be recorded on your Learner Agreement which both of you will sign. Throughout your course, your Curriculum Head will monitor your progress and meet with you regularly during the year to discuss how you are getting on.

Your Curriculum Head will also be available at a set time each week when you can meet if there's something you need to discuss. However, if something comes up which has to be dealt with urgently, you can ask to speak to your Curriculum Head at any time. He/she might not be able to meet you immediately – Curriculum Heads have classes to teach and other students to look after – but he/she will offer you an appointment as soon as possible or refer you to another appropriate member of staff.

Your Curriculum Head may not always be able to personally provide you with the sort of help or support you need, in which case he/she might recommend that you are referred to a member of the College's Guidance or Learning Support staff.

So, if at any time throughout your course, you experience difficulties which are affecting your progress as a student, your Curriculum Head should be your first contact. Please remember that unresolved problems rarely just go away. On the contrary, they tend to get worse the longer they're not dealt with. So, speak to your Curriculum Head sooner rather than later.

Your attendance at college and part-time employment

Your success as a student depends on full and regular attendance at **all** classes. You should inform your Curriculum Head as soon as possible if you have problems with attendance. Our records show that students who do not attend all their classes have a very high risk of failure.¹

¹ For full details of regulations about attendance, see the College Attendance Policy and Procedure.

We recognise that you may need to undertake part-time work, but we strongly advise you not to take employment of more than 15 hours a week if you are a full time student. Should you need to take employment of more than 15 hours per week we recommend you register as a part time student. A full time student is expected to follow their timetable and negotiate work times around it.

Your learning

Your College course will provide you with constant opportunities to learn new skills and acquire knowledge in your chosen subject areas. In order to make the most of all the opportunities available, you need to organise and plan your learning and also to manage your time effectively.

You must attend **all** your timetabled classes. You also need to study in your own time and you should plan to spend several hours a week to fulfil your commitment as a full-time student. You need to allocate time for this in your diary.

Prepare for lectures and tutorials by doing any reading or exercises in advance. Always make some notes – there is usually a handout provided. Review these after the class and ask your lecturer if there is anything you do not understand.

Note assignment deadlines and exam dates in your diary and remember to begin assignments early. You will enjoy researching and planning your work if you allow yourself plenty of time. Make sure you understand what you need to do and plan how you are going to tackle it. Seek advice from your lecturer or Curriculum Head if there is anything that needs clarification.

For full details of regulations about attendance, see the College Attendance Policy and Procedure.

In summary:

- ❖ plan your learning strategy
- ❖ allocate enough time
- ❖ attend **all** of your classes
- ❖ start assignments well in advance
- ❖ seek advice and help
- ❖ use the learning resources offered
- ❖ enjoy the learning experience!

Credit for previous learning

Some students have previous experience or qualifications for which they may receive credit on their present course of study. If you have any qualification that may exempt you from part of your course, for example from school or another college, you may apply for Accreditation of Prior Learning (APL). Similarly, if you have undertaken work, paid or voluntary, that has resulted in learning skills or knowledge that is equivalent to units you will be studying here, you may apply for Accreditation of Prior Experiential Learning (APEL). Together these are known as AP(E)L and it means you do not have to duplicate study you have done previously. It does not necessarily have to be in your chosen subject, but it must be at the same level as your course of studies here.²

If you wish to claim for APL/AP(E)L please speak to your Curriculum Head.

The aims of your course

The aims of your course are:

- ❖ to develop your knowledge of the facts, theories, concepts, applications, development and importance of mechanical engineering;
- ❖ to enhance your practical skills in engineering principles;
- ❖ to provide a sound basis for those of you who may decide go on to a more advanced course of study;
- ❖ to give you experience of the equipment, materials, processes and practices currently used in the engineering industry;
- ❖ to encourage your development of effective learning strategies.

The structure of your course

The course consists of 15 units, with a total value of 15 credits.

The course consists of 2 ½ formal classes each week along with individual study and coursework.

² For full details of the scheme for crediting previous learning, see the College Credit Transfer and APL/APEL Procedure.

The units you will study in Semester 1 are:

Semester 1		
Unit Code	Unit Title	Credit
DT5X33	Mathematics for Engineering 1: Mech. & Manuf.	1
DT8Y34	Quality Management: An Introduction	1
DR3L34	Engineering Principles	1
D77G34	Communication: Practical Skills	1
DT9R34	Engineering Measurement	1
DT4634	Materials Selection	1
DR1T34	Statics and Strength of Materials	1
DT9T34	Dynamics	1

The units you will study in Semester 2 are:

Semester 2		
Unit Code	Unit Title	Credit
DG4L34	Mathematics for Engineering 2	1
DT9P34	Thermofluids	1
DR1X34	Computer Aided Draughting	1
DT9X34	Pneumatics and Hydraulics	1
DR1W34	Engineering Drawing	1
DE3R34	Personal Development Planning	1
DV1134	Mechanical Engineering: Graded Unit 1	1

The content of your course

Here are brief descriptions of the units which make up your course:

DT5X33 - Mathematics for Engineering 1: Mechanical & Manufacturing

This Unit is designed to enable candidates to know, understand and apply algebraic techniques to manipulate expressions and solve equations commonly found in engineering. It also provides candidates with an opportunity to develop the knowledge and skills to solve problems involving vectors. The Unit also allows candidates the

opportunity to develop the necessary knowledge and skills to analyse trigonometric functions and their graphs.

