



# LAPORAN TAHUNAN

1990-91

**UNIVERSITI PERTANIAN MALAYSIA**

LAPORAN NAIB CANSLOH

# UNIVERSITI PERTANIAN MALAYSIA

## LAPORAN TAHUNAN 1990-91

KOLEKSI ARKIB U.P.M.

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## LAPORAN NAIB CANSOLOR

### MAJLIS

#### Mesyuarat

Majlis telah bersidang sebanyak enam kali untuk mesyuarat biasa (mesyuarat ke-90 hingga ke-95) sepanjang tempoh laporan, iaitu pada 26 Jun 1990, 14 Ogos 1990, 12 Oktober 1990, 4 Disember 1990, 12 Februari 1991 dan 9 April 1991.

#### Hal-hal Keanggotaan

Y. Bhg. Tan Sri Haji Hashim bin Aman, yang telah tamat tempoh lantikan beliau sebagai Pengerusi Majlis, telah dilantik semula bagi tempoh selama tiga tahun lagi mulai 9 November 1990. Majlis juga mengalu-alukan perantikan Encik Mat Yasir bin Juli sebagai wakil tetap Ketua Setiausaha Perbendaharaan dalam Majlis.

#### Tahniah

Majlis merakamkan ucapan setinggi-tinggi tahniah kepada anggota-anggotanya yang berikut, iaitu:

\* Y. Bhg. Tan Sri Datuk Wira Abdul Rahman Arshad kerana dikurniakan bintang Sri Panglima Darjah Kinabalu (S.P.D.K.) sempena hari jadi T.Y.T. Yang Dipertua Negeri Sabah pada 16 September 1990; dan

\* Y.M. Raja Tan Sri Muhammad Alias bin Raja Muhammad Ali kerana terpilih memenangi anugerah kebangsaan Yayasan Tun Abdul Razak bagi tahun 1991.

### SENAT

#### Mesyuarat Senat

Sepanjang sesi 1990/91, Senat Universiti telah bersidang untuk 12 mesyuarat biasa dan 5 mesyuarat khas. Di antara perkara-perkara penting yang diputuskan ialah:

1. Bersetuju agar Yg. Bhg. Tan Sri Ong Kee Hui dikurniakan Ijazah Kehormat Doktor Peruratan dalam Majlis Konvekesyen pada tahun 1990.
2. Menyokong perantikan 39 Persekutu Akademik bagi Fakulti Perhutanan selama tiga tahun.
3. Menyokong penubuhan Fakulti baru iaitu Fakulti Ekologi Manusia dengan cara menggabungkan Jabatan Pembangunan Manusia dan Jabatan Sains Kemasyarakatan yang sedia ada di UPM.
4. Meminda draf Statut Universiti Pertanian Malaysia (Ijazah dan Diploma) 1991.
5. Meminda draf Peraturan-peraturan Penubuhan dan Pengurniaan Hadiah Universiti.

#### Bil. Pemeriksa/Penilai Luar

Senat telah melantik seramai 32 orang Pemeriksa dan/atau Penilai Luar bagi program-program Bachelor sebagaimana berikut:

Bil.	Pemeriksa/ Penilai Luar	Dari	Program	Tempoh
1.	Prof. Werner Doppler	Univ. of Hohenheim, German	B.S. (Ekonomi Sumber)	1989/90-1990/91
2.	Prof. Thomas F. Weaver	Univ. of Rhode Island	B.S. (Ekonomi Sumber)	1990/91-1992/93
3.	Prof. Jean Louis Floriot	France	B.S.(Perniagaantani)	1990/91-1991/92
4.	Prof. F.L. Clarke	Univ. of Newcastle, Australia	B. Perakaunan	1990/91-1992/93
5.	Prof. David R. Lindsay	Univ. of Western Australia	Doktor Perubatan Veterinar	1988/89-1990/91
6.	Prof. Donald L. Dungworth	Univ. of California USA	Doktor Perubatan Vetrinar	1988/89-1990/91
7.	Prof. Neil Gorman	Univ. of Glasgow, Scotland	Doktor Perubatan Veterinar	1988/89-1990/91
8.	Datuk Dr.Ahmad Mustafa	Kementerian Pertanian Malaysia	Doktor Perubatan Veterinar	1988/89-1990/91
9.	Prof. Raymond George Wales	Murdoch Univ. Australia	Doktor Perubatan Veterinar	1989/90-1991/92
10.	Prof. Ernest J.L. Soulsby	Univ. of Cambridge, U.K.	Doktor Perubatan Veterinar	1989/90-1991/92

11.	Prof. David Ernest Noakes	Univ. of London United Kingdom	Doktor Perubatan Veterinar	1989/90-1991/92
12.	Prof. A.K. Kochhar	Univ. of Bradford, United Kingdom	B.K.(Mekanikal/ Sistem	1988/89-1990/91
13.	Prof. Ronald McCaffrer	Loughborough Univ. of Tech- nology, U.K.	B.K.(Awam)	1989/90-1991/92
14.	Prof. Joe Todd Clayton	Univ. of Massa- chusettes, USA	B.K.(Pertanian)	1990/91-1992/93
15.	Prof. Robert M. Peart	Univ. of Florida, USA	B.K.(Pertanian)	1990/91-1992/93
16.	Prof. David John Creasey	Univ. Birming- ham, U.K.	B.K.(Elektronik/ Komputer)	1990/91-1992/93
17.	Dr. Mashudi Haji Kader	Univ. Sains Malaysia	B. Pend.(Pengajaran Bahasa Malaysia Sebagai Bahasa Pertama)	1988/89-1990/91
18.	Prof. William Drake	Cornell Univ., USA	B.Pend. (Sains Pertanian)	1988/89-1990/91
19.	Prof. Roderick A. Jacobs	Univ. of Hawaii at Manoa	B. Pend.(Teaching of English as a Second Language)	1989/90-1991/92
20.	Prof. Ian Stewart Ferguson	The Univ. of Melbourne, Australia	B.S. Perhutanan	1988/89-1990/91
21.	Prof. T.R. Parson	Univ. of Boulevard, Canada	B.S. (Perikanan)	1989/90-1991/92
22.	Prof. J.J. Goering	Univ. of Alaska, USA	B.S. (Perikanan)	1989/90-1991/92
23.	Prof. Jacques C.J. Nihoul	Univ. of Leige, Belgium	B.S. (Perikanan)	1989/90-1991/92
24.	Prof. G.S. Khush	Inst. Rice Re- search Institute, Manila	B.S. (Pertanian)	1988/89-1990/91
25.	Prof. Linda Jean Nelson	Michigan State Univ. USA	B.S. (Pembangunan Manusia)	1988/89-1990/91
26.	Prof. Salvadore J. Locascio	Univ. of Florida, USA	B.S. Hortikultur	1989/90-1991/92
27.	Prof. D.J. Evans	Loughborough Univ. of Techno- logy, U.K.	B.S. Komputer	1988/89-1990/91
28.	Prof. Hisashi Sumitomo	Univ. of Kyoto, Japan	B.S. (Alam Sekitar)	1990/91
29.	Prof. S. Radha-krishna	Indian Inst. of Technology, India	B.S. (Kep.) (Fizik)	1990/91
30.	Dr. Mary D. Earle	Massey Univ., New Zealand	B.S. & Tek. Makanan	1988/89-1990/91

31. Prof. Llyod Bullerman	Univ. of Nebraska, USA	B.S. & Tek. Makanan	1989/90-1991/92
32. Prof. Lowell D. Satterlee	Pennsylvania State Univ. USA	B.S. & Tek. Makanan	1990/91

### Pemenang-penang Hadiah

Pemenang-pemenang hadiah peringkat Universiti ialah:

Pemenang	Hadiah	Syarat Kurniaan
Mohd. Tajudin bin Md. Niggal, graduan B. Pendidikan (Bimbingan & Kaunseling)	Pingat Emas Canselor	Graduan yang terbaik pada keseluruhannya dalam program Bachelor.
Ruzihan bt Jantan, graduan B.S. Ekonomi Sumber	Anugerah Pelajaran DiRaja	Graduan Melayu dan graduan-graduan bukan Melayu terbaik dalam program Bachelor.
Kwan Yuk Kwaun, graduan Doktor Perubatan Veterinar		
Ong Chong Guan, graduan B.S. Pertanian	Pingat Emas Alumni	Graduan yang terbaik dari segi akademik dalam program Bachelor.
Fatimah Bariah bt Omar, graduan B.s. & Tek. Makanan	Pingat Emas Wanita UMNO	Graduan wanita terbaik dari segi akademik dalam program Bachelor
Chua Sook Yan, graduan B.S. dengan Pendidikan (Kep.)	Hadiah Kementerian Sains, Teknologi dan Alam Sekitar	Projek terbaik tahun akhir pengajian peringkat Bachelor.
Zeenathul Nazariah bt. Allauddin, pelajar tahun pertama Doktor Perubatan Veterinar	Hadiah Syed Kechik	Pelajar bumiputera terbaik dari segi akademik pada peringkat 'Bongsu' (dengan syaat mengambil sekurang-kurangnya 30 kredit).

### Penghargaan

Senat merakamkan setinggi-tinggi penghargaan kepada 3 orang Profesor yang telah bersara daripada perkhidmatan Universiti atas khidmat dan sumbangan mereka sebagai anggota Senat sepanjang perkhidmatan mereka dengan UPM. Mereka ialah:

Profesor Dr. Mohd. Zain bin Haji Abdul Karim  
 Profesor Dr. K.T. Joseph  
 Profesor A'amir Nordin bin Mohd. Arifin.

## KEMASUKAN DAN REKOD PELAJAR

### (a) Program Pengajian

Pada sesi 1990-91 Universiti Pertanian Malaysia telah menawarkan program-program di peringkat Master dan Doktor Falsafah, 24 program di peringkat Bacelor, lapan program di peringkat Dijioma, dua program Matrikulasi dan satu program Pendahuluan. Senarai penuh program yang ditawarkan ialah seperti berikut:

Pengajian	Kampus
Master Sains	Serdang
Master Sains Pertanian	Serdang
Master Kejuruteraan (Pertanian)	Serdang
Master Sains Veterinar	Serdang
Master Sains dan Teknologi Makanan	Serdang
Master Pentadbiran Perniagaan	Serdang
Doktor Falsafah	Serdang
Doktor Kejuruteraan (Pertanian)	Serdang
Doktor Sains Veterinar	Serdang

Jangkamasa untuk Pengajian Siswazah adalah seperti berikut:

Program Master penuh masa	2 - 6	semester
Program Master separuh masa	4 - 10	semester
Program Doktor Falsafah penuh masa	4 - 10	semester
Program Doktor Falsafah separuh masa	6 - 12	semester

### Program Bacelor

Program	Jangkamasa	Kampus
Doktor Perubatan veterinar	8 semester	Serdang
Bacelor Sains Pertanian	8 semester	Serdang
Bacelor Sains Pertanian	8 semester	Serdang
Bacelor Sains Perhutanan	8 semester	Serdang
Bacelor Sains (Perniagaantani)	8 semester	Serdang
Bacelor Sains (Ekonomi Sumber)	8 semester	Serdang
Bacelor Sains (Kepujian)	8 semester	Serdang
Bacelor Sains (Alam Sekitar)	8 semester	Serdang
Bacelor Sains dan Teknologi Makanan	8 semester	Serdang
Bacelor Sains (Pembangunan Manusia)	8 semester	Serdang
Bacelor Sains Perikanan	8 semester	Serdang
Bacelor Pendidikan (Sains Pertanian)	8 semester	Serdang
Bacelor Pendidikan (Sains Rumahtangga)	8 semester	Serdang
Bacelor Pendidikan (Pendidikan Jasmani)	8 semester	Serdang
Bacelor Pendidikan (Bimbingan dan Kaunseling)	8 semester	Serdang
Bacelor Pendidikan (Pengajaran Bahasa Malaysia sebagai Bahasa Pertama)	8 semester	Serdang
Bacelor Pendidikan (Pengajaran Bahasa sebagai Bahasa Kedua)	8 semester	Serdang
Bacelor Sains Komputer	8 semester	Serdang
Bacelor Kejuruteraan (Awam)	8 semester	Serdang
Bacelor Kejuruteraan (Pertanian)	8 semester	Serdang
Bacelor Kejuruteraan (Mekanikal/Sistem)	8 semester	Serdang
Bacelor Kejuruteraan (Elektronik/Komputer)	8 semester	Serdang
Bacelor Perakaunan	8 semester	Serdang
Bacelor Sains Hortikultur	8 semester	Serdang

## Program Diploma, Pendahuluan dan Matrikulasi

Diploma Pertanian	6 semester	Serdang
Diploma Kesihatan Haiwan dan Pertenakan		Bintulu
Diploma Perikanan	7 semester	Serdang
Diploma Pembangunan Manusia	6 semester	Serdang
Diploma Kejuruteraan Pertanian	6 semester	Serdang
Diploma Perhutanan	6 semester	Serdang
Diploma Sains Komputer	6 semester	Bintulu
Diploma Perniagaantani	6 semester	Serdang
Program Pendahuluan	6 semester	Bintulu
Matrikulasi Sains	2 semester	Bintulu
Matrikulasi TESL	4 semester	Serdang
	4 semester	Serdang

### (b) Pengambilan Pelajar

Bilangan pelajar baru yang diterima masuk bagi sesi 1990-91 mengikut peringkat pengajian adalah seperti berikut:

Pengajian Siswazah	107 orang
Program Bachelor	1974 orang
Program Diploma	1206 orang
Program Pendahuluan	93 orang
Matrikulasi Sains	532 orang
Matrikulasi TESL	52 orang

Jadual 1 menunjukkan taburan pengambilan pelajar baru bagi sesi 1990-91 mengikut program dan jantina.

### (c) Pendaftaran Pelajar

Seramai 10,601 orang pelajar telah mendaftarkan diri pada Semester Julai dan 10,176 orang pada Semester Disember untuk mengikuti berbagai program yang terdapat di kampus Serdang dan Bintulu, (termasuk program pengajian siswazah. Jadual II, III dan IV menunjukkan taburan pelajar yang mendaftar untuk semua program bagi kedua-dua Semester sesi 1990-91 ini).

### (d) Siswazah

Pada akhir sesi 1990-91 seramai 1694 orang pelajar telah tamat pengajian mereka dengan jayanya dan telah dikurniakan ijazah atau diploma masing-masing. Pecahan bilangan siswazah ini adalah seperti berikut:

Master Pentadbiran Perniagaan	13 orang
Master Sains Pertanian	5 orang
Master Sains	14 orang
Ph.D	6 orang
Bachelor	943 orang
Diploma	713 orang

Jadual V menunjukkan taburan siswazah mengikut program dan jantina bagi sesi 1990-91.

**JADUAL1**  
**TABURAN PENGAMBILAN PELAJAR MENGIKUT**  
**PROGRAM DAN JANITNA BAGI TAHUN AKADEMIK 1990-91**

Program	Lelaki	Perempuan	Jumlah
Diploma Pertanian (Serdang)	138	78	216
(Bintulu)	160	87	247
Diploma Pembangunan Manusia	44	69	113
Diploma Kesihatan Haiwan dan Peternakan	50	39	89
Diploma Perikanan	65	51	116
Diploma Perhutanan	96	22	118
Diploma Kejuruteraan Pertanian	68	39	107
Diploma Perniagaantani	51	62	113
Diploma Sains komputer	35	52	87
Matrikulasi Sains	271	261	532
Matrikulasi (TESL)	6	46	52
Pendahuluan	64	29	93
<b>Jumlah Kecil</b>	<b>1048</b>	<b>835</b>	<b>1883</b>
Bachelor Sains Hortikultur	78	57	135
Bachelor Sains Pertanian	90	72	162
Bachelor Sains (Pembangunan Manusia)	18	67	85
Bachelor Sains (Perniagaantani)	56	66	122
Bachelor Sains (Ekonomi Sumber)	41	54	95
Bachelor Perakaunan	29	54	83
Doktor Perubatan Veterinar	29	16	45
Bachelor Sains Perhutanan	45	7	52
Bachelor Sains dan Teknologi Makanan	5	53	58
Bachelor Sains (Kepujian)	134	174	308
Bachelor Sains (Bioteknologi)	15	25	40
Bachelor Sains (Alam Sekitar)	20	16	36
Bachelor Sains Komputer	31	36	67
Bachelor Sains Perikanan	47	9	56
Bachelor Kejuruteaan (Pertanian)	34	3	37
Bachelor Kejuruteraan (Awam)	41	7	41
Bachelor Kejuruteaan (Elektronik/Sistem)	51	8	49
Bachelor Pendidikan (Sains Pertanian)	27	1	52
Bachelor Pendidikan (Sains Rumah Tangga)	-	15	42
Bachelor Pendidikan (Pendidikan Jasmani)	39	29	29
Bachelor Pendidikan (Bimbingan dan Kaunseling)	35	21	60
Bachelor Pendidikan (Pengajaran Bahasa Malaysia		26	61
Sebagai Bahasa Pertama)	96	63	159
Bachelor Pendidikan (Pengajaran Bahasa Inggeris			
Sebagai Bahasa Kedua)	28	72	100
<b>Jumlah Kecil</b>	<b>1023</b>	<b>951</b>	<b>1974</b>

Master Sains	70	28	98
Doktor Falsafah	7	2	9
Jumlah Kecil	77	30	107
JUMLAH BESAR	2148	1816	3964

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**JADUAL II**  
**TABURAN PELAJAR MENGIKUT PROGRAM**  
**SEMESTER TAHUN AKADEMIK 1990-91 (KAMPUS SERDANG)**