DT8Y34 - Quality Management: An Introduction

This Unit is designed to allow candidates to explain and distinguish between different Quality approaches. The Unit also provides candidates with opportunities to examine different quality control techniques and analyse quality costs. The Unit has been written with a view to providing candidates with an overview of Quality as applied in the context of the candidate's working environment.

DR3L34 - Engineering Principles

The purpose of this Unit is to provide candidates with an opportunity to develop knowledge, understanding and skills in basic mechanical engineering principles.

D77G34 - Communication: Practical Skills

This Unit is about applying practical communication skills to complex issues in a vocational context.

DT9R34 - Engineering Measurement

This Unit has been designed to provide candidates with the knowledge, understanding and skills to interpret engineering drawings and specifications and to measure a wide range of features common to many engineering parts or products. The Unit also allows candidates to make use of basic geometry and graphs to determine that part or product parameters are within specification.

DT4634 - Materials Selection

This Unit is designed to enable candidates to develop knowledge and understanding of material properties and testing and to apply basic material selection concepts for a range of components. The Unit also provides candidates with the opportunity to examine materials and components with the aim of establishing basic properties.

DR1T34 - Statics and Strength of Materials

This Unit is designed to enable candidates to develop knowledge and understanding of the principles and laws that relate to statics and material strength.

DT9T34 - Dynamics

The Unit is designed to enable candidates to develop knowledge and understanding of principles and laws relating to motion.

DG4L34 - Mathematics for Engineering 2

This Unit is designed to give candidates knowledge and understanding and an ability to apply differential and integral calculus to Engineering problems.

DT9P34 - Thermofluids

This Unit is designed to enable candidates to develop the knowledge and understanding required to apply the basic principles of thermofluids to the solution of problems within engineering systems. The Unit will also provide the candidate with a base from which future advanced work in Mechanical Engineering may be undertaken.

DR1X34 - Computer Aided Draughting

This Unit has been designed to enable candidates to develop the necessary knowledge and skills to allow them to operate a commercial CAD system to produce 2D engineering drawings. Candidates will also be provided with the opportunity to develop an awareness of the 3D environment within an engineering context. The Unit is particularly suitable for candidates undertaking programmes in engineering or wishing to specialise in computer aided draughting/design.

DT9X34 - Pneumatics and Hydraulics

This Unit has been designed to give candidates a knowledge and understanding of the operation and maintenance requirements of pneumatic and hydraulic systems. Candidates will also be provided with the opportunity to design, assemble and test either a pneumatic or hydraulic system and to develop fault finding skills on a practical or simulated fluid power system containing faults. The Unit is particularly suitable for candidates training to be mechanical technicians or incorporated engineers.

DR1W34 - Engineering Drawing

This Unit is designed to enable candidates to gain knowledge of current standards relating to the reading and production of engineering drawings and to apply draughting principles and communication techniques to component and assembly drawings to enable the manufacture of an engineering product. The examples used can be based on the candidate's chosen area of engineering discipline.

DE3R34 - Personal Development Planning

This unit helps candidates to take responsibility for their own learning and development. In particular it provides a framework for the development of the personal and general skills and qualities which employers seek in the workplace and which are increasingly recognised as underpinning success in personal life, in citizenship and in lifelong learning. The contexts of progression to employment, or from college to university, or developing Core Skills, can be used.

DV1134 - Mechanical Engineering: Graded Unit 1

This Graded Unit is designed to provide evidence that the candidate has achieved the following principal aims of the HNC Mechanical Engineering.

- Develop knowledge, understanding and skills in a range of core principles and technologies by undertaking Units in engineering drawing, quality systems, engineering principles, materials selection, statics and strength of materials, dynamics, thermofluids and pneumatics and hydraulics
- Develop candidates' ability to apply analysis and synthesis skills to the solution of mechanical engineering problems
- Develop learning and transferable skills (including Core Skills)

Assessment of your work

Throughout your course, your work will be assessed in a number of different ways, depending on the different criteria in individual units.³

The majority of courses delivered in the College are assessed partly or wholly on a continuous basis – in other words, you will be assessed on parts of your work as you go along rather than all of it at the end of the unit. This assessment is carried out by the lecturer teaching the unit.

So that assessments can be fair to all students, and whoever teaches them, internal assessments are checked by other lecturers teaching the same, or similar, units. This is a process called 'internal moderation'.

Over and above the internal moderation of assessments of student work, awarding bodies check that colleges are assessing work appropriately by a process called 'external verification'. This process involves the awarding body carrying out checks on College staff's assessments of student work. This is done by sending 'external moderators' to the College, where they check assessments against national standards.