FAKULTI	PROGRAM	SEMESTER I						SEMESTER II					
		TAHUN I	II	III	IV	V	J	I	II	III	IV	V	J
Ekonomi dan Pengurusan	Bac. Sains (Perniagaantani)	122	144	112	104	-	482	111	148	108	104	-	471
	Bac. Sains (Ekonomi Sumber)	95	61	66	53	-	275	89	60	63	51	-	263
	Bac. Perakaunan	83	76	58	45	-	262	83	53	53	39	-	248
	Diploma Perniagaantani	-	-	12	-	-	12	-	-	-	-	-	-
	Jumlah	300	281	248*	202	-	1031	283	281	224	194	-	982
Kedokteran Veterinar dan Sains Peternakan	Doktor Perubatan Veterinar	45	39	30	16	18	148	39	37	30	16	17	139
	Diploma Kesihatan Haiwan dan Peternakan	89	55	52	39	-	235	88	51	56	-	-	195
	Jumlah	134	94	82	55	18	383	127	88	86	16	17	334
Kejuruteraan	Bac. Kejuruteraan (Pertanian)	37	24	22	26	-	109	37	17	21	23	-	98
	Bac. Kejuruteraan (Awam)	41	19	18	13	-	91	40	19	16	9	-	84
	Bac. Kejuruteraan (Elektronik/Komputer)	49	43	34	22	-	148	50	42	31	22	-	145
	Bac. Kejuruteraan (Mekanikal/Sistem)	52	39	36	20	-	147	47	35	36	17	-	135
	Bac. Kejuruteraan Pertanian	107	67	82	-	-	256	103	59	78	-	-	240
	Jumlah	286	192	192	81	-	751	277	172	182	71	-	702
Perhutanan	Bac. Sains Perhutanan	52	44	46	46	-	188	48	45	46	32	-	171
Sains Makanan dan Bioteknologi	Bac. Sains dan Teknologi Makanan	58	55	49	29	-	191	58	55	48	30	-	191
	Bac. Sains (Bioteknologi)	40	43	25	28	-	136	40	44	25	25	-	134
	Jumlah	98	98	74	57	-	327	98	99	73	55	-	

Pendidikan	Bac. Pend. (Sains Pertanian)	42	38	32	35	-	147	36	44	32	19	-	131	
	Bac. Pend. (Sains Rumah Tangga)	29	32	26	20	-	107	27	32	26	20	-	105	
	Bac. Pend. (Pendidikan Jasmani)	60	58	53	52	-	223	60	59	53	51	-	223	
	Bac. Pend. (Peng. Bahasa M'lisia sebagai Bahasa Pertama)	159	165	152	153	-	629	160	164	152	153	-	629	
	Bac. Pend. (bimbingan dan Kaunseling)	61	54	45	59	-	219	61	54	45	59	-	219	
	Bac. Pend. (Peng. Bahasa Inggeris sebagai Bahasa Kedua)	100	116	76	121	-	415	90	125	78	120	-	413	
	Jumlah	451	463	386	440	-	1740	434	478	386	422	-	1720	
	Pertanian	Bac. Sains Hortikultur	135	79	65	59	-	338	129	79	64	54	-	326
		Bac. Sains Pertanian	162	93	111	83	-	459	135	112	109	85	-	441
		Bac. Sains (Pembangunan Manusia)	85	67	50	32	-	234	79	70	50	27	-	226
Diploma Pertanian		216	240	336	-	-	792	210	237	320	-	-	767	
Diploma Pembangunan Manusia		113	49	65	-	-	227	110	50	65	-	-	225	
Jumlah	711	528	627	184	-	2050	663	548	608	166	-	1985		
Sains dan Pengajaran Alam Sekitar	Bac. Sains (Kepujian)	308	204	107	43	-	662	284	207	108	40	-	639	
	Bac. Sains (Alam Sekitar)	36	26	17	13	-	92	31	23	15	14	-	83	
	Bac. Sains Komputer	67	50	32	24	-	173	59	52	27	23	-	161	
	Diploma Sains Komputer	87	65	82	-	-	234	87	56	53	-	-	196	
	Jumlah	498	345	238	80	-	161	461	338	203	77	-	1079	
Perikanan dan Sains Samudera	Bac. Sains Perikanan	56	42	26	23	-	147	44	51	26	23	-	-	
	Diploma Perikanan	116	65	63	-	-	244	113	62	58	-	-	-	
Jumlah	172	107	89	23	-	391	157	113	84	23	-	377		
Matrikulasi Sains Matrikulasi (TESL)	Matrikulasi Sains	532	530	-	-	-	1062	515	524	-	-	-	1039	
	Matrikulasi (TESL)	52	51	-	-	-	103	51	51	-	-	-	102	
Jumlah	3286	2733	1982	1168	18	9187	3114	2737	1892	1056	17	8816		
JUMLAH BESAR													8816	

**JADUAL III**  
**TABURAN PELAJAR MENGIKUT PROGRAM DAN**  
**SEMESTER TAHUN AKADEMIK 1990-91 (KAMPUS BINTULU)**

TAHUN	SEMESTER i				SEMESTER ii			
	i	ii	iii	j	i	ii	iii	j
PROGRAM								
Diploma Pertanian	247	57	127	431	235	63	124	422
Diploma Perhutanan	118	38	57	213	113	41	54	211
Diploma Perniagaantani	113	49	49	211	109	47	50	206
Pendahuluan	93	-	-	93	90	-	-	90
Jumlah	571	144	233	948	547	151	231	929

**JADUAL IV**  
**TABURAN PELAJAR-PELAJAR PENGAJIAN SISWAZAH MENGIKUT**  
**FAKULTI DAN SEMESTER BAGI TAHUN AKADEMIK 1990-91**

FAKULTI/PUSAT	SEMESTER i				SEMESTER ii			
	MBA	Master	Ph.D.	J	MBA	Master	Ph.D	J
Ekonomi dan Pengurusan	46	16	14	76	26	12	11	49
Kedokteran Veterinar dan Sains Peternakan	-	18	16	34	-	14	17	31
Kejuruteraan	-	14	4	18	-	14	5	19
Pengajian Pendidikan	-	73	6	79	-	67	9	76
Pertanian	-	37	19	56	-	33	17	50
Sains dan Pengajian Alam Sekitar	-	23	13	36	-	28	15	43

Perikanan dan Sains Samudera	-	13	7	20	-	10	8	18
Sains Makanan dan Bioteknologi	-	31	4	35	-	35	6	41
Pusat Pengembangan dan Pendidikan Lanjutan	-	54	23	77	-	53	24	77
Perhutanan	-	28	7	35	-	18	9	27
Jumlah	46	307	113	466	26	284	121	431

**JADUAL V**  
**TABURAN SISWAZAH MENGIKUT PROGRAM**  
**DAN JANTINA BAGI TAHUN 1990-91**

Program	Lelaki	Perempuan	Jumlah
Diploma Pertanian	241	126	367
Diploma Pembangunan Manusia	11	37	48
Diploma Perikanan	56	5	61
Diploma Kesihatan Haiwan dan Peternakan	27	7	34
Diploma Kejuruteraan Pertanian	50	18	68
Diploma Perhutanan	32	3	35
Diploma Perniagaantani	26	39	65
Diploma Sains Komputer	19	16	35
Jumlah Kecil	462	251	713
Bachelor Sains (Perniagaantani)	73	56	129

Bachelor Sains (Ekonomi Sumber)	26	27	53
Bachelor Perakaunan	11	24	35
Bachelor Sains Pertanian	50	14	64
Bachelor Sains (Pembangunan Manusia)	8	20	28
Bachelor Sains Hortikultur	8	6	14
Bachelor Sains dan Teknologi Makanan	12	7	19
Bachelor Sains (Bioteknologi)	3	13	16
Bachelor Sains (Perhutanan)	20	-	20
Doktor Perubatan Veterinar	10	11	21
Bachelor Kejuruteraan (Pertanian)	12	-	12
Bachelor Kejuruteraan (Awam)	19	1	20
Bachelor Kejuruteraan (Elek./Komputer)	26	1	27
Bachelor Kejuruteraan (Mekanikal/Sistem)	15	-	15
Bachelor Sains (Alam Sekitar)	6	6	12
Bachelor Sains (Kepujian)	21	15	36
Bachelor Sains dgn. Pendidikan (Kepujian)	5	39	44
Bachelor Pendidikan (Sains Pertanian)	13	6	19
Bachelor Pendidikan (Sains Rumahtangga)	-	19	19

Bachelor Pendidikan (Pendidikan Jasmani)	33	18	51
Bachelor Pendidikan (Bimbingan & Kaunseling)	32	13	45
Bachelor Sains (Perikanan)	7	4	11
Bachelor Pendidikan (Pengajaran Bahasa Malaysia Sebagai Bahasa Pertama)	91	31	122
Bachelor Pendidikan (Pengajaran Bahasa Inggeris Sebagai Bahasa Kedua)	30	49	79
Bachelor Sains Komputer	25	7	32
Jumlah Kechil	556	387	943
Master Pentadbiran Perniagaan	9	4	13
Master Sains Pertanian	4	1	5
Master Sains	6	8	14
Doktor Falsafah	6	-	6
Jumlah Kecil	26	13	38
<b>JUMLAH BESAR</b>	<b>1043</b>	<b>651</b>	<b>1694</b>

## **PERJAWATAN**

Dalam tempoh laporan ini kedudukan jawatan di Universiti Pertanian Malaysia adalah sama seperti pada tahun lalu cuma terdapat dalam beberapa perubahan pada beberapa kategori jawatan hasil daripada kenaikan gred gaji dan tukarganti jawatan mengikut perkembangan dan keperluan Universiti. Pembahagian jawatan-jawatan di Universiti Pertanian Malaysia ialah 1251 jawatan kumpulan A, 151, Kumpulan B, 1010, kumpulan C dan 2012 lagi bagi kumpulan D yang menjadikan jumlah keseluruhannya 4424 jawatan.

Bagi tempoh antara bulan Jun 1990 hingga akhir bulan Mei 1991, Bahagian Perjawatan telah menguruskan 50 perlingtonan ke jawatan dalam kumpulan A, 3 bagi kumpulan B, 52 bagi kumpulan C dan 98 untuk kumpulan D. Perlingtonan tersebut adalah termasuk perlingtonan ke jawatan tetap, sementara dan sambilan mengikut keperluan Universiti dari masa ke semasa. Jumlah kesemua perlingtonan yang diuruskan bagi tempoh laporan ialah sebanyak 203 perlingtonan.

Walaupun tiada jawatan baru diluluskan oleh Kerajaan, pihak Universiti telah berjaya menampung kekurangan jawatan yang dialami itu dengan menggunakan jawatan-jawatan yang ada secara optima.

Tindakan telah diambil bagi mengatasi kekurangan tenaga pekerja iaitu dengan mengagihkan semula jawatan mengikut keperluan dan keutamaan semasa selaras dengan kehendak Kerajaan Malaysia yang menghadkan pengwujudan jawatan-jawatan baru di sektor awam.

### **Perletakan Jawatan/Persaraan**

Dalam tempoh yang sama seramai 56 orang kakitangan Universiti ini telah meletakkan jawatan. Dari jumlah tersebut 18 daripadanya dari kumpulan A, 1 kumpulan B, 9 dari kumpulan C dan selebihnya seramai 28 lagi dari kumpulan D.

Sementara itu 13 orang telah bersara wajib, 8 orang bersara secara pilihan dan 3 orang lagi telah meninggal dunia.

### **Tatatertib**

Dari 18 kes yang dikemukakan kepada Lembaga Tatatertib Universiti Pertanian Malaysia 13 orang telah dithabitkan dengan beberapa kesalahan dan 10 daripadanya telah dikenakan hukuman buang kerja dari perkhimatan Universiti.

## **Kenaikan Pangkat**

Dalam tempoh ini seramai 11 orang pegawai telah dinaikkan pangkat iaitu 5 antaranya dari kumpulan A, 2 kumpulan C dan 4 orang lagi dari kumpulan D.

## **Latihan**

Kursus dan latihan adalah merupakan salah satu aspek penting dan berkesan dalam meninggikan mutu kerja serta memberikan dorongan dan kepuasan kepada pekerja untuk memajukan kerjayanya. Untuk itu Unit Latihan, Bahagian Perjawatan, Universiti Pertanian Malaysia sentiasa memberikan perhatian dan tindakan yang sewajarnya dalam urusan ini bagi membolehkan seramai 37 orang tenaga pengajar melanjutkan pelajaran ke peringkat Ph.D. dan 6 orang di peringkat Master.

Disamping itu pula seramai 27 orang tenaga pengajar telah menamatkan kursus Ph.D dan 2 lagi di peringkat Master dalam jangkamasa yang sama. Bagi memenuhi keperluan latihan selain daripada tenaga pengajar, Unit Latihan telah mengendalikan sebanyak 17 program kursus pendek dalam perkhidmatan iaitu 5 program bagi kumpulan A, 1 program bagi kumpulan A dan B, 3 program bagi gabungan kumpulan A, B, C dan D, 4 program khusus bagi kumpulan C dan 4 program lagi bagi kumpulan C dan D di mana 601 orang pegawai telah mengikuti program-program tersebut.

Selain daripada program yang dianjurkan sendiri oleh Unit Latihan, Bahagian Perjawatan terdapat juga pegawai-pegawai yang menjalani kursus-kursus pendek di luar negara di mana 18 orang pegawai dari berbagai kategori menjalani 8 program kursus tersebut. Bagi mengimbangi latihan dan kursus untuk setiap kategori pekerja yang tidak dapat dilaksanakan dalam kampus Universiti Pertanian Malaysia, seramai 88 orang pegawai telah menjalani beberapa kursus di Ins-tituti Latihan dan Negara, terutamanya bagi kursus-kursus kemahiran dan teknikal.

## **PENYELIDIKAN**

Tahun 1990/91 merupakan tahun akhir Racangan Malaysia Kelima dan permulaan bagi Racangan Malaysia Keenam. Dengan melangkahnya ke satu rancangan yang baru pegawai-pegawai akademik di UPM ini semakin rancak menjalankan penyelidikan

Dalam tahun 1990 sebanyak 69 program jangka panjang dijalankan tetapi tahun 1991

menampakkkan pertambahan program penyelidikan kepada 120 program. Oleh kerana program jangka pangjang telah berlipat ganda, projek jangka pendek telah berkurangan daripada 280 projek dalam tahun 1990 kepada lebih 100 projek bagi tahun 1991.

Kejayaan penyelidikan sepanjang Rancangan Malaysia Kelima dapat dilihat daripada beberapa penemuan baru yang telah dihasilkan. Ini termasuk penemuan teknik-teknik diagnostik untuk mengesan beberapa jenis penyakit; pengasingan dan pengenalan komponen toksik dalam rumput *Brachiaria*; cara yang efektif dan spesifik untuk kajian kualiti pemakanan ternakan; pembinaan beberapa alat bagi meningkatkan hasil pertanian; pengenalan virus yang merosakkan tanaman; peningkatan hasil beberapa jenis tanaman; pembentukan model input-output untuk analisis impak dinamis bagi projek dan program pembangunan; pertama dalam pembentukan pengkalan data model perakaunan

aliran tunai dan perusahawan; pertama juga dalam pembentukan teknik perakaunan bagi penilaian sesuatu industri khusus (industri akuakultur) dan lain-lain.

#### **BAHAGIAN HAL EHWAL PELAJAR**

Bahagian Hal Ehwal Pelajar Mengandungi Unit-unit seperti berikut:

1. Perhubungan Pelajar
2. Kaunseling dan Kerjaya
3. Kesihatan
4. Perumahan
5. Agama dan Kerohanian
6. Sukan dan Rekreasi
7. Kebudayaan dan Kesenian

#### **Unit Perhubungan Pelajar**

Persatuan Fakulti/Kolej dan Kelab menjalankan kegiatan mereka setelah mendapat kelulusan daripada Bahagian Hal Ehwal Pelajar.

#### **Senarai Persatuan Fakulti/Kolej dan Kelah**

#### **Jumlah Kegiatan Sesi 1990/91**

Senarai Persatuan Fakulti/Kolej dan Kelah	Jumlah Kegiatan Sesi 1990/91
1. Majlis Perwakilan Pelajar	38
2. Persatuan Mahasiswa Fakulti Perhutanan	11
3. Persatuan Mahasiswa Fakulti Kedokteran Veterinar dan Sains Peternakan	7
4. Persatuan Mahasiswa Fakulti Pertanian	18
5. Persatuan Mahasiswa Fakulti Kejuruteraan	6
6. Persatuan Mahasiswa Fakulti Ekonomi dan Pengurusan	10
7. Persatuan Mahasiswa Fakulti Pengajian Pendidikan	5
8. Persatuan Mahasiswa Fakulti Sains Makanan dan Bio-teknologi	3
9. Persatuan Mahasiswa Pembangunan Manusia	5
10. Persatuan Mahasiswa Fakulti Perikanan dan Sains Samudera	4
11. Persatuan Mahasiswa Fakulti Sains dan Pengajian Alam Sekitar	9
12. Kumpulan Latihan Kelanasiswa Malaysia	11
13. Kelab Pandu Putri	5
14. Persatuan Bulan Sabit Merah	14
15. Kolej Kediaman Cikgu Rashid	3
16. Kolej Kediaman Kedua	8
17. Kolej Kediaman Ketiga	6
18. Kolej Kediaman Keempat	5
19. Kolej Kediaman Kelima	8
20. Kolej Kediaman Keenam	7

21.	Kolej Kediaman Ketujuh	10
22.	Kolej Tun Perak	8
23.	Kolej Pendita Za'ba	5
24.	Pelajar Luar Kampus	3
25.	Kegiatan Kelab-kelab	52

**JUMLAH KEGIATAN:**

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261  
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2. Laporan Seminar/Kursus/Forum/-Bengkel dan Lain Yang dianjurkan oleh Bahagian Hal Ehwal Pelajar.

(a) Bilangan yang dianjurkan bagi sesi 1990/91 25

3. Laporan Tatatertib

(a) Bilangan kes yang dibicarakan bagi sesi 1990/91 33

4. Laporan Projek Lawatan Sambil Belajar

Ke Luar Negara sesi 1990/91 14

**Unit Bantuan Kewangan**

1. Maklumat ini adalah berdasarkan tarikh terakhir pada 28 Februari 1991. Sehingga ke tarikh tersebut menunjukkan seramai 8,805 orang pelajar atau 95.86% daripada jumlah pelajar 9,185 telah mendapat bantuan kewangan biasiswa/pinjaman termasuk bekas guru yang mendapat separuh gaji semasa menuntut di Universiti ini.

2. Seramai kira-kira 380 pelajar dari berbagai tahun masih tidak memperolehi sebarang pinjaman/biasiswa. Usaha membantu para pelajar berkenaan telahpun diajukan kepada pihak-pihak yang berkenaan.

3. Bagi sesi 1990/91 Tabung Pinjaman Pelajar terus memainkan peranan membantu para pelajar. Beberapa buah Negeri seperti Selangor, Sarawak, Kelantan, Pahang, Johor, Sabah dan Melaka telah mengwujudkan Tabung Pinjaman Negeri masing-masing di Universiti Pertanian Malaysia. Walaupun tabung ini memberi sejumlah pinjaman yang terhad tetapi ianya dapat meringankan beban yang dihadapi oleh pelajar.

4. Unit ini akan terus berusaha memperingkatkan lagi usaha untuk mencari Bantuan Kewangan pelajar bagi sesi akan datang.

**Unit Bimbingan Agama dan Kerohanian**

Unit Bimbingan Agama dan Kerohanian bertanggungjawab memberi khidmat nasihat dan bimbingan kepada para pelajar agar menjadi seorang Muslim yang berpegang teguh kepada agama dan mendaulatkan cara hidup Islam yang merangkumi segenap bidang kehidupan.

Dengan tujuan dan falsafah ini diharapkan agar kefahaman/penghayatan, motivasi dan kecemerlangan hidup beragama setiap individu pelajar sentiasa terjamin kukuh.

Bagi mencapai hasrat agar ajaran Islam dapat dimenifestasikan dalam cara hidup setiap individu pelajar, aktiviti yang berbentuk khidmat nasihat, bimbingan, perbincangan kumpulan, pengajian Fardhu Ain, kursus, bengkel, seminar dan ceramah umum dijalankan sepanjang sesi 1990/91.

Dalam usaha membina budaya ilmu dan meningkatkan keupayaan pelajar memahami ilmu, sebuah Pusat Sumber telah diwujudkan. Pusat Sumber ini menyediakan kemudahan khidmat rujukan seperti buku, majalah, jurnal, kertas kerja, bahan pandang dengar dan sebagainya.

Sambutan dari para pelajar untuk menggunakan khidmat ini amat menggalakan.

Dalam usaha penyebaran maklumat dan penerbitan, unit dari masa ke semasa mengedarkan risalah-risalah agama yang diperolehi dari Pusat Islam Malaysia dan Jabatan-jabat Agama. Unit juga menerbitkan buku-buku panduan dan risalah dan diedarkan kepada pelajar serta masyarakat kampus.

Bagi mendokong hasrat dan cita-cita untuk memberi bimbingan kepada para pelajar, kerjasama dan sokongan dari semua pihak sentiasa diperlukan. Syukur Alahamdulillah, usaha murni yang dirancang sepanjang sesi ini dapat dijayakan dengan sempurna.

### Unit Kebudayaan dan Kesenian

Aktiviti yang diselenggarakan oleh Unit ini terbahagi kepada dua kategori iaitu latihan dan persembahan.

#### 1. Latihan

A. Latihan terbahagi kepada dua kumpulan-kumpulan kesenian iaitu:

i. Pancaragam	1 kali seminggu
ii. Kompang	5 kali seminggu
iii. Caklempong	14 kali seminggu
iv. Tarian	2 kali seminggu
v. Drama	2 kali seminggu
vi. Seni Lukis	2 kali seminggu
vii. Seni Foto	2 kali seminggu
viii. Koir	1 kali seminggu

B. Setiap persatuan Seni Mempertahankan Diri menjalankan latihan 3 kali seminggu.

- i. Seni Gayung Malaysia
- ii. Seni Silat Cekak Malaysia
- iii. Seni Silat Lincah Malaysia
- iv. Seni Silat Gayung Fatani
- v. Shito Ryu Karate Do
- vi. Tae Kwan Do

#### 2. Persembahan

Berikut adalah ringkasan jenis kegiatan kebudayaan yang telah dijalankan sepanjang sesi 1990/91.

C. Laporan kegiatan dan aktiviti Persatuan seni mempertahankan diri Universiti Pertanian Malaysia.

Terdapat 6 buah persatuan seni mempertahankan diri di kampus ini iaitu:

Persatuan	Aktiviti
a. Seni Silat Gayung Malaysia	7
b. Seni Silat Cekak	16
c. Seni Silat Lincah	5
d. Seni Silat Gayung Fatani	5
e. Shito Ryu Karate Do	9
f. Tae Kwon Do	11

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D. Kumpulan Muzik di bawah kelolaan Unit Kebudayaan:

Persatuan	Aktiviti
i. Brass Band	4
ii. Caklempong	15
iii. Kompang	10
iv. Muzik Asli	-
v. Koir	2

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E. Kumpulan Tarian Mahasiswa/Siswi UPM (PERMATA)

- Jumlah Aktiviti 2

F. Permainan Tradisional - Gasing Pangkah

- Jumlah aktiviti 1

G. Drama	Aktiviti
Grup Teater UPM	4
H. Seni Lukis	2
I. Seni Foto	3

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Jumlah keseluruhan aktiviti sepanjang sesi 1990/91 = 106 aktiviti

### UNIT PERUMAHAN PELAJAR

1. Bilangan pelajar yang tinggal di Kolej-kolej Kediaman Sesi 1990-91.

Kolej	Bilangan Pelajar J u l a i 1990/91	Sistem Makanan
Kolej Cikgu Rashid	550	Bekalan Makanan Kontrak
Kolej Kediaman Kedua	677	Tradisional
Kolej Kediaman Ketiga	672	Tradisional
Kolej Kediaman Keempat	658	Tradisional
Kolej Kediaman Kelima	658	Kafeteria
Kolej Kediaman Keenam	677	Tradisional
Kolej Kediaman Ketujuh	666	Tradisional
Kolej Tun Perak	710	Kafeteria
Kolej Pendita Za'aba	770	Bekalan Makanan Kontrak
Kuala Terengganu	150	Kafeteria
	6188	

2. Bilangan pelajar yang mendaftar tinggal di luar kampus.

Semester	Bilangan Pelajar
Julai 1990/91	2,829 orang

### Unit Kaunseling dan Kerjaya

Kegiatan profesional, pengembangan dengan pelajar di dalam kampus (23 aktiviti).

Seminar Kaunseling dan Kemanusiaan Ke 2 pada 15-16.12.90. Fokus: Kasih dan Sayang(1).

Bengkel untuk pelajar (6)

1. Bengkel Meyelesaikan Masalah Untuk PRS
2. Bengkel Motivasi Diri
3. Bengkel Panduan Temuduga
4. Bengkel Brainstorming
5. Bengkel Panduan Menulis Resume
6. Bengkel Etiket Sosial

Program Pembangunan Usaha Siswa (PPUS)(1).

Kursus Motivasi dan Keusahawanan

(Teori pada 25/5/90 - 1/6/90)

Latihan Praktik Sangkut Kerja pada 26.11.90-8.12.90

Ceramah di agensi luar dan di sekolah-sekolah (10)

Taklimat kepada sekolah-sekolah dan pegawai-pegawai institusi luar yang melawat Universiti Pertanian Malaysia(9)

Menghadiri seminar/bengkel di dalam dan di luar kampus (23)

Melibatkan diri dengan pameran di sekolah dan institusi luar (3)

Siri Penerbitan (1)

- a. Panduan Menulis Resume Edisi Kedua
- b. Panduan Kerjaya Edisi Ke 6
- c. Jalanbicara (proceeding) Seminar Kaunseling dan Kemanusiaan I

Sesi temuduga kerjaya dikendalikan bersama dengan bakal majikan (15).

Bakal majikan yang menggunakan khidmat unit untuk mendapatkan senarai graduan bagi tujuan temuduga dan kerjaya penempatan (73).

Ceramah Kerjaya Niaga - usahasama dengan Pusat Pemasaran Motivasi(1).

Kursus Pembimbing Rakan Sebaya (1).

Taklimat Ujian On-Line di Pusat Komputer kepada kaunselor-kaunselor universiti tempatan/institusi pengajian tinggi (1).

Majlis Pelancaran Kelab Usahawan UPM (1).

Minggu Kerjaya UPM pada 5 - 7.3.91(1).

Sesi kaunseling dengan pelajar (klien)(230).

Unit ini juga telah menjalankan Penyelidikan Perkembangan Kerjaya Lulusan UPM tahun 1990/91. Sehingga kini projek tersebut telah sampai ke peringkat penulisan laporan penyelidikan.

\* ( ) jumlah aktiviti.

### Unit Sukan

Unit Sukan menyediakan rancangan tetap (Kalendar Aktiviti) sepanjang sesi tahun pengajian di samping mengadakan kegiatan yang bercorak pertandingan serta sukan cemerlang dengan memberi perhatian pada kalendar

akademik pada sesuatu sesi serta diselaraskan dengan Kalendar Aktiviti Majlis Sukan Universiti Malaysia (MASUM).

Berikut adalah ringkasan kegiatan Sukan Pelajar yang dijalankan sepanjang sesi 1990/91.

1. Jun/Julai 1990

1.1 Mengadakan aktiviti sukan Minggu Suaikenal untuk para pelajar baru pada 25 Jun hingga 30 Jun 1990 dengan diikuti pula aktiviti Sukan Pelajar Baru mengadakan perlawanan dengan Pelajar Lama (Seniors) dalam beberapa jenis permainan yang dianjurkan oleh Jawatankuasa Sukan peringkat Kolej-kolej Kediaman dan Fakulti.

1.2 Jawatankuasa Kecil permainan peringkat Universiti mengadakan pemilihan dan latihan ke arah pembentukan pasukan Universiti. Latihan/persediaan Olahraga telah diadakan pada 1 hingga 17 Julai 1990. Di antara para atlet UPM yang terpilih ke SUKMA ke III di Kuching, Sarawak telah menghadiri latihan pusat di UTM, Sekudai, Johor bermula 10 Julai hingga 17 Julai 1990.

1.3 Aktiviti Merentas Kampus Antara Kolej telah diadakan pada 25 Julai 1990. Manakala Pesta Sukan Konvo Peringkat I merangkumi permainan Bolasepak, Bola Jaring, Bola Tampar (W), Sepak Takraw dan Tenis telah diadakan pada 28 Julai dan 29 Julai 1990.

2. Ogos, September dan Oktober 1990

Beberapa Pertandingan Tertutup dan Terbuka telah dianjurkan pada jangkamasa tersebut ke arah memantapkan pasukan-pasukan Universiti di samping mendedahkan ahli-ahli Jawatankuasa Kecil permainan-permainan berkenaan dalam bidang pengelolaan. Berikut adalah aktiviti-aktiviti sukan yang telah dijalankan di sepanjang bulan tersebut:

- 1 Ogos - Saringan Olahraga
- 1 & 5 Ogos - Pesta Sukan Konvo Peringkat II (Ragbi, Hoki,

Bola Tampar (L), Ping Pong dan Catur)

8 Ogos - Saringan dan Separuh Akhir Olahraga

11 Ogos - Temasya Olahraga UPM Ke 10 Sesi 1990/91

19 Ogos - Sukan ALUMNI (Golf)

1&2 September - Kejohanan Trek & Padang serta Kejohanan Renang Pelajar Antara Universiti/ITM Malaysia 1990/91 di Stadium Cheras dan UTM.

14-21 September - Sukan MASUM II di Universiti Kebangsaan Malaysia, Bangi.

2.1 Keputusan Kejohanan Trek & Padang

Kontigen UPM telah muncul sebagai Juara Keseluruhan pada Kejohanan Trek dan Padang MASUM Ke 7 yang berlangsung di Stadium Cheras pada 1 dan 2 September 1990.

2.2 Keputusan Sukan MASUM I

Temasya Sukan MASUM (Antara Universiti/IPT Malaysia) Peringkat Pertama di UTM, Sekudai pada 16 - 19 September 1990. Kontigen UPM berjaya menjadi JOHAN dalam empat (4) jenis sukan dan memperolehi dua (2) Naib Johan daripada sebelas (11) jenis sukan yang dipertandingkan.

2.3 Keputusan Sukan MASUM II

Dalam Temasya Sukan MASUM Peringkat Kedua di Universiti

Kebangsaan Malaysia, Bangi pada 30 Januari 1991 hingga 2 Februari 1991. Kontigen UPM berjaya menjadi Johan dalam tujuh (7) acara dan memperolehi Naib Johan dalam dua (2) acara daripada dua belas (12) jenis sukan yang dipertandingkan.

3. November, Disember 1990 Hingga Mac 1991

3.1 Sukan Universiti ASEAN telah berlangsung di Bandung, Indonesia dari 10 hingga 18 November 1990 di mana beberapa atlit UPM turut mengambil bahagian dalam sukan tersebut.

3.2 Sukan Antara Kolej Kediaman telah berlangsung mulai dari awal bulan Disember 1990 dan tamat pada awal bulan Februari 1991. Sebanyak 23 acara permainan dipertandingkan di mana acara-acara tersebut dijalankan secara berperingkat-peringkat (MODUL).

3.3 Pasukan Tae Kwon Do UPM telah muncul sekali lagi sebagai Johan buat kali yang keempat dalam Kejohanan Tae Kwon Do MASUM yang berlangsung pada 28 Januari hingga 2 Februari 1991 di Universiti Kebangsaan Malaysia, Bangi.

3.4 Pasukan Bolasepak dan Bola Jaring UPM telah menjuarai kedua-dua permainan tersebut dalam Kejohanan Liga MASUM yang telah berlangsung pada 2 Februari 1991 di Kampus Universiti Kebangsaan, Bangi.

4. Anugerah

UPM telah mengadakan Majlis Anugerah Lencana Sukan 1990/91 kali ke XI pada hari Khamis 14 Mac 1991 jam 8.00 malam bertempat di Dewan Besar, UPM. Tujuh (7) orang atlit UPM telah dianugerahkan Lencana Biru Universiti - Lencana Tertinggi manakala anugerah **Olahragawan** disandang oleh Sardara Mohd. Safuan b. Hj. Mohd. Taib serta anugerah **Olahragawati** disandang oleh Saudari Chung Pit Jin. Peranugerahan tersebut telah disampaikan oleh pihak Universiti kepada ahli-ahli sukan yang aktif dan mempunyai pencapaian yang mengagumkan.

## Pusat Kesihatan Pelajar

Pusat Kesihatan Pelajar menerima sejumlah 35,233 kedatangan pesakit untuk tahun 1990 (30,433 kedatangan di Klinik Perubatan dan 4,800 di Klinik pergigian). Lima mobiditi utama kedatangan pesakit di Klinik Perubatan ialah penyakit pernafasan, penyakit kulit, kecederaan, penyakit urat saraf dan penyakit pemakanan. Di Klinik Pergigian 5 sebab utama kedatangan ialah tampalan kekal, tampalan sementara, scaling dan polishing, cabut gigi dewasa dan cabutan gigi susu.

Seramai 423 orang pesakit telah dirujuk ke Hospital Daerah/Hospital Universiti dan 95 daripadanya telah dimasukkan ke dalam wad. Di wad Pusat Kesihatan Pelajar UPM seramai 78 orang telah dimasukkan disebabkan oleh penyakit berjangkit. Sebanyak 176 pembedahan kecil dan 2,174 cucian luka dilakukan. Ujian penyakit yang telah dibuat ialah 1626 ujian darah dan air kencing, 524 x-ray dan 45 ujian electrocardiogram 2,218 orang mendapat suntukan pelalian dan 447 orang mendapat rawatan fisioterapy.

## Lain-lain Perkhidmatan

Kakitangan Pusat Kesihatan Pelajar terlibat di dalam 25 aktiviti yang memerlukan 'standby' Pertolongan Cemas kegiatan, 150 jam dalam ceramah pendidikan kesihatan, 18 kali pemeriksaan asrama dan kantin dan 4 kali sambilan nyamuk di seluruh kawasan kampus.

## PEMBANGUNAN

### Projek yang telah siap:

#### Serdang

1. Bangunan tambahan Fakulti Sains Makanan dan Bioteknologi.
2. Bangunan Fakulti Pengajian Pendidikan.
3. Bangunan Matematik dan Sains Komputer.
4. Bangunan Sains Daging Fakulti Kedokteran Veterinar dan Sains Peternakan.
5. Bangunan Setor Jualan Ladang.

#### Port Dickson

6. Komplek Pusat Oseanografi dan

marikultur Fakulti Sains Perikanan dan Sains Samudera.

**Projek-projek yang sedang dilaksanakan:**

**Serdang**

1. Projek Kolam Renang.
2. Trek sintetik 400 meter.
3. Gelanggang Tenis ( 8 unit )
4. Pavalion dan Bilik Persalinan
5. Markas Tambahan PALAPES
6. Dewan Makan Tambahan P.P.P.L.
7. Unit Studio Landskap
8. Kolej Kediaman Pelajar ke 10
9. Bangunan Teknologi Biji Benih dan Perladangan Fakulti Pertanian

## FAKULTI PERTANIAN

### DEKAN

Prof. Mohd. Zain Karim (hingga 7 Mac 1991)

Dr. Wan Sulaiman Wan Harun

### KAKITANGAN

#### Jumlah Kakitangan

Jabatan	Katetegori A	Kategori B	Kategori C	Kategori D
Pejabat Dekan	2	-	7	7
Agronomi dan Hortikultur	34	1	29	6
Pengajian Pembangunan Manusia	27	2	25	7
Perlindungan Tumbuhan	20	2	22	10
Sains Tanah	21	3	30	23
Jumlah	104	8	113	53
Jumlah Besar				278

### PERLANTIKAN BARU

Seramai seorang Pensyarah, seorang Tuteur, 3 orang Jurutaip dan 2 orang Pembantu Am Rendah telah dilantik.

### PERLETAKAN JAWATAN, PERSARAAN DAN TAMAT KONTRAK

Seramai 4 orang Pensyarah telah meletakkan jawatan, 3 orang telah bersara dan seorang telah tamat tempoh kontrak.

### CUTI BELAJAR

Seramai 21 orang Pensyarah sedang mengikuti program Ph.D. di dalam dan luar negara.

### PERKARA AKADEMIK

#### Ijazah Lanjutan

Seramai 50 orang pelajar sedang mengikuti Ijazah Lanjutan di Fakulti ini iaitu 17 orang Ph.D. dan 33 orang M. Agric. Sc.