Only after these three stages have been completed can you be sure of your results, the certificates for which will be sent to you directly by the awarding body, not the College.

Internal assessment is not just about judging whether you have passed or failed. It also provides both you and your lecturers with important information about what you're doing well and where you have

³ For full details of the College's regulations about assessment, see the College's Assessment Procedure.

shortcomings in your knowledge, understanding or skills. Assessment is closely linked to the learning process in the sense that the feedback you will receive from your lecturers will help you improve your work in the future.

Finally, a range of courses delivered in the College are assessed by means of an externally-set and externally-assessed examination. The examining body will inform you directly whether or not you have completed your course successfully. College lecturers are not in a position to tell you whether you have passed or failed, until they have been informed by the examining body (usually at the same time as you will know directly from the examining body). If in doubt, please ask your lecturer about the procedures used.

Re-assessment of your work

If you are unsuccessful in an internal assessment, you will be offered the opportunity to be re-assessed. Depending on the arrangements for re-assessment laid down for a particular unit, this may involve retaking either the whole assessment or just part of it.

You will normally only be allowed one (or, in exceptional circumstances, two) re-assessment opportunities.

Submission of your coursework

You should hand all coursework in to your subject lecturers.

All coursework for assessment will have a specified deadline for submission. It is essential that you meet the submission deadline to ensure fairness amongst all students and to enable staff to mark efficiently.

Your subject lecturer may allow you an extension to a submission date if there are valid circumstances affecting your ability to meet the deadline.

Any coursework (for which there are no mitigating circumstances or an agreed extension) handed in after the submission deadline will normally receive a mark of 0.

If you are unwell when completing assessed coursework or sitting examinations, or have any other specific difficulties that may affect your performance in assessed coursework or examinations, you should

notify your Curriculum Head in writing of the circumstances as soon as possible, and make immediate arrangements for medical certificates or other letters of support to be submitted.

Cheating and plagiarism

There are various forms of academic dishonesty but in the student's context it means cheating in examinations or presenting work for assessment which is not your own.

Plagiarism as a form of cheating takes place when the student 'borrows' or copies information, data or results from an unacknowledged source, without quotation marks or any indication that the presenter is not the original author or researcher.

If carried out knowingly, cheating and plagiarism have the objective of deceiving examiners and this threatens the integrity of the assessment procedures and the value of your award.

Work produced by someone else may be summarised or repeated providing it is referenced to the original author. As well as text, work such as diagrams, maps and charts must also be acknowledged. In addition to the use of quotation marks when quoting from original sources and secondary material, full reference for both quotes and paraphrases or summaries of published material must be given. All references should then be included in a bibliography at the end of the piece of work. Appropriate references for web-based material must also be given, including the relevant URL.

Any student found to have used unfair means in any examination or assessment procedure will be penalised.⁴

Support for your learning

The College has a positive policy of supporting students with learning difficulties or disabilities and their interests are represented by the Diversity Committee which reports directly to the Principals Group. The College has a Learning Support team, which can provide help and advice on all aspects of learning support and coping with learning difficulties.

⁴ For full details of the College's regulations on cheating and plagiarism, see the College Academic Deceit Procedure.

The College offers support in making alternative arrangements for exams and assessment, support with study skills and advice with applications for the Disabled Students Allowance. Support and advice can also be provided in the specification and purchase of specialist equipment and the use of Information Technology.

In order to ensure that you are provided with the appropriate advice and support from the start of your studies it is important that you discuss any difficulties and special requirements with the Learning Support Manager, or with your Curriculum Head, as early as possible.

Your representation

Each course in the College is required to have a Course Team. This meets at least twice a year to review the course and consists of the Curriculum Head, all member of staff who teach units on the course and two representatives from the students on the course.

Prior to each meeting, your course representatives will be given a copy of the agenda and will be asked to consult their fellow students about the items listed and be prepared to report to the meeting on any issues raised.

Following the meeting, the class representatives will receive a copy of the Course Review report to share with their fellow students on the course.

The existence of the formal system of student representation doesn't mean that you should feel this is the only channel open to you. You may of course raise issues directly with a lecturer or your Curriculum Head. Individual problems are often likely to be more easily and quickly resolved in this way.

Your comments, complaints or compliments

Naturally, we hope that your experience at the Adam Smith College will be an enjoyable and rewarding one. However, we do recognise that sometimes things can go wrong and encourage you to make your comments or complaints known to us so that we have the opportunity to resolve the problem and improve our services to you.

Problems are often most quickly and easily sorted by being dealt with informally. So we would ask that, in the first instance, you raise the matter with the appropriate member of staff. If you're not satisfied

with the outcome, you can discuss the matter with your Curriculum Head.

Comments or complaints can also be put forward through your course representatives.

Where informal methods have failed to resolve the problem, you can make a formal complaint through the College's Complaint Form, which is available at Reception on all College campuses and in outreach centres or through the Students' Association.

It's always good to hear about what you think we do well and we encourage you to use the Compliments Form available at Reception. Every compliment received will be passed on to the person or department it's about.