### PENYELIDIKAN

1. Prof. Madya Dr. Sharifuddin Hj. abd. Hamid: Potensi Tanaman Eksotika dan Tanaman Rendahguna sebagai Tanaman Komersial (2).
2. Prof. Madya Khalip Abdul Raffar: Pengeluaran Tanaman Menerusi Beberapa Sistem Tanpa Tanah (4)
3. Prof. Madya Dr. Mohammad Md. Ali: Kawalan Bersepadu Penyakit-penyakit *Cap-sicum* spp. (6).
4. Prof. Yap Thoo Chai: Pembaikan Tanaman: Jagung-Keledek (8).
5. Dr. Azizah Hashim: Kawalan Perosak Tanaman yang berkesan untuk Pengeluaran Hasil Koko yang Bermutu (3).
6. Prof. Madya Dr. Mohd. Yusof Hussein: Agroecosystem Management of Plantation Crops (3).

7. Prof. Dr. Mohd. Zain Abd. Karim: Kajian Pembaikan Pengeluaran dan amalan Lepas Tuai pada berbagai Jenis Buah-buahan Tropika (13).
  8. Prof. Madya Dr. Cheah Chooi Hwa: Pengeluaran Varieti-varieti Kacang Tanah (*Arachis hypogaea*) Berhasil Tinggi dengan Keperluan Input Minimum (3).
  9. Dr. Syed Mohamed Zain S. Hasan: Genetik Solanum Melongena L. Kompleks (3).
  10. Prof. Madya Dr. Sharifuddin Abd. Hamid: Sifat, Pencirian dan Pengurusan Tanah Asid Terluluhawa Pesat (Ultisol dan Ok-sisol)(4).
  11. Prof. Madya Dr. Wan Sulaiman Wan Harun: Pemuliharaan Tanah dan Air pada Tanah Guram (3).
  12. Prof. Madya Dr. Shamsuddin Jusop: Kajian Pedologi dan Kimia Tanah Organik dan Asid Sulfat di Malaysia (4).
  13. Prof. Madya Dr. Zulkifli Hj. Shamsuddin: Pembaikan keadaan Fizik dan Biologi Tanah Berpasir untuk meningkatkan Hasil Tanaman (3).
  14. Prof. Madya Dr. Zulkifli Hj. Shamsuddin: Peningkatan Nitrogen Biologi- Sumbangan Rhizobium dalam Tumbesaran Kekacang Bersimbiosis (4).
  15. Dr. Makhdzir Mardan: Penyelidikan dan Pembangunan dalam Perlebahan (10).
  16. Dr. Surjit Singh: 'Simulation Modelling', Kajian Nutrien dan Perosak bagi Sistem Penanaman Berasaskan Padi (3).
  17. Prof. Madya Dr. Mohd. Yusof Hussein: Integrated Pest Management under Small Farm Agroecosystem (3).
  18. Norazam Shuib: Kajian Perancangan Ekologi Landskap (1).
  19. Dr. Saleh Kadzimin: Kajian Genetik dan Fisiologi sehubungan dengan Pembiakan dan Tabii Pembungaan Tanaman Hiasan Terpilih (2).
  20. Prof. Madya Dr. Abd. Razak: Development of Underutilized Agro-based Fibers (2).
  21. Dr. Jariah Masud: Pembangunan Keluarga dan Penggunaan Sumber (2).
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### SEMINAR/BENGGKEL/KURSUS

1. Kursus Perlembahan Tropika untuk peserta-peserta dari ASEAN dan Vietnam di UPM, Serdang, 2-10 September 1990.
2. Kursus Lepastuai Bunga-bunga Keratan anjuran FAMA/UPM untuk pegawai-pegawai pengembangan agensi tersebut diadakan pada 8-12 Oktober 1990.
3. International Horticultural Conference 1990 anjuran ISHS/UPM (peringkat antarabangsa) untuk pada saintis, pegawai penyelidik, orang awam dan pelajar diadakan pada 7-9 Ogos 1990 di PPPL, UPM.
4. Kursus Pendek dalam Bidang Kultur Tisu anjuran Fakulti Pertanian untuk 7 orang pegawai dari Jabatan Pertanian pada 29 april hingga 10 Mei 1991.
5. Bengkel antarabangsa Simulasi dan Analisis Sistem bagi Pengeluaran Padi anjuran bersama CABO dan TPE (Wageningen, Netherlands), IRRI (Filipina) dan UPM diadakan pada 6 hingga 11 Mei 1991.
6. Kursus analisis Tanah dan Tumbuhan 1990 pada 12-24 November 1990. Peserta 27 orang.
7. International Seminar of Hydroponic Culture of High Value Crops in Tropic di Genting Highland pada 25-27 November 1990.

## FAKULTI PERHUTANAN

### DEKAN

Prof. Madya Dr. Yusuf Hadi

### KAKITANGAN

Jumlah kakitangan Fakulti Perhutanan bagi tahun akademik ialah 99 orang. Pecahan menurut kategori:-

Jabatan	Kategori			
	A	B	C	D
Pejabat Dekan	4	-	10	29
Jabatan Pengurusan Hutan	12	-	7	5
Jabatan Pengeluaran Hutan	16	-	11	5
Jumlah	32	-	28	39
Jumlah Besar				99

### Cuti Belajar

Seramai tujuh orang pensyarah belajar di luar negeri dan 3 orang belajar dalam negeri yang sedang mengikuti Ph.D. Seorang pensyarah sedang cuti Sebatikal.

### TABURAN PELAJAR MENURUT SESI AKADEMIK - B.S. PERHUTANAN Sesi Akademik

Tahun	85/86	86/87	87/88	88/89	90/91
Tahun 1	36	24	49	43	58
Tahun 2	38	36	14	49	51
Tahun 3	24	38	36	14	41
Tahun 4	20	23	38	35	49
	118	111	137	141	199

## PEMERIKSA LUAR B.Sc./M.Sc.

Prof. I.S. Ferguson

## SEMINAR AKADEMIK

1. Application of Computer Modelling in Forest Plantation disampaikan oleh En. Lim Kee Leng pada 18 Oktober 1990.
2. Penglihatan Pengusaha Bumiputra Dalam Industri Perkayuan di Malaysia disampaikan oleh Tuan Haji Ramli Isa (Kayu Sedia Sdn. Bhd.) pada 20 September 1990.
3. Current Status, Opportunities and Challenges of the Malaysian Forest Products Industries disampaikan oleh En. Tong Kok Hung (MTIB) pada 4 Oktober 1990.
4. Recent Developments in Tree Breeding disampaikan oleh Dr. Mike Slee (Australian National University, Canberra) pada 7 Januari 1991.
5. Breeding Biology of *Acacia mangium* and *Acacia auriculiformis* disampaikan oleh En. Zakaria Ibrahim (FRIM) pada 26 Februari 1991.
6. Wood Plasticisation and Its Application disampaikan oleh Prof. Nobus Shiraiishi (Kyoto University) pada 16 Mac 1991.
7. Biochemistry of Wood Decay and Its Application disampaikan oleh Prof. Shimada (Kyoto University) pada 16 Mac 1991.
8. Bioeconomic Modelling of Agroforestry Systems disampaikan oleh Dr. Paul Wojtkowski (University College of North Wales Bangor, U.K.) pada 6 Mei 1991.

## Kuiz Sains Semulajadi 1990

Pada 23 Ogos 1990 di Pusat Dagangan Dunia Putra, Kuala Lumpur.

## SEMINAR YANG DIADAKAN

1. Workshop on Downstream Timber Processing pada 3-15 Disember 1990 di P.J. Hilton. UNIDO/UPM.
2. 3rd. International conference on plant protection in the tropics di Genting Highlands, March 20-23 1990.

## PENYELIDIKAN

1. Hamami Sahri: Tissue proportion of *Acacia mangium* and its relation to its physical-mechanical properties.
2. Nik Muhamad Majid: Foliar sampling guidelines of *Acacia mangium* for nutritional and growth assessment. Source of funding: Universiti Pertanian Malaysia.

3. Nik Muhamad Majid: Effects of thinning on the growth and nutrition of *Acacia mangium*. Source of funding: Universiti Pertanian Malaysia.
4. Nik Muhamad Majid: Effects of natural forest conversion to plantation forest on soil properties and tree growth. Source of funding: Universiti Pertanian Malaysia.
5. Nik Muhamad Majid: Determination of nutrient requirements of teak (*Tectona grandis*). Source of funding: Universiti Pertanian Malaysia.
6. Nik Muhamad Majid: Determination of nutrient requirements of rattan under greenhouse conditions. Source of funding: Universiti Pertanian Malaysia.
7. Nik Muhamad Majid: Interplanting of rattan with rubber trees. Source of funding: Universiti Pertanian Malaysia.
8. Nik Muhamad Majid: The potential of agroforestry practice in the rehabilitation of ex-mining areas. Source of funding: Universiti Pertanian Malaysia.
9. Nik Muhamad Majid: Feasibility of using fast-growing timber species for reclamation of ex-mining areas. Source of funding: U.S. National Academy of Science (Board on Science and Technology for International Development, BOSTID).
10. Razali Abdul-Kader: Influences of treated wood surfaces in the bonding of resinous wood.
11. Razali Abdul-Kader: Properties of low-density particleboards manufactured from fast-growing indigenous species.
12. Razali Abdul-Kader: Properties of MDF manufactured from fast-growing plantation species.
13. Wan Sabri, W.M.: Improving the Recreation Area Data Information System (RADIS).
14. Wan Sabri, W.M.: Visitors preferences and choice for outdoor recreation area visits.
15. Wan Sabri, W.M.: Interpretation of Bukit Teresek Trail in Taman Negara.
16. Wan Sabri, W.M.: Preferences for area and activity at Shah Alam Agriculture Park, Selangor.
17. Wan Sabri, W.M.: The visitors need for interpretation at Taman Negara.
18. Wan Sabri, W.M.: Sustainable Development of Taman Negara: Its Impact on the Local Population.

## PENERBITAN

1. Ahmad Said Sajap. 1990. Serangga perosak perabot kayu. *Majalah Pengembangan*. 13: 2-28.
2. Ahmad Said Sajap dan Kiranjeet Kaur. 1990. Histopathology of *Metarhizium anisopliae*, and entomopathogenic fungus, infection in the termite *captotermes curvignathus*. *Pertanika*. 13:331-334.
3. Abdullah Mohd dan Wan Sabri Wan Mansor. 1990. A 50 - year perspective of Taman Negara: Its origin, present and future management. Paper submitted to the *Malaysian Forester*.
4. Bimal K. Paudyal dan Nik Muhamad Majid. 1990. Nutritional levels of different aged *Acacia mangium* Willd. plantations in Kemasul Forest Reserve, Pahang, Peninsular Malaysia. *J. Trop. Ecol.* 22pp. (In Review).
5. Bimal K. Paudyal dan Nik Muhamad Majid. 1990. Preliminary thinning guideline for *Acacia mangium* Willd. plantations in Kemasul Forest Reserve, Peninsular Malaysia. *J. Trop. For. Sci.* 22pp. (In Review).
6. Ismail Harun and Nik Muhamad Majid 1990. Potential of agroforestry in the utilization of idle land in Peninsular Malaysia. Paper presented at the National Seminar on Land Evaluation for Agricultural Development, 20-22 August, 1990. Kuala Lumpur. 18 pp.
7. Kamaruzaman Jusoff and Nik Muhamad Majid 1990. Inventory and monitoring of forest wetland resources of ASEAN. *J. For. Ecol. and Mgt.* 34: 63-79.
8. Kamaruzaman Jusoff and Nik Muhamad Majid 1990. An analysis of soil disturbances from logging operation in a hill forest of Peninsular Malaysia. *J. For. Ecol. and Mgt.* (In Press).
9. Kamaruzaman Jusoff and Nik Muhamad Majid 1990. Soil disturbance from logging operation in hill forest of Peninsular Malaysia. *J. Soil Use and Mgt.* (In Press).
10. Kamis Awang and Razali Abdul Kader. 1990. Developing technologists for the wood-based sector. *Asia Pacific Timber Conference*. 24-26 September Kuala Lumpur: Malaysian Timber Industry Board. 12p.
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12. Mohd. Hamami Sahri. 1990. (Penyusun). *Kamus Istilah Perhutanan - Sains kayu dan Hasil Hutan*. Dewan Bahasa dan Pustaka, Kuala Lumpur.
13. Mohd. Hamami Sahri. 1990. The Durability of Phenol-Resorcinol Formaldehyde Glue Joints of Three Malaysian Hardwood Species. *Pertanika* 13(2). 159-163.
14. Mohd. Hamami Sahri and Kee Teck Khoon. 1990. Integrity of Phenol-Resorcinol Formaldehyde and Urea Formaldehyde Glue Joints on Three Fast Growing Tropical Hardwood Species. *Malaysian Forester*. Inprint.
15. Mohd. Hamami Sahri dan Ling Kwong Hung. 1990. Retensi Bersih Garam Pengawet Kayu Menggunakan Kaedah Atomic Absorption Spectrophotometer. *Proceeding Simposium Kimia ke-4*. 4-6 September, 1990. pp 34-36.
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17. Mohd. Hamami Sahri, Razali Abdul-Kader, Kee, T.K. 1991. Gluing properties of three fast-growing plantation species. In: *Proc. Regional Symp. Recent Development in Tree Plantations of Humid/Subhumid Tropics of Asia*. Serdang: Unive. Pertanian Malaysia (In press).
18. Nik Muhamad Majid. 1990. Potential of agroforestry in the rehabilitation of ex-mining land. Paper presented during the National Seminar on ex-mining land and Bris Soil : Prospects and Profit. 15-16 October, 1990. Kuala Lumpur.
19. Nik Muhamad Majid. 1990. Forestry and agricultural sustainability in Malaysia. U.S. National Research Council Workshop on agricultural sustainability in the humid tropics. Nov. 23, 1990, Bangkok, Thailand.
20. Nik Muhamad Majid dan Ismail Harun. 1990. Integrated farming under rubber plantations in Peninsular Malaysia. *Agroforestry Systems and Technologies*. BIOTROP Special Publ. No. 39: 121-133.
21. Nik Muhamad Majid, Awang Noor Ab. Ghani dan Jamaluddin Abdul Hamid. 1990. Economic appraisal of sheep grazing under rubber plantation in Peninsular Malaysia. *Agroforestry Systems and Technologies*. BIOTROP Spec. Publ. No. 39 : 197-209.
22. Nik Muhamad Majid dan T.M. Ballard. 1990. Effects of foliar application of copper sulphate and urea on the growth of lodge pole pine. *Forest Ecol. and Mgt.* 37: (In press).
23. Nik Muhamad Majid dan Bimal K. Paudyal. 1990. Pruning trial for *Acacia mangium* Willd. plantation in Peninsular Malaysia.

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# FAKULTI KEDOKTORAN VETERINAR DAN SAINS PETERNAKAN

## DEKAN

Prof. Dr. Hj. Abdul Latif bin Ibrahim

## KAKITANGAN

### Jumlah Kakitangan

JABATAN	KATEGORI A	KATEGORI B	KATEGORI C	KATEGORI D
Pejabat Dekan	2	1	6	8
Jab. Sains Peternakan	22	3	21	22
Jab. Pathologi dan Mikrobiologi Veterinar	16	4	17	11
Jab. Pengajian Klinikal Veterinar	14	6	3	11
Jumlah	54	14	47	52
Jumlah Besar				167

### Perlantikan Baru

Seorang Pensyarah dan 3 Tutor dan seorang Pembantu Am Rendah dilantik.

### Perletakan Jawatan

Dua orang pegawai meletak jawatan.

### Cuti Belajar

Dua orang Pensyarah dan 3 orang Tutor sedang melanjutkan pelajaran.

Seorang pensyarah sedang bercuti sabbatical di University of California, Davis.

### PERKARA-PERKARA AKADEMIK

#### Ijazah Lanjutan

Seramai 6 orang mengikuti program Ph.D. (4 di UPM dan 2 di luar negeri) dan 4 orang mengikuti program MSc. di UPM.

Seramai 10 orang pelajar mengikuti Ijazah Lanjutan di JPMV (7 Ph.D. dan 3 M.Sc.).

#### Pemeriksa Luar

1. Prof. N. T. Gorman telah bertugas di Jabatan ini.

2. Prof. D.L. Dungworth daripada University of California, U.S.A.

### PENYELIDIKAN

1. Dr. Aziz Saharee: Studies on haemorrhagic septicaemia in cattle and buffaloes.

2. Dr. Aziz Saharee: Causes of mortality in young ruminants.

3. Dr. Bashir Ahmad: Anhydrosis in horses.

4. Dr. Bashir Ahmad: Management and diseases in horses.

5. Dr. Bashir Ahmad: Radiographic survey of fetlock joint in working polo ponies.

6. Dr. Fatimah Iskandar: Studies on neonatal diarrhoea in ruminants.

7. Dr. Fatimah Iskandar: Diseases of sheep.

8. Dr. Gurmeet Kaur Dhaliwal: Retrospective study of case records on post-operative complication in ovariohysterectomised cats and dogs.

9. Dr. Henry Too: Neonatal Calf Diarrhoea.

10. Prof. M.R. Jainudeen: Diagnostic ultrasound for pregnancy diagnosis.
11. Prof. M.R. Jainudeen: Embryo transfer in goats and buffalo.
12. Dr. Kalthum Hashim: Masalah penurusan dan kesihatan anjing dan kuda.
13. Dr. Nadzariah Cheng: Studies on the cat liver fluke *Platynosomum fastosum*.
14. Dr. Nadzri Salim: Epidemiological modelling of haemorrhagic septicaemia in cattle and buffaloes.
15. Dr. Nadzri Salim: Epidemiological modelling of Newcastle Disease in poultry flocks.
16. Dr. Nadzri Salim: Studies on disease and mortality in goats and sheep in the Hulu Langat District.
17. Abdul Latif Ibrahim: Vaccination of village chickens in Malaysia against Newcastle disease. Supported by a grant from the Australian Center for International Agriculture Research.
18. Abdul Latif Ibrahim: Application of Genetic engineering in animal health and Production IRPA.
19. Abdul Latif Ibrahim: Animal Biotechnology (MPKSN).
20. Abdul Rani Bahaman: Epidemiology of leptospiral infection in Domestic Animals in Malaysia.
21. Abdul Rani Bahaman: The Sero-Epidemiological studies of Brucellosis in Cattle and Buffaloes in Malaysia.
22. Abdul Rani Bahaman: Detection of the Immunogenic Components of *Pasteurella multocida* and *P. haemolytica*.
23. Awang I.P.R.: Biologi molekul virus berkepentingan veterinar.
24. Awang I.P.R.: The role of paramyxoviruses in mixed infections of respiratory diseases in poultry.
25. Awang I.P.R.: Characterization of avian paramyxovirus.
26. Mohd. Shah Abdul Majid: Studies on mycoplasma infections in chickens.
27. Mohd. Zamri-Saad: Aetiological Studies on pneumonia of sheep and goats.
28. Mohd. Zamri-Saad: Contagious ecthyma of sheep and goats.
29. Mohd. Zamri-Saad: Studies on sarcoptic mange of goats.
30. Mohd. Hair Bejo: Chronic Copper Toxicity in Palm Kernel Cake (PKC) loaded sheep.
31. Rasedee Abdullah: The effect of nephrotic syndrome on blood coagulation associated mechanisms.
32. Rehana A. Sani: Bionomics of the free-living stages of trichostrongyles.
33. Rehana A. Sani: Anthelmintic resistance in small ruminants.
34. Rehana A. Sani: Trypanosomiasis in large ruminants.
35. Rehana A. Sani: Goat health and husbandary.
36. Saleha, A.A.: Psychrotrophic bacteria in raw and pasteurized milk.
37. Shaik Mohd. Amin Hj. Babjee: Survey of Parasites of aviary birds.
38. Shaik Mohd. Amin Hj. Babjee: Behaviour of the red jungle fowl.
39. Shaik Mohd. Amin Hj. Babjee: Tick Resistance: Studies of tick lesions in the skin of Kedah-Kelantan cattle.
40. Sheikh-Omar, A.A.: Etiologic studies of Pneumonia in sheep & goats.
41. Ungku Chulan U. Mohsin: Diagnoses of poultry disease of livestock using immunoperoxidase staining technique.
42. Dr. Abdul Salam Abdullah: Signal grass (*Brachiaria decumbens*) Toxicity in Sheep.
43. Dr. Abdul Salam Abdullah: Increasing Livestock Productivity Through Nutritional Improvement.
44. Dr. Mohamed Ali Rajion: Nutritional and Immunological status of neonatal sheep/*Brachiaria decumbens* toxicity in sheep.
45. Dr. Tengku Azmi Tengku Ibrahim: Semen quality and reproductive functions of the Malin, Long Tail and Poll Dorset cross rams.
46. Dr. Tengku Azmi Tengku Ibrahim: Studies on the acromosomes of long tail rams in relation to its spermatozoa abnormality.
47. Dr. Kuan King Kai: Nutritive value and free choice intake of local forages in goats.
48. Puan Ramlah Hamid: Feeding systems-Development of feeding systems for poultry under various management systems.
49. Puan Ramlah Hamid: Development of feed resources.

50. Dr. Hew Peng Yew: Performance of temperate rabbits under Malaysian conditions.
51. Puan Ramlah Hamid: Genetics analysis and evaluation of indigenous ayam kampung.
52. Dr. Dahlan Ismail: Evaluation of rabbit breeds and production systems in the tropics. a) Cage systems and b) Grazing systems.
53. Dr. Dahlan Ismail: Modeling and simulation of Livestock - primary crops production systems.
54. Dr. Dahlan Ismail: Meat quality evaluation.
55. Dr. Mohd. Ridzwan Abd. Halim: Agronomic and Nutritive Evaluation of fodder Trees.
56. Encik Osman Awang: Feeding System-Increasing Productivity through Nutritional Improvement.
57. Dr. Tan Hock Seng: Reproductive performance of indigenous and crossbred cattle (IRPA Project).
58. Dr. Tan Hock Seng: Improving the reproductive efficiency of sheep (IRPA Project).
59. Dr. Wan Nordin Wan Mahmud: Semen evaluation of Australian rams (CMBL x breed) by using the electro-ejaculator and artificial vagina during various seasons of the year.
60. Dr. Wan Nordin Wan Mahmud: Monitoring the scrotal circumference of Australian rams (CMBL x breed) during various seasons of the year.
61. Dr. Ishak Yahaya: Sheep - Genotype - Nutritional Environmental Interaction.
62. Dr. Ishak Yahaya: Performance of Kedah-Kelantan body colour comparison.
63. Mohd. Peter Davis: Nutrition and reproduction of Australian Sheep in Malaysian Humid Tropics.
64. Dr. Kassim Hamid: Meningkatkan kecekapan biakbaka ruminan.
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75. M.P. Davis and M.A. Rajion (1990). Acclimation of Australian sheep to the humid tropics. *Proc. Malaysian Soc. Animal Production 13th Annual Conference (1990)* 275-278.
76. M.P. Davis, M.A. Rajion and N. Adam (1991). High prenatal lamb mortalities in Australian ewes raised in the Malaysian humid tropics. *Proc. Malaysian Soc. Animal Production. 14th Annual Conference (1991)*, 126-130.
77. Kassim, H. and N.H. Akma (1991). Field study of microbial status of breeder's eggs. *Proc. of 14th MSAP Ann. Conf.* 61-67.
78. Devendra Prasad Yadav and Mohamed Mahyuddin Dahan. Nutritive evaluation of sago fibre. Submitted and accepted for publication by *Asian-Australasian Journal of Animal Sciences.*
79. Devendra Prasad Yadav and Mohamed Mahyuddin Dahan. Performance of lamb fed urea-treated sago fibre based diet with supplements. Submitted and accepted for publication by *Asian-Australasian Journal of Animal Sciences.*

# FAKULTI EKONOMI DAN PENGURUSAN

## DEKAN

Dr. Mohd. Ariff Hussein

## KAKITANGAN

### Jumlah Kakitangan

JABATAN	KATEGORI A	KATEGORI B	KATEGORI C	KATEGORI D
Pejabat Dekan	3	3	9	11
Ekonomi Sumber Asli	14	-	1	2
Pengurusan dan Pemasaran	19	-	1	2
Perakaunan dan Kewangan	16	-	1	1
Ekonomi Pertanian	13	-	1	1
Ekonomi	17	-	1	2
Jumlah	82	3	14	19

### Perlantikan Baru

Seorang Pensyarah kontrak, 2 orang tutor telah dilantik.

### Perletakan Jawatan

Seorang pensyaran dan seorang Tutor telah meletak jawatan.

### Cuti Belajar

Seramai 15 pensyarah sedang mengikuti kursus di dalam dan luar negeri (Ph.D - 12 orang, cuti sabatikal - 3 orang).

## PERKARA AKADEMIK

### Program Ijazah Lanjutan

Seramai 84 orang pelajar mengikuti program Ijazah Lanjutan, iaitu Ph.D. - 15 orang, Master Sains - 28 orang dan MBA - 41 orang.

### Program Bachelor

Seramai 1014 orang pelajar telah mengikuti program Bachelor di Fakulti ini.

a) B.S. Perniagaantani : 471 orang

b) B.S. Ekonomi Sumber : 274 orang

c) Bachelor Perakaunan : 263 orang

### Pemeriksa Luar

Seramai 4 orang pemeriksa luar telah bertugas di Fakulti, mereka ialah:

1. Prof. Werner Doppler dari University of Honhenheim, German Barat (B.S. Ekonomi Sumber).
2. Prof. D. Clerk dari University of Newcastle, Australia (Bachelor Perakaunan).
3. Prof. James Marsden dari University of Kentucky, U.S.A. (B.S. Perniagaantani).
4. Prof. Lindsay, W. Daryl. dari University of Saskatchewan, Canada (Master Business Administration).

### PENYELIDIKAN

1. Ahmad Shuib, Wan Sabri Wan Mansor, Zahid Emby dan Abdullah Ahmad : "Sustainable Development of Taman Negara - Its Socio-Cultural Economic Impacts on Local Residents, 1990.

2. Md. Zabid Abd. Rashid: "Strategic Planning in the Insurance Industry," Malaysian Insurance Institute, 1990.
3. Md. Zabid Abd. Rashid: "Ethical Values of Malaysian Managers," 1990.
4. Md. Zabid Abd. Rashid: "Job Satisfaction and Motivation of bank Officers", 1990.
5. Khalid Abd. Rahim: "Resource Linkages of Pollution Control" 1990.
6. Khalid Abd. Rahim: Environmental Regulation Impacts on Trade for Malaysian's Major Export Industries, 1990-1995.
7. Shamsheer Mohamad: "The Effect of Interim Earning Announcements on Stock Prices: A Test of Semi-Strong Form Efficiency with Appropriate Refinement, 1990.
8. Annuar Md. Nasir: "Efficient Market Hypothesis and the Thinly Traded Kuala Lumpur Stock Exchange : Tests with Appropriate Refinements," 1990.
9. Chew Teck Ann: "Farm Management Study of Rubber Estates," 1990.
7. Chew Tek Ann. "Share Contracts in Malaysian Rubber Smallholdings" Land Economics, Vol 87, No. 1 Feb., 1991 pp. 85-98.
8. Shamsudin, M.N., Hussein, M.A. "Sources of Growth and Productivity Improvement in Malaysian Agriculture". Paper presented at the 7th. World Productivity Congress, K.L., November 19-22, 1990.
9. Annuar Md. Nassir dan Shamsheer Mohamad. "Resistance by Target Firms Management in Unsolicited Takeovers : Bankers Journal Malaysia, Dec. 1990.
10. Shamsheer Mohamad, Dr. Ariff Mohamed dan Annuar Md. Nasir,. "Technical Analysis, Unit Root and Weak-form Efficiency of the KLSE", Bankers Journal Malaysia, April 1991.
11. Shamsheer Mohamad, Dr. Arif Mohamed dan Annuar Md. Nasir. "Technical Analysis Revisited" Investors Digest, April 1991.
12. Shamsheer Mohamad dan Annuar Md. Nasir. "Means of Rajment and Bidding Firms Stock Returns in the UK : A Test of Information Hypothesis" PERTANIKA 14(1) 1991.

#### PENERBITAN

1. Ahmad Shuib, Nik Mustapha R. Abdullah dan M.Maya. "Persepsi Pelancongan Terhadap Pembangunan Industri Pelancongan di Tioman" JESA Staff Paper 2/90.
2. Ahmad Shuib, Nik Mustapha R. Abdullah & Faridah Hatim. "Attitudes of Residents Towards Tourism Development in Tioman", JESA Staff Paper No. 3/90.
3. Abd. Aziz Abd. Rahman, Ahmad Shuib, Shahwahid Hj. Othman dan Zakariah Rashid. "The Economic Impact of Tourism in Malaysia", presented at The Symposium on Tourism in Asian Region Nov, 1990.
4. Abd. Aziz Abd. Rahman, Ahmad Shuib, Shahwahid Hj. Othman dan Zakariah Rashid. "The Impact of Tourism on Malaysian Economy", presented at The National Seminar on The Services Industry in the 1990's, July, 1990.
5. Khalid Abd. Rahim. "Transcendental Policy Effects : Trade and Resource Issues of Environmental Regulation", Option, Vol. 5 No. 2, 1990.
6. Khalid Abd. Rahim. "Internalisation of Externalities : Who Bears The Cost of Pollution Control? The Environmentalist, Vol II, No. 1, 1991.
13. Zabid, A.R.M., Samsinar M.S., Badriyah M., dan Mansor M.I. Towards More Effective Planning in Small Firms, Long Range Planning, 1990.
14. Md Zabid Abdul Rashid. Managerial Goals in State-Owned Enterprises in Malaysia, Jurnal INTAN, National Institute of Public Administration, 1990.
15. Zabid A.R.M., Samsinar M.S., Mansor M.I. Farmers Buying Selection Criteria of Agricultural Inputs, Journal of International Food and Agribusiness Marketing, 1990.
16. Md. Zabid Abdul Rashid, Juradah Abu Bakar dan Rahim Abdullah. Job Satisfaction and motivation among Bank Officers, Banker's Journal Malaysia, October, 1990.
17. Zabid, A.R.M., S. Kamaruddin, O. Maizon, and R.A. Ghaffar. Strategic Planning in the Malaysian Insurance Industry, The Geneva Papers on Risk and Insurance - Issues and Practice (Forthcoming).
18. Md Zabid Abdul Rashid and Iskandar Abdullah. Managers' Perceptions of Unethical Practices in Malaysia, Proceedings Pan Pacific Conference VII, Seoul, May 1990.
19. Md Zabid Abdul Rashid and Iskandar Abdullah. Ethical Perceptions of Malaysian Managers, International Academy of Management and Marketing Proceedings 1991, Detroit, U.S.A., April 1991.

20. Md Zabid Abdul Rashid and Iskandar Abdullah. Attitudes of Malaysian Managers Towards Social Responsibility, Proceedings Pan Pacific Conference VIII, Kuala Lumpur, 1991.
21. Md Zabid Abdul Rashid and Syed Kadir Alsagoff. Perceived Ethical Values of Malaysian Managers, Proceedings Pan Pacific Conference VIII, Kuala Lumpur, 1991.
22. Md Zabid Abdul Rashid and Md Pishal Abdul Raub. Job Satisfaction and Motivation of Insurance Employees in Malaysia, Proceedings Pan Pacific Conference VIII, Kuala Lumpur, 1991.
23. Md Zabid Abdul Rashid, Samsinar Md Sidin and Mohd Mansor Ismail. Buyer Selection Criteria of Agricultural Inputs, Staff Paper No. 2, January 1990, Department of Management and Marketing, Universiti Pertanian Malaysia.
24. Samsinar Md Sidin, Md. Zabid Abdul Rashid dan Mohd Mansor Ismail. Proses Pemilihan Input Pertanian: Satu Pendekatan Gelagat Pengguna, Staff Paper No. 3, February 1990, Department of Management and Marketing, Universiti Pertanian Malaysia.
25. Md Zabid Abdul Rashid, Juradah Abu Bakar dan Rahim Abdullah. Job Satisfaction and Motivation Among Bank Managers, Staff Paper No. 4, March 1990, Department of Management and Marketing, Universiti Pertanian Malaysia.
26. Md Zabid Abdul Rashid. Perancangan Strategi Perniagaan Kecil (Strategic Planning for Small Business), Usahawan, October 1990.
27. Md Zabid Abdul Rashid, Zainal Abidin Mohamed dan Samsinar Md Sidin. Marketing Practices in Small Business in Malaysia: Reference to the Food Sector, International Conference on Small and Medium Scale Enterprises, Universiti Utara Malaysia, Langkawi, May 1990.
28. Shamsudin, M.N., Hussein, M.A. 'Sources of Growth and Productivity Improvement in Malaysian Agriculture'. Paper presented at the 7th. World Productivity Congress, Kuala Lumpur, November 19-22, 1990.

## FAKULTI PENGAJIAN PENDIDIKAN

### DEKAN

Prof. Madya. Mohd Shah Hj. Lassim Dip.  
Agric (Malaya), B.S., M.S. (Louisiana State).

### KAKITANGAN

#### Jumlah Kakitangan

JABATAN	KATEGORI			
	A	B	C	D
Pejabat Dekan	1	-	10	11
Jabatan Pendidikan	61	3	8	10
Jabatan Bahasa	62	3	7	7
Jabatan Sains Kemasyarakatan	17	-	1	4
<b>JUMLAH</b>	<b>141</b>	<b>6</b>	<b>26</b>	<b>32</b>
<b>JUMLAH BESAR</b>				<b>205</b>

#### Perlantikan Baru

6 orang Pensyarah, 8 orang Guru Bahasa, seorang Tutor, seorang Penolong Pegawai Persewaan Makanan, seorang Penolong Pegawai Seni Reka dan seorang Pembantu Am Rendah.

#### Perletakan Jawatan

Seorang Tutor telah meletakkan jawatannya di Fakulti Pengajian Pendidikan pada 13 Februari, 1991.

#### Cuti Belajar

Seramai 19 pensyarah sedang mengikuti kursus di dalam dan luar negeri (16 orang) Ph.D. dan 3 orang Master).

#### PERKARA AKADEMIK

Ijazah Lanjutan 76 orang pelajar Ijazah Lanjutan sedang mengikuti pengajiannya sehingga Semester Disember 1990/91. Mereka adalah terdiri daripada 67 orang mengikuti program Master Sains dan 9 orang mengikuti program Ph.D.

#### Pemeriksa Luar

Seorang Pemeriksa Luar bertugas di Jabatan Bahasa. Beliau ialah Professor Roderick A. Jacobs dari University of Hawaii at Manoa (bagi program Bachelor Pendidikan (TESL)).

#### PENYELIDIKAN

1. Halimah Hassan: Etika Melayu dalam Historiografi Melayu- Pemikiran dalam Misa Melayu.

2. Jayakaran Mukundan: Pembinaan Fail Guru (Projek Kementerian Pendidikan). (Tales and Legends of Asean Countries).

3. Dr. Ghazali Basri: Persepsi Rakyat Sarawak terhadap Program Pembangunan; tajaan UPM Sarawak. (Ahli Pasukan Penyelidik).

4. Dr. Ghazali Basri: Perubahan Fahaman Keagamaan di kalangan masyarakat India di Malaysia - Satu kajian kes di Banting, Selangor. (Ketua Penyelidikan).

5. Dr. Abd. Halin Hamid: Persepsi Rakyat Sarawak Terhadap Program Pembangunan (Ahli Pasukan).

6. Dr. Abd. Halin Hamid: Organisasi Semula Sistem Pengeluaran Pertanian - Satu Penilaian Terhadap Estet Mini di Semenanjung Malaysia (Ahli Pasukan).

7. Dr. Abd. Halin Hamid: Pola Penggunaan Perkhidmatan Kesihatan Ibu dan kanak-kanak di luar bandar Semenanjung Malaysia (Ahli Pasukan).

8. Dr. Abd. Halin Hamid: Beberapa Aspek Sosio-ekonomi Peternakan Lebah Madu di Malaysia (Ahli Pasukan).

9. Dr. Nazaruddin Hj. Mohd. Jali: Kajian Organisasi Semula Sistem Pengeluaran Pertanian - Satu Penilaian Terhadap Estet Mini (Biaya MPKSN).

10. Dr. Nazaruddin Hj. Mohd. Jali: Kajian Sosio-ekonomi Masyarakat Setinggan di Kawasan Lembah Kelang (Biaya Kerajaan Selangor).

11. Zahid Emby: Persepsi Rakyat Sarawak Terhadap Program Pembangunan; (Ahli Pasukan Penyelidik); UPM (Sarawak).

12. Zahid Emby: Sustainable Development of Taman Negara - Its Impact on the Local Population; Japan Wildlife Research Centre. (Ahli Pasukan Penyelidik).

13. Zahid Emby: Organisasi Sistem Pengeluaran Pertanian- Satu Penilaian Terhadap Estet Mini di Semenanjung Malaysia, IRPA. (Ketua Pasukan Penyelidik).

14. Encik Mazlan Yong: Believe About Heart Disease Risk Among Students at UPM.

15. Dr. Naim Haji Ahmad: Penulisan-penulisan ilmiah dalam bidang Teknologi Pendidikan Yang terdapat di LTM dan Maktab-Maktab Perguruan di Malaysia.

16. Dr. Noran Fauziah Yaakub: Some Correlates of Performance - A Production Function approach.

17. Dr. Gan Siowck Lee: Needs Analysis - Preparing Computer- Using Educators for Malaysian Schools.

18. Encik Mokhtar Haji Nawawi: Kajian Kesedaran Alam Sekitar di Kalangan Guru-guru Pelatih, di Fakulti Pengajian Pendidikan, UPM.

19. Dr. Mohd. Ibrahim Nazri: Kajian Keberkesanan Latihan Kerja Ladang di UPM.

## PENERBITAN

1. Dr. Amat Juhari Moain. 1990. **Kepercayaan Orang Melayu Berhubung dengan Pertanian**, Kuala Lumpur . DBP.

2. Dr. Amat Juhari Moain. 1990. 'Kata Pengantar', dalam **Perkembangan Tulisan Jawi Dalam Masyarakat Melayu**, oleh Kang Kyoung Seuck. Kuala Lumpur. DBP (m.s. XIX-XLI).

3. Dr. Amat Juhari Moain. 1990. 'Dialek Melayu', dalam **Dewan Budaya**, Jilid 12, Bil. 11, November 1990. m.s. 50-57.

4. Dr. Amat Juhari Moain. 1990. 'Ejaan dan Sistem Ejaan Jawi', dalam **Dewan Budaya**, Jilid 12, Disember, 1990. m.s. 73-74.

5. Dr. Amat Juhari Moain. 1990. Pengkatalogan Karya-karya. Tulisan Jawi - Beberapa Transliterasi Jawi-rumi', kertas

kerja dalam **Seminar Serantau Pendokumentasian Bahasa dan Kesusasteraan Melayu**, oleh Idros Samsuddin dan rohani rustam (ed.), pada 4-7 Jun 1990 di Kuala Lumpur. DBP.

6. Dr. Amat Juhari Moain. 1990. 'Bahasa dan Peristilahan', kertas kerja dalam **Kursus Bahasa dan Penulisan Profesional**, anjuran Persatuan Linguistik Malaysia dan MARDI pada 25-29 Jun 1990.

7. Dr. Amat Juhari Moain. 1990. 'Penghayatan kepada Sunnah Nabi S.A.W.', kertas kerja dalam **Ceremah Maulidur-Rasul** pada 20 September 1990 di Masjid Jamek Seri Ladang, Batu Pahat, Johor.

8. Dr. Amat Juhari Moain. 1990. 'Kaedah ejaan Jawi Moden', kertas kerja dalam **Persidangan Perancangan Peristilahan Antarabangsa Termplan '90** pada 20-22 November 1990 di Kuala Lumpur, anjuran DBP/MAS/Infoterm.

9. Dr. Amat Juhari Moain. 1990. 'Perkaedahan Pengajaran Jawi Sebagai Strategi Pengayaan Bahasa', kertas kerja dalam **Konvensyen Bahasa Malaysia Khusus di Institusi Pengajian Tinggi** peringkat kebangsaan pada 18-19 Dis. 1990 di Kuala Lumpur.

10. Dr. Amat Juhari Moain. 1990. 'Kesilapan-kesilapan Umum Bahasa Yang Sering Dilakukan oleh Penutur-penutur Bahasa Malaysia', kertas kerja dalam **Ceramah Bahasa** pada 22 Januari 1991 di Maktab Perguruan Ilmu Khas, Kuala Lumpur.

11. Dr. Jamali Ismail & Sharon Goh Seng Pang. 1990. 'Error Analysis and the Process Approach to Writing', kertas kerja dalam **Seminar on the Process Approach to the Teaching of Writing**, 14-16 Jun 1990 di UPM.

12. Dr. Jamali Ismail. 1990. 'Competence, Attitudes and Motivation in Language Learning with Special Reference to Malay Learners of ESL', kertas kerja dalam **Bengkel Pragmatic Communicative Language Teaching Methodology** pada 4-5 Julai 1990 di ITM, Shah alam.

13. Dr. Jamali Ismail. 1991. 'Learning English in a Non-Supportive Environment - The Problem in Malaysian Schools', kertas kerja dalam **Persidangan Antarabangsa Teaching & Learning English in Challenging Situations** pada 14-16 Mei 1991 di Petaling Jaya.

14. Malachi Edwin & Fauziah Hassan. 1990. 'Using Computers to Teach Writing', kertas kerja dalam **Seminar/Workshop on the Process Approach to the Teaching of Writing**, pada 14-16 1990 di UPM.
15. Malachi Edwin. 1990. 'A Comparative Study of the Achievement and the Proficiency Levels in English as a Second Language among Learners in Selected rural & Urban Schools in Peninsular Malaysia', **The English Teacher**, Vol. XIX, Julai 1990.
16. Malachi Edwin. 1990. 'The Role of the Language laboratory in the Teaching of the English Language', kertas kerja dalam **The Fourth National Seminar on TESL**, pada 5-7 Ogos 1990 di S.M. Kuen Cheng, Kuala Lumpur.
17. Malachi Edwin. 1990. 'Preparing Materials for Use in the Language Laboratory', kertas kerja dalam **Kursus Pengurusan dan Penyelenggaraan Makmal Bahasa** pada 3-7 Disember 1990 di UPM.
18. Malachi Edwin. 1990. 'Theoretical Framework for Listening and Speaking Activities in the Language Laboratory', kertas kerja dalam **Kursus Pengurusan dan Penyelenggaraan Makmal Bahasa** pada 3-7 Disember 1990 di UPM.
19. Malachi Edwin. 1991. 'The Teaching of Literature in English in Malaysian Schools', kertas kerja dalam **6th Oxford Conference on Literature Teaching Overseas**, pada 7-13 April 1991 di Oxford, England.
20. Malachi Edwin. 1991. 'Developing Listening Skills in the KBSR English Language Programme: A Collaborative Effort', kertas kerja dalam **Seminar Peningkatan Pengajar dan Pembelajaran Bahasa Inggeris di Sekolah-sekolah Daerah Hulu Langat**, pada 4 Mei 1991 di UPM.
21. Malachi Edwin. 1991. 'Self-Exploration in the Literature Classroom', kertas kerja dalam **Persidangan Antarabangsa: Teaching and Learning English in Challenging Situations**, 14-17 Mei 1991 di Petaling Jaya.
22. Theresa Heng Sooi Chew. 1990. 'The Process-Oriented Approach to the Teaching of Writing in ESL', kertas kerja dalam **Seminar on the Process Approach to the Teaching of Writing**, 14-16 Jun 1990 di UPM.
23. Theresa Heng Sooi Chew. 1991. 'Grammar and the Process Approach in the Malaysian Classroom', kertas kerja dalam **Persidangan Antarabangsa Teaching & Learning English in Challenging Situations**, 14-17 Mei 1991 di Petaling Jaya.
24. Chan Swee Heng. 1991. 'Evaluating Writing in the Process Approach', kertas kerja dalam **Seminar on the Process Approach to the Teaching of Writing**, 14-15 Jun 1990.
25. Sharifah Zainab Syed Abdul Rahman. 1990. 'an Overview of the Process Approach to Writing', kertas kerja dalam **Seminar on the Process Approach to the Teaching of Writing**, 14-15 Jun 1990.
26. Shameem Mohd Rafik Khan. 1990. 'Student-Centred Strategies for Writing: Techniques that Work', kertas kerja dalam **Seminar on the Process Approach to the Teaching of Writing**, 14-15 Jun 1990.
27. Mhd Amin Arshad. 1990. 'Merancang Kertas Kerja Program', kertas kerja dalam **Bengkel Kepimpinan dan Organisasi** pada 29 Julai 1990 di UPM.
28. Mhd Amin Arshad. 1990. 'Teknik Menjawab Kertas Bahasa Malaysia I STPM', kertas kerja dalam **Ceramah Peningkatan Pembelajaran STPM** pada 25 Ogos 1990 di SMKA Maahad Hamidiah Kajang.
29. Aripin Said. 1990. **Gasing Bertuah** (novel), siri KBSM Tg. I. Fajar Bakti Sdn. Bhd.
30. **Suara Piano Rumah Banglo** (novel). Pustaka Mastika.
31. Aripin Said. 1990. **Gasing Bertuah** (cerita rakyat). Pustaka Mastika.
32. Aripin Said. 1990. "Tokok dalam Cerita Rakyat", **Dewan Siswa**, DBP, Jun 190, m.s. 42-43.
33. Aripin Said. 1990. 'Sastera Klasik Penghibur Duka Lara', **Dewan Siswa**, DBP, Julai 1990, m.s. 42-43.
34. Aripin Said. 1990. 'Gurindam Puisi Melarat', **Dewan Siswa**, DBP, Ogos 1990, m.s. 42-43.
35. Aripin Said. 1990. 'Seloka Menyindir dan Mengejek', **Dewan Siswa**, DBP, September 1990, m.s. 42-43.
36. Aripin Said. 1990. 'Anugerah Budaya Pena', **Berita Harian**, 16 Ogos 1990, m.s. 12.
37. Aripin Said. 1990. 'Melayu Sri Lanka Warisi Pantun', **Berita Harian**, 23 Ogos 1991, m.s. 11.

38. Aripin Said. 1990. 'Brunei Berjaya Kumpul Manuskrip Melayu Lama', **Berita Harian**, 26 Ogos 1990, m.s. 12.
39. Aripin Said. 1990. 'Gurindam Raja Ali Haji Tetap Unggul', **Berita Harian**, 25 Oktober 1990, m.s. 11.
40. Aripin Said. 1990. 'Sastera Klasik: Cerita Asal Usul Tidak Mengira Soal Logik', **Dewan Siswa (DBP)**, November 1990, m.s. 42-43.
41. Aripin Said. 1990. 'Bahasa Melayu di Singapura', **Berita Bahasa (DBP)**, November 1990, m.s. 40-41.
42. Aripin Said. 1990. 'Sastera Klasik: Cerita Binatang Menasihati Raja?' **Dewan Siswa (DBP)**, Oktober 1990, m.s. 48-49.
43. Ismail Jusoh. 1990. 'Perkembangan Linguistik', **Mastika**, Jun 1990, m.s. 52-53.
44. Ismail Jusoh. 1990. 'Bahasa, komunikasi & kebudayaan', **Jurnal DBP**, Julai 1990, m.s. 535-543.
45. Che Ah Abdul Ghani. 1990. **Bagaimana Menjadi Pengurus Yang Berjaya (Terjemahan)**. Dewan Bahasa dan Pustaka.
46. Nora Mohd Nor. 1991. **KBSM English Form Four**. Mutiara Ilmu Sdn. Bhd.
47. Tan Bee Hon. 1990. 'Computer-Assisted Language Learning Issues and Trends', (MCCE Bulletin). **New Straits Times**, 20 September 1990, m.s. 13.
48. Yazariah Yacob. 1990. **Modul Kemahiran Berkomunikasi (Edisi Pelajar)**. Pasukan Program Kemahiran Berkomunikasi UPM.
49. Taha Abd Kadir. 1990. 'Penggunaan Bahan Drama Dalam Pembelajaran-Pembelajaran Bahasa/Kesasteraan Melayu', kertas kerja dalam **Seminar Kebangsaan Kesusasteraan Dalam Pendidikan Bahasa Malaysia** pada 6-7 Oktober 1990 di Institut Bahasa.
50. Taha Abd Kadir. 1991. **Monograf Pusako Yusof Arshad**. PEN. N. Sembilan.
51. 'Drama sebagai Bahan Pengajaran Bahasa Malaysia', kertas kerja dalam **Seminar Teater dalam Pendidikan**, 3-5 Mei 1991 di MPPM, Melaka.
52. Mhd Amin Arshad. 1990. 'Penggunaan Bahan Sastera (Prosa) dalam Pendidikan Bahasa Malaysia KBSR dan KBSM', kertas kerja dalam **Seminar Kebangsaan Kesusasteraan dalam Pendidikan Bahasa Malaysia** pada 6-7 Oktober 1990 di Institut Bahasa.
53. Arshad Abdul Samad. 1990. 'Pemilihan dan Pengubahsuaian Bahan untuk Makmal' dan 'Dimensi Baru dalam Penggunaan Makmal', kertas kerja untuk **Kursus Pengurusan dan Penyelenggaraan Makmal Bahasa** pada 3-7 Disember 1990 di UPM, Serdang.
54. Arshad Abdul Samad. 1991. **Supplementary Classroom English Language Teaching in Malaysia through Media Based Individualized Instruction**, kertas kerja dalam **International Seminar: Reflections on Classroom Practice**, pada 29-30 April 1991 di USM Pulau Pinang.
55. Arshad Abdul Samad. 1991. 'The Computer as a Tool: A Potpourri of ideas for the Uninitiated', kertas kerja dalam **Seminar Peningkatan Pengajaran dan Pembelajaran Bahasa Inggeris di Sekolah-sekolah Daerah Hulu Langat**, pada 4 Mei 1991 di UPM, Serdang.
56. Fauziah Hassan. 1991. 'Using Language Plus to Teach English as a Second Language', kertas kerja dalam **Seminar Peningkatan Pengajaran dan Pembelajaran Bahasa Inggeris di Sekolah-sekolah Rendah Daerah Hulu Langat** pada 4 Mei 1991 di UPM.
57. Fauziah Hassan. 1991. 'Ketrampilan Membaca dan Berfikir untuk Kecemerlangan Ilmu' dan 'Ke Arah Kecemerlangan Membaca', kertas kerja dalam **Kursus Pukal Kecemerlangan** pada 23 Mei 1991 di Sekolah Menengah Sains Raub, Pahang.
58. Jayakaran Mukundan. 1990. **Teaching File (King Solomon's Mines)**, Kementerian Pendidikan Malaysia.
59. Jayakaran Mukundan. 1991. 'Utilising an Advantaged Learning Environment to the fullest', kertas kerja dalam **Persidangan Antarabangsa Teaching & Learning English in Challenging Situations**, pada 14-17 Mei 1991.
60. Mat Nor Hussin. 1991. 'Penggunaan Media Bahan Murah dalam Pendidikan Bahasa Malaysia', kertas kerja dalam **Seminar Bahasa dan Sastera dalam Pendidikan VII** pada 20-22 Mei 1991 di UKM, Bangi.

61. Mohd. Ibrahim Nazri. 1990. Professional knowledge competency achievement of agricultural teachers with and without preservice teacher preparation in Peninsula Malaysia. *Journal of Agricultural Education* 31 (2), 49-54.
62. Noran Fauziah Yaakub. 1990. Some Guidelines for the Environmental Education of Preservice Science Teachers in Malaysia. *WCCT Forum Vol. IV. No. 1 Jun 1990*.
63. Noran Fauziah Yaakub. 1990. Towards Improving School Based Courseware Writing. *MCCE Bulletin Vol. 6. No. 3*.
64. Noran Fauziah Yaakub. 1990. Slumblng Block to Academic Excellence. *Star* 22.7.90, Education.
65. Noran Fauziah Yaakub. 1990. 'Why They Choose Teaching: A Factor Analysis of Motives of Malaysian Teacher Trainees'. *Pertanika*.
66. Noran Fauziah Yaakub. 1990. 'A Multivariate Analysis of Attitude Towards Teaching. *Pertanika*.
67. Noran Fauziah Yaakub. 1990. 'Motives for Teaching Among University Students', *Suara Pendidik*.
68. Noran Fauziah Yaakub. 1990. 'Personality Trails, Motives for Teaching Performance', *Jurnal Pendidikan Guru* m.s. 16-30.
69. Noran Fauziah Yaakub dan Ahmad Mahdzan Ayob. 1990. *Guru dan Perguruan*, Dewan Bahasa dan Pustaka, Kuala Lumpur.
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105. Dr. Ghazali Basri. 1990. "Religious Harmony and National Unity", kertas kerja untuk seminar, anjuran Professors World Peace Academy pada 24 Februari 1991, Fakulti Pengajian Pendidikan.
106. Dr. Ghazali Basri. 1990. Where Are Our Youths Heading to? Some Thoughts in Utilizing Youth For Development, kertas kerja bersama Dr. Abd. Halin Hamid dalam International Seminar on Human Ecology and Development, anjuran UPM & IKD Malaysia pada 12 Mac 1991, Fakulti Pengajian Pendidikan.
107. Dr. Ghazali Basri. 1990. "Perbandingan Agama dan Perkembangan Gerakan Kristianisasi di Malaysia", kertas kerja di Bengkel Kursus Latihan Jurulatih Program Komuniti, anjuran Institut Aminuddin Baki Kementerian Pendidikan pada 4 Mac 1991, Fakulti Pengajian Pendidikan.
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109. Dr. Ghazali Basri. 1990. "Konsep Kepimpinan Dalam Islam", kertas kerja di Konvokesyen Pelajar-Pelajar Islam di Pantai Timur, anjuran Dewan Tertinggi Pelajar Kolej Agama Sultan Zainal Abidin (KUSZA) di Kuala Terengganu pada 24 Mei 1991, Fakulti Pengajian Pendidikan.
110. Dr. Abd. Halin Hamid. 1991. "Where Are Our Youths Heading to? Some Thoughts in Utilizing Youth for Development", kertas kerja (bersama Dr. Ghazali Basri) dalam International Seminar on Human Ecology and Development, anjuran UPM & Institut Kajian Dasar Malaysia, Serdang pada 10-12 Mac 1991, Fakulti Pengajian Pendidikan.
111. Dr. Nazaruddin Hj. Mohd. Jali. 1991. "Pengurusan Kemudahan Sekolah Termasuk Pusat Sumber Pendidikan", kertas kerja di Seminar membincang dapatan, rumusan dan cadangan kajian-kajian di bawah Pinjaman Bank Dunia Ke 8, Kementerian Pendidikan Malaysia di Ramada Renaissance Melaka pada 24-28 Februari 1991, Fakulti Pengajian Pendidikan.
112. Dr. Nazaruddin Hj. Mohd. Jali. 1991. "Towards the Development of Personnel: a Proposal for Curriculum Design", kertas kerja (bersama Dr. Halimah Ahmad) dalam seminar Human Ecology and Development, anjuran UPM dan Institut Kajian Dasar, di UPM pada 12 Mac 1991, Fakulti Pengajian Pendidikan.

#### SEMINAR

1. Seminar cum Workshop on The Process Approach to the Teaching of Writing, diadakan pada 14-16 Jun 1990.
2. Kursus Pengurusan dan Penyelenggaraan Makmal Bahasa, diadakan pada 3-7 Disember 1990.
3. Simposium Sehari: Pendidikan ke Arah Kecemerlangan sempena Hari Fakulti Pengajian Pendidikan, diadakan pada 17 Januari 1991.
4. Seminar Peningkatan Pengajaran dan Pembelajaran Bahasa Inggeris di Sekolah-sekolah Rendah Daerah Hulu Langat, diadakan pada 4 Mei 1991.
5. International Seminar on Human Ecology and Development, anjuran UPM & IKD Malaysia pada 29-31 Mei 1991.
6. Bengkel Penterjemahan Buku - anjuran Dewan Bahasa dan Pustaka - Jabatan Sains Kemasyarakatan, UPM pada 29-31 Mei 1991.
7. Seminar Pendidikan Jasmani dan Sains Sukan Menjelang Tahun 2000 Untuk guru, pensyarah Maktab dan Universiti, pegawai Kementerian Pendidikan, KBS dan MSN diadakan pada 28-29 Sept. 1990 di PPPL, UPM.
8. Seminar Kaunseling Dalam Agensi Dan Korporat Untuk Staf Berbagai Agensi dan Korporat diadakan 17 Mac 1990 di fakulti Perikanan, UPM.

## FAKULTI KEJURUTERAAN

### DEKAN

Prof. Madya Dr. Mohd. Zohadie Bardaie

### KAKITANGAN

#### Jumlah Kakitangan

Jabatan	Kategori A	Kategori B	Kategori C	Kategori D
Pejabat Dekan	2	1	10	11
Kejuruteraan Awam	21	-	7	5
Kejuruteraan Pemproses	8	-	4	3
Kejuruteraan Kuasa dan Jentera	8	-	5	6
Kejuruteraan Perladangan	7	-	5	2
Kejuruteraan Elek/Komputer	16	-	6	4
Kejuruteraan Mek/Sistem	13	-	8	4
Jumlah	75	1	45	35
Jumlah Besar				156

#### Perlantikan Baru

Seramai 4 Pensyarah, 3 orang Tutor dan 3 orang Juruteknik telah dilantik.

#### Perletakan Jawatan

Seramai 2 orang Pensyarah telah meletak jawatan.

#### Cuti Belajar

Seramai 22 orang Pensyarah sedang mengikuti kursus di luar negeri (Ph.D. 20, Master 2).

#### PERKARA AKADEMIK

##### Ijazah Lanjutan

Seramai 22 orang pelajar mengikuti ijazah lanjutan iaitu Ph.D. - 8, Master Sains - 19.

##### Pemeriksa Luar

1. Prof. Ronald Mc Caffer dari University of Loughborough, United Kingdom (Kej. Awam dan Alam Sekitar).
2. Prof. A.K. Kochhar dari Universiti of Bradford, United Kingdom (Kej. Mek/Sistem).
3. Prof. David John Creasey dari University of Birmingham, United Kingdom (Kej. elek/Komp).
4. Prof. Robert M. Peart dari University of Florida, Amerika Syarikat (Kej. Pertanian).

#### PENYELIDIKAN

1. Prof. Ir. Dr. S.A. Salam: Prestressed Concrete.
2. Dr. Abd. Aziz Zakaria: sistem Pengairan Paip Tertebuk.
3. Dr. Abd. Aziz Zakaria: Mini Sprinkler for Upland Crops.
4. Dr. Amin Mohd. Soom: Trickle Irrigation on Tin Tailing.
5. Dr. Amin Mohd. Soom: Pengangkutan Bahan Kimia dalam Air Pengairan.
6. Kwok Chee Yan: Studies on the Consumptive Use of Padi.
7. Kwok Chee Yan: Effect of Water on the Strength of Padi Soils.
8. Kwok Chee Yan: Abandoned Padi Land - A Study of Moisture Movement and Distribution for the Implmentation of Upland Irrigation.
9. Kwok Chee Yan: Analysis of Frequency Distribution of the Intensity of Rainstorms.
10. Dr. Lee Teang Shui: Investigation of optimal Furrow Irrigation Strategies for Lowland Crops.

11. Mohamed b. Daud: Development of Design Criteria and Water Scheduling Models for Padi Irrigation.
12. Prof. S.A. Salam: Prestressed Hollow Beams.
13. Prof. S.A. Salam: Application of Bamboo and Oil Palm Clinker in Lightweight Reinforce Concrete Beams.
14. Prof. S.A. Salam: Shear Strength of Prestressed Concrete Beams with Triangular Web Openings - Computer Analysis and Experimental Investigation.
15. Prof. Madya Dr. Mohd. Nordin Ibrahim, Prof. Madya Dr. Hussain Mohd. Salleh, Dr. Johari Endan: Analisis dan Penilaian Proses dan Operasi Pengeringan Padi Tempatan.
16. Prof. Madya Dr. Mohd. Nordin Ibrahim, Encik Hishamuddin Jamaludin: Pengeringan Dengan Kaedah Pengoptimuman Dinamik Untuk Peningkatan Mutu Hasil Pertanian (Bijian Koko, Kopi).
17. Prof. Madya Dr. Hussin Mohd. Salleh, Encik Hishamuddin Jamaludin, Prof. Madya Dr. Mohd. Nordin Ibrahim, Encik Wan Mohammad Hj. Abdullah: Penyejukan dan Kemudahan Penyejukan Untuk Simpanan Hasil Pertanian.
18. Prof. Madya Dr. Mohd. Nordin Ibrahim, Encik Nordin Endut, Dr. Johari Endan: Investigation On The Effect of Climatic Factors On Livestock Performance In Climatic Chamber.
19. Encik Nordin Endut, Prof. Madya Dr. Mohd. Nordin Ibrahim, Dr. Johari Endan: Basic Criteria for Optimum Livestock Housing Systems.
20. Encik Hishamuddin Jamaluddin: Kaedah Ringkas Untuk Merekabentuk Proses Kromatografi Ganjakan.
21. Prof. Madya Dr. Mohd. Nur Ahmad: An Innovative Method to Produce Cocoa Powder For Small-Scale Industries.
22. Prof. Madya Dr. Mohd. Nur Ahmad: Automation of Palm Oil Clarification Operations.
23. Prof. Madya Dr. Nur Ahmad: Role of Chemical-Mechanical Processes in Leaching Starch Granules From Sago.
24. Dr. Mohd. Zohadie Bardaie: Vibrational Characteristics of Malaysian Fruits.
25. Dr. Mohd. Zohadie Bardaie: Dynamic analysis of Soil-Tractor - Trailer Interaction During Transportation.
26. Nor Mariah Adam: Piawai Buah Masak Berdasarkan Sifat Kejuruteraan untuk Operasi Ladang Kelapa Sawit yang ber-tepatan.
27. Rimfiel Janius: Design and Construction of A Coffee Depulper.
28. Muhammad Salih Hj. Ja'afar: Pepper Detericating for White Pepper Processing.
29. Muhammad Salih Hj. Ja'afar: Design and Construction of Cocoa Pod Breaker and Separator.
30. Kamarudzaman Aribi: To Design Air Blast Sprayer For Cocoa Plantation.
31. Kamarudzaman Aribi: To Study the Physical, Mechanical and Reological Properties of Cocoa Pod.
32. Dr. Azmi Yahya: Sistem Pengumpulan Data Berpangkalan Mikro komputer Untuk Trantor.
33. Dr. Barkawi Sahari: Analisis Keanjalan -Keplastikan dan pemindahan haba komponen dan bahan kejuruteraan.
34. Encik Baharuddin Hitam: Vibration Analysis of Vehicle Frame.
35. Dr. Bohanuddin Mohd. Ali: Rangkaian Komputer Setempat.
36. Encik Isa Mansor: Analisa dan Rekabentuk Terautomatan Kamiran Skala Besar (VLSI).
37. Encik Megat Mohd. Hamdan Megat Ahmad: Manufacturing Planning and Control System.
38. Puan Napsiah Ismail: Automation and Information.
39. Encik Adznir Mokhtar: Computer Aided Design Manufacturing and Quality Control.
40. Encik Radin Umar Radin Suhadi: Formulasi lapisan Hans Bagi permukaan Lebuhraya laju di Malaysia.
41. Encik Ahmad Rodzi Mahmud: Expert System for Route and Site Location.
42. Prof. Abang Abdullah Abang Ali: Low-cost housing.
43. Mohd. Razali Abdul Kadir: Building System.

44. Encik Ahmad Jusoh: Kajian Sistem Rawatan Air Sisa Industri dan Pertanian.
45. Dr. Azni Hj. Idris: Kajian Penskalaan - naik dan permodelan Sistem Aerobik dan Anaerobik.
46. Encik Ahmad Jusoh: Mengkaji Perstasi Pemas Dua, Media Butiran Arang Tempurung Kelapa Sawit dan Pasir.
47. Dr. Fakhru'l-Razi Ahmadun: Ultrafiltration for biomass retention in anaerobic waste water treatment.
48. Dr. M.S. Subrahmanyam: Bearing Capacity of footings on reinforced earth.

#### PENERBITAN

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11. M.S.M. Amin. 1991. "Microirrigation Design for Agromaju Sdn. Bhd. Fruit Orchard. *Consultant Report* submitted to the Board of Directors of Agromaju Sdn. Bhd., Johor Bharu.
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56. Rahman Wagiran. "Peranti Semi-konduktor dan Komponen Elektronik", kertas kerja Kursus untuk **Kursus Asas Elektrik dan Elektronik Bagi Pembantu Makmal**, 26-30 November 1990. Jabatan Fizik, UPM.
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63. Zakaria Che Muda. Automated and Self Adaptive Integrated P.C. Based Computer Aided design and Detailing of Slab. **International Conference FEMCAD & OPTIMIZATION IITT** -International, Nov. 1990 Los Angeles.

64. Zakaria Che Muda. Data Communications and Interfacing between Finite Element packages. **International Conference FEMCAD & OPTIMIZATION IITT** -International, Nov. 1990 Los Angeles.

65. Zohadie, M. dan Chan, K.W. 1990. "Knowledge-based decision system for tractor-trailer selection in a plantation", in Proceeding of the **Asia-Pacific Regional Conference on Engineering for the Development of Agriculture**, Universiti Pertanian Malaysia, Serdang, pp. 443-452.

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#### SEMINAR

1. Asean Pacific Regional Conference For The Development of Agriculture (Apceda) diadakan pada 5-7.6.90.

2. Upland Irrigation Colloquium pada 16.10.1990.

3. Irrigation Management Game diadakan pada 30.10.1990.

4. Program Tanpa ijazah M.Sc. in Irrigation UPM-UNUT mulai Mei-Ogos 1991.

5. Short Course on Prestressed Concrete-Design and Construction according to Malaysian Draff Code diadakan pada 14-16.5.91.

## FAKULTI SAINS DAN PENGAJIAN ALAM SEKITAR

### DEKAN

Profesor Dr. Mohamed bin Suleiman

### KAKITANGAN

Jabatan	Kategori A	Kategori B	Kategori C	Kategori D
PejabatDekan	6	-	13	13
Biokimia dan Mikrobiologi	18	1	16	12
Biologi	25	-	24	21
Fizik	25	1	15	9
Kimia	29	-	23	18
Matematik	44	-	3	5
Sains Alam Sekitar	16	-	11	7
Pusat Sains Asasi	26	-	2	3
Jumlah	189	2	107	88
Jumlah				386

#### Perlantikan Baru

Seorang juruteknik, 1 orang kerani, 2 orang jurutaip dan 2 orang pembantu am rendah telah dilantik.

#### Perletakan Jawatan

Dua orang pensyarah telah meletakkan jawatan

#### Cuti Belajar

Seramai 19 orang pensyarah sedang mengikuti kursus di dalam dan luar negeri (Ph.D.) 17, Master 2)

#### Cuti Sabatikal

Dua orang pensyarah menamatkan cuti sabatikal di dalam dan luar negeri

#### PERKARA AKADEMIK

##### Ijazah Lanjutan

Seramai 10 orang pelajar mengikuti Ijazah Lanjutan iaitu Ph.D. -4 dan M.Sc.-6.

##### Pemeriksa Luar

1. Prof. A.P. Cracknell dari University of Dundee, Scotland.
2. Prof. Dr. Hisashi Sumitomo dari Dept. of Sanitary and Environmental Engineering, Kyoto University, Japan.

3. Prof. S. Radhakrishna dari Department of Physics, Indian Institute of Technology, Madras, India.

4. Prof. M.A.K. Lodhi dari Texas Tech. University, Department of Physics, Lubbock, USA.

#### PENYELIDIKAN

1. Dr. Nyonya Abdul Razak: Studies on the growth of iicrob in a fermentor system for production of lipase.

2. Dr. Johari Ramli: Biokimia racun makhluk perosak.

3. Dr. Kamaruzaman Ampon: Development of a rapid, easy and economical screening kit for the detection of cellular factors from animals and plants.

4. Dr. Kamaruzaman Ampon: Protease modification for use in the synthesis of sugar esters and oligopeptides in organic solvent system.

5. Dr. Kamaruzaman Ampon: Tailor making by chemical modification of industrial-ly important protein molecules.

6. Dr. Kamaruzaman Ampon: Fats and oil biotechnology- Chemical modification of enzymes.

7. Dr. Kamaruzaman Ampon: Purification and characterization of proteolytic enzymes from *Hevea brasiliensis* for use in genetic engineering.
8. Dr. Kamaruzaman Ampon: Biosensors.
9. Dr. Khatijah Yusoff: Molecular studies of the Newcastle disease virus.
10. Dr. Khatijah Yusoff: Molecular biology of the fowlpox virus.
11. Dr. Khatijah Yusoff: Plant viruses - characterisation and control.
12. Dr. Lee Chaing Hin: Cyclic AMP Metabolism in nitrogen fixing bacteria.
13. Dr. Lee Chaing Hin: Cyclic AMP Metabolism in leguminous plants.
14. Dr. Mohd. Arif Syed: Bioteknologi Fundamental (Enzim Nuklease dari Lateks *Hevea brasiliensis*).
15. Dr. Mohd. Arif Syed: Plant biochemistry its role in plant regulation and plant improvements.
16. Dr. Mohd. Noor Abd. Wahab: Pemencilan organisma selulolitik dan pengkajian ciri-ciri enzim ekstraselular.
17. Dr. Mohd. Noor Abd. Wahab: Pengolahan substrat dan penukaran selulosa kepada gula.
18. Dr. Nor Aripin Shamaan: Insecticide Resistance in Insects.
19. Dr. Nor Aripin Shamaan: Vitamin E and chemical Hepatocarcinogenesis in the rat.
20. Dr. Nor Aripin Shamaan: Purification of serum proteins in the buffalo and cattle.
21. Dr. Norani Abdul Samad: Teknik pergesahan DRSV & DyMV di Orkid.
22. Dr. Norani Abdul Samad: Epidemiologi virus tumbuhan.
23. Dr. Norani Abdul Samad: Virus-virus di kekacang dan sayuran.
24. Dr. Norani Abdul Samad: Virus di *Hevea* sp.
25. Dr. Othman Abd. Samah: Fermentasi Koko.
26. Dr. Othman Abd. Samah: Fibre digestion and ruman biochemistry.
27. Dr. Radzali Muse: Tisu kultur koko dan bawang - hasil-hasil sekunder dan semulajadi.
28. Dr. Radzali Muse: Interaksi kulat patogen, fungicides dan tumbuhan *in vitro*.
29. Dr. Radzali Muse: Micropropagasi tumbuhan tersebut *in vitro*.
30. Dr. Tong Chow Chin: Bioconversion of Agrowastes.
31. Dr. Tong Chow Chin: Mushroom project.
32. Dr. Abu Bakar Salleh: Teknologi Enzim.
33. Dr. Jambari Haji Ali: Kawalan Biologi Nyamuk.
34. Dr. Jambari Haji Ali: Kawalan Biologi dan Ekologi Siput Air Tawar Malaysia.
35. Dr. Jambari Haji Ali: Kajian Biologi dan Ekologi Pathogen Peringkat Immatur *Elaeobius kamerunicus*, Pendebunga Kelapa Sawit.
36. Dr. Ahmad Ismail: Pencemaran Logam Berat di Ekosistem Muara dan Pantai.
37. Dr. Ann Anton: Produktiviti Akuatik.
38. Dr. Ann Anton: Kesan Pembalakan terhadap Biodiversiti Sungai.
39. Dr. Azhar Phoon Chum Guan: Biology of Stingless bees.
40. Dr. Azhar Phoon Chum Guan: Honey production potential of Carambola orchards.
41. Dr. Ho Yin Wan: Soil-borne pathogens of oil palms.
42. Dr. Ho Yin Wan: Nutritional requirements of *Ganoderma boninense* from oil palm.
43. The Taxonomy, physiology and ecology of *Colletotrichum* species on sweet and hot peppers in Peninsular Malaysia.
44. Dr. Ho Yin Wan: Rumen ecology and metabolism.
45. Dr. Saberi Othman: Conservation and utilization of plant resources.
46. Idris Abd. Ghani: Biologi dan Ekologi Organisma Interstitial di Malaysia.
47. Idris Abd. Ghani: Produktiviti Akuatik Sekunder (Zooplankton dan Bentos).
48. Idris Abd. Ghani: Biologi Zooplankton Pembawa Parasit Ikan.
49. Ahmad Abd. Rahman: Zingiberaceae sebagai bahan makanan, ubatan dan tanaman hiasan.
50. Ahmad Abd. Rahman: *Ficus cunia* tumbuhan buahan yang berpotensi di Malaysia.
51. Ahmad Abd. Rahman: Pembiakan *in vitro* beberapa spesies tumbuhan ubatan.

52. Faridah Abdullah: Determining virulence of *Ganoderma* species infection oil palm.
53. Dr. Quah Soon Cheang: Genetics and Breeding of Mungbean.
54. Ruth Kiew: Revision of poorly known groups of Malaysia flowering plants.
55. Dr. Tan Soon Guan: Genetic identification of strains and genotypes of buffaloes and goats from Southeast Asia.
56. Dr. Tan Soon Guan: Biochemical genetic markers in Malaysia's animal and plant species.
57. Dr. Mohd. Yusof Sulaiman: Asas Fizik Nuklear.
58. Dr. Mohd. Yusof Sulaiman: Penggunaan Teknik Tomografi dalam Pertanian.
59. Dr. Abdul Halim Shaari: Penyediaan Pencirian Bahan-bahan Magnet dan Semikonduktor.
60. Dr. Abdul Halim Shaari: Superkonduktor Suhu Tinggi.
61. Dr. Yahya Mat Hassan: Instrumentasi.
62. Dr. Shaharin Ibrahim dan Dr. Nasiman Sapari: Disposal of Solid and Toxic Wastes Effects on Groundwater.
63. Dr. Chow Sai Pew: Kajian Sifat Pukul Elastik dan Struktur Bahan dengan Menggunakan Teknik Ultrasonik.
64. Dr. Sidek Hj. Abd. Aziz: Pencirian Sifat (Elektrik, Terma, Magnet dan Elastik) bagi Bahan Seramik.
65. Dr. Mansor Hashim: Kajian Struktur Bahan Seramik Dielektrik dengan Menggunakan Belauan Sinaran -x.
66. Dr. Elias Saion: Teknik dan Penggunaan Pengukuran Tanpa Musnah dengan Menggunakan Sinar Gamma.
67. Prof. M.A.K. Lodhi: Prefeasibility Study of Renewal Sources of Energy in Malaysia.
68. Dr. W. Mahmood Mat Yunus: Application of Photoacoustic Technique.
69. Dr. Hj. Kaida Khalid: The development of Multipurpose Moisture Content Meter by Using Microwave Technique.
70. Dr. Shaharin Ibrahim: Penjagaan Tenaga Elektrik Melalui Punca Tenaga Alternatif Mikro Hidro.
71. Dr. Salleh Harun: Membina dan Menggunakan Spektrometer Magnet Nukleus dalam Pertanian dan Perubatan.
72. Encik Atan b. Mohd. Sharif: Mengkaji Kimia dan Keaktifan Biologi *Popoivia posocarpa* (Annonaceae).
73. Encik Atan b. Mohd. Yusof: Mengkaji Kandungan Kimia dan Keaktifan Biologi *Tabernaemontana corymbosa* (Apocynaceae).
74. Dr. ab. Rahman b. Manas: Keaktifan Biologi Kimia Hasil Semulajadi.
75. Dr. Asmah bte Haji Yahaya: Kajian Ke Atas Teknik-teknik Pencernaan dan Analisis Bagi Unsur-unsur Surih Dalam Makanan, Bahan Pertanian dan Air.
76. Dr. Faujan b. Hj. Ahmad: Pengasingan Bahan Aktif Dari Kulit Kayu.
77. Dr. Faujan b. Hj. Ahmad dan Puan Zaiton Hassan: Pengasingan dan Penecaman dari monascus sp.
78. Dr. Hamdan b. Suhaimi: Struktur Surfaktan Dalam i) Minyak Sawit, ii) Misel Campuran.
79. Dr. Karen A. Crouse: Preparation, Characterization and Reactions of Transition Metal Complexes.
80. Dr. Karen A. Crouse: Study of Reactions on Activated Carbon.
81. Puan Kamaliah bte Sirat: Sintesis, Pengasingan dan Pencirian Komplek Logam Peralihan.
82. Puan Kamaliah bte Sirat: Kajian Terma Kompleks V(III) - Oksalato.
83. Dr. Kuang Endinkeau: Kandungan Asid EPA dan DHA Dalam Lemak Ikan-ikan di Malaysia.
84. Dr. Lee Chnoong Kheng: Lithium In Conductors.
85. Dr. Lee Chnoong Kheng: Analysis of Heavy Metals In Agricultural and Environmental Samples Using ZCP-AES.
86. Prof. Madya Dr. Low Kun She: Chemical analysis of Toxic Metals In Agricultural And Environmental Samples Using ICP-AES.
87. Prof. Madya Dr. Nordin b. Hj. Lajis: The Chemical Studies of Biologically Active Natural Products.
88. Dr. Mawardi b. Rahmani: Naturally Occurring Insecticides From Higher Plants And Microorganisms.

89. Dr. Mawardi b. Rahmani: Chemical Constituents of Phyllanthus Species.
90. Dr. Mawardi b. Rahmani: Chemical Analysis Of The Constituents Of Local Honey.
91. Dr. Mohd. Zaizi b. Desa dan Dr. Wan Md. Zin b. Wan Yunus: Cibacron Blue 3GA Dan Reactive Yellwo 2 Masing-Masing Dengan Amberlit XAD-7 Dan Amberlyst A27.
92. Dr. Mohd. Zobir b. Hussein, Dr. Zulkarnain b. Zainal dan Prof. Dr. Hj. Badri b. Muhammad: Penyediaan dan Pencirian Karbon Aktif Dari Kayu Kayan Tropika- I Kayu Keras.
93. Dr. Md. Jelas b. Haron: Pengekstrakan Ferum Daripada Minyak Sawit Menggunakan Penukar Ion Poli (Asid Hidrok-samik).
94. Dr. Mohamad Zaki b. Ab. Rahman: Kajian Penggunaan Kompleks Koordinasi Logam Dan Organologam Sebagai Anti-Kulat/Mikrob.
95. Dr. Mohamad Zaki b. Ab. Rahman: Tindak balas Metatesis Degradasi Terhadap Getah Asli.
96. Dr. Mohd. Aspollah Hj. Sukari: Penyelidikan Komponen Kimia Tumbuhan-tumbuhan Tempatan Dan Keaktifan Biologinya.
97. Dr. Mohd. Aspollah Hj. Sukari: Penyelidikan Keracunan Tumbuhan-tumbuhan Terhadap Haiwan Akuatik.
98. Puan Rehan bt. Haji Mohd. Nor: Kajian Mengenai Masalah Pelajar Dalam Menuliskan Nama Bagi Sebatian-sebatian Organik Berpolifungsi.
99. Puan Rehan bt. Haji Mohd. Nor: Kajian Mengenai Masalah Pelajar Dalam Mengguna Dan Menghubungkan Konsep Apabila Menuliskan Mekanisme Tindak Balas Organik.
100. Dr. Sidik b. Silong: Mereka-Bentuk, Menyedia dan Mencirikan Kompleks Koordinasi Logam.
101. Dr. Sidik b. Silong: Kajian Kegunaan Sebatian Koordinasi Dan Organologam Sebagai Antikulat/Serangga.
102. Dr. Tan Wee Tee: Removal of Hazardous Chemical By Agricultural Residues.
103. Dr. Tan Wee Tee: Electroanalytical Studies of Selected Metal Ion complexes.
104. Dr. Wan Md. Zin b. Wan Yunus: Sintesis, Pencirian Dan Penggunaan Penukar Ion Mengkelat.
105. Dr. Wan Md. Zin b. Wan Yunus: Penyediaan Lipase Tersekat-Gerak Dan Penggunaannya Di Dalam Biotransofrmasi Lipid.
106. Dr. Wan Md. Zin b. Wan Yunus: Penyediaan Dan Penggunaan Elektrod Enzim.
107. Dr. Zulkarnain b. Zainal, Dr. Mohd. Zobir b. Hussein dan Prof. Dr. Hj. Badri b. Muhammad: Kekonduksian Beberapa Karbon Teraktif.
108. Dr. Zulkarnain b. Zainal: Penyediaan dan Pencirian Arang Teraktif dari Kayu Bakau dan Lain-lain Kayu-kayan Tropika.
109. Dr. Zulkarnain b. Zainal: Kajian Elektrokimia Bagi Semikonduktor.
110. Prof. Madya Dr. Kamel Ariffin Mohd. Atan: Zeros of a Linear Combination of Chebyshev Polynomials.
111. Suriah Md. Amin: Penggunaan Persamaan cherbyshev dalam penyelesaian Persamaan Pembezaan biasa.
112. Dr. Ismail Mohd: Kedah Titik Pendalaman.
113. Dr. Ismail Mohd: Kaedah Penentudalaman.
114. Dr. Ismail Mohd: Matematik Selang.
115. Hajjah Fatimah Ahmad: Management of End-User Computing at Data Processing Departments.
116. Saiman Mat Baok: Menyelesaikan suatu Persamaan Pembezaan biasa Kaku Peringkat Tiga secara langsung.
117. Mohd. Rizam Abu Bakar: Solving linear equation with multiple roots.
118. Mohd. Rizam Abu Bakar: Knapsack Problem.
119. Mohd. Nooh Hassan: Modeling climatic variables with application in yield forecasting.
120. Dr. Abu Talib Othman: Performance, queueing network, Computer Systems, Communications system.
121. Dr. Abu Talib Othman: Performance of communication systems.
122. Dr. Leow Soo Kar: Reliability of Computer Software.

123. Dr. Leow Soo Kar: Using SIMSCRIPT for Simulation Models.
124. Fauziah Maarof: Inverse Gaussian Models.
125. Dr. Kassim Haron: On Mutipurpose designs with constraint imposed on costs.
126. Azmi Jaafar: Terjemahan buku "Calculus, Basic Concepts and Applications".
127. Azmi Jaafar: Algoritma Polinomial - Pengaturcaraan Linear.
128. Azizah Suliman: Development of an MRP (Material Requirement Planning) system for medium and small scale industries in Malaysia.
129. Azizah Suliman: Building an expert system for the honey bee management.
130. Dr. Peng Yee Hock: Polinomial Kromatik.
131. Dr. Isa Daud: Menggunakan nilai-nilai eigen dalam menentukan cerapan yang berpengaruh dalam model melibatkan data mandirian.
132. Dr. Isa Daud: Diagnostik dalam model risiko persaingan.
133. Zaiton Muda: Pakej Indentasi dan Pembetulan Ralat mudah bagi Aturcara PAS-CAL.
134. Zaiton Muda: Pencirian Getah Asli dan Ekstrak Bahan Pertanian.
135. Noor Akma Ibrahim: Competing risks and survival analysis.
136. Mohamad Othman: Building an expert system in Rubber industry.
137. Mohd. Hassan Selamat: Prototyping approach to Information System Development.
138. Fudziah Ismail: Type insensituri codes for the solution of stiff and non-stiff ODES.
139. Dr. Harun Budin: Variational Method in Nonlinear Boundary Value Problems.
140. Dr. Mansor Monsi: Langkah Tunggal Simetri terulang dalam menentukan pensifar 1990/91.
141. Prof. Dr. Mohamed Suleiman: Penyelesaian Persamaan Pembezaan Biasa.
142. Dr. Nasiman b. Sapari: Disposal of Solid and Toxic Wastes - Effects on Groundwater.
143. Dr. Nasiman b. Sapari: Kualiti Air-bawah Tanah dan Kajian rawatan Pencemaran.
144. Dr. Mohd. Nasir b. Hassan: The Economic Evaluation of Waste Disposal Impacts on Groundwater and the Environment.
145. Dr. Mohd. Ismail b. Yaziz: Monitoran Kualiti Sumber Alam dan Penilaian Dedahan Serta Risiko Kepda Kesihatan Awam.
146. Dr. Mohd. Ismail b. Yaziz: A Study of Plant Operational Parameters and Aluminium Levels in Finished Drinking Water Supplies.
147. Dr. Mohd. Ismail b. Yaziz: Development of a Risk Categorization System for Non-Conventional Drinking Water Treatment Systems.
148. Dr. Zelina bt. Zaiton Ibrahim: The Coastal and Marine Environment.
149. Dr. Zelina bt. Zaiton Ibrahim: Coastal and Estuarine Processes.
150. Dr. Ramadzani b. Abdullah: Coastal Resource Use Planning.
151. Dr. Zelina bt. Zaiton Ibrahim: Ocean-Atmosphere Interaction.
152. Dr. Anhar b. Suki: Kualiti Alam Sekitar dan Cara Kawalan.
153. Dr. Anhar b. Suki: Keberkenanan dan Rekabentuk Proses Rawatan Air dan Air Buangan.
154. Dr. Mohd. Ismail b. Yaziz: Panduan Penglolaan Proses Rawatan Kumbahan.
155. Encik Azman b. Zainal Abidin: Pemerhatian Pola Bahan Pencemaran Udara Dari Segi Ruang dan Masa.
156. Encik Azman b. Zainal Abidin: Kajian Profil Tegak dan Parameter Meteorologi.
157. Prof. Madya Dr. Muhamad b. Awang: Kesan Pencemaran Udara Serta Simulasi Hujan Asid Terhadap Tanaman Pertanian dan Perhutanan.
158. Prof. Madya Dr. Muhamad b. Awang: Kesan Kenaikan Aras Kepekatan Karbon Dioksida; Suhu dan Status Air Serta Nutrien Terhadap Tanaman Pertanian dan Species Hutan Hujan Tropika.
159. Dr. Anhar b. Suki: Mengkaji dan Memodel Kualiti Sumber Air.
160. Dr. Wan Nor Azmin b. Sulaiman: Kajian Pengelasan Kawasan Lembangan di Semenanjung Malaysia.

161. En. Mohd. Kamil b. Yusoff: Kajian Pengelasan Kawasan Lembangan di Semenanjung Malaysia.
162. Dr. Ramdzani b. Abdullah: Penilaian Kesan Pembangunan Terhadap Alam Sekitar di Semenanjung Malaysia.
163. Dr. Azizi b. Muda: Penilaian Kesan Pembangunan Terhadap Alam Sekitar di Semenanjung Malaysia.
164. Encik Abdul Wahid b. Ghazali: Pengurusan Sisa Domestik dan Industri di Shah Alam dan Petaling Jaya- Satu Kajian Perbandingan dan Kesannya Terhadap Alam Sekitar.
165. Dr. Nasiman b. Sapari: Pemetaan Alam Sekitar Dengan Kaedah Analisis Imej.
166. Prof. Madya Dr. Muhamad b. Awang: Kesan Perubahan Iklim Terhadap Tanaman Pertanian.
167. Dr. Vijaya S. Kanapathipillai: Seed borne diseases of kidney beans, chilli and bendi. June - Sept. 1990.
168. Dr. Vijaya S. Kanapathipillai: Cuti sabatikal. Studies on *Colletotrichum gloeosporioides*, the anthracnose pathogen of citrus fruits. 1 Oct. 1990 - 30 June 1991.
169. Dr. Vijaya S. Kanapathipillai: Microfungi of lemon, mango, banana, durian, orchid, anthurium, cocoa and rubber were screened with intention of isolating *Colletotrichum* species. Oct. 1990 (UPM).
170. Dr. Vijaya S. Kanapathipillai: Isolation of *C. gloeosporioides* species from citrus fruits from various localities. Callus culture preparation. Cultural studies of isolates of *C. gloeosporioides* and isozyme studies of the anthracnose pathogen. 6 Nov. 1990 - 10 March 1991. (La Trobe University, Australia).
171. Dr. Vijaya S. Kanapathipillai: Comparison of Australian isolates with local isolates, culturally and by isozyme study. Writing up data. 11 March - June 1990 (UPM).
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265. Zainoba, Z., C.N.A. Razak, A.B. Salleh, K. Ampon, W.M.Z. Wan Yunus dan M. Basri. 1991. Immobilization of a lipase-producing bacteria. Unesco National Workshop on Promotion of Microbiology in Malaysia. January 28-29 1991, UPM.
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268. Vijaya S. Kanapathipillai. 1990. Studies on the potential of Biological control of anthranose fungi, *colletotrichum* on Malaysian fruits. (Abstracts) Fourth International Mycological Congress, Regensburg, Germany (FRG).
269. Vijaya S. Kanapathipillai. 1990. Comparison of seed treatments, chemical and biological on the mycoflora of some Malaysian vegetables. (Abstracts) Fourth International Mycological Congress, Regensburg, Germany (FRG).
270. Vijaya S. Kanapathipillai. 1990. Seed borne fungal flora of *Hibiscus esculentus* (Abstracts) 13th Malaysian Microbiology Symposium, Kuala Lumpur.
271. Vijaya S. Kanapathipillai. 1990. Use of *T. harizianum* against bean anthracnose fungus *C. lindemuthianum* (Sacc & Mang.) Bri. & Cav.

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276. A. Suki, M. Awang. 1990. Oxidation pond and aerated lagoon. Paper presented at Seminar on Options for Sewage Treatments, 18 September 1990. Environmental Management and Research Association of Malaysia.
277. Azman, Z.A., Muhibbah, S. dan Muhamad Awang. 1990. A preliminary observation of nitrogen dioxide concentration in selected areas in the Klang Valleh, Malaysia. *Proceedings of the 3rd International Conference on Atmospheric Sciences and Application to Air Quality*, Shanghai, Oct. 15-19, 1990.
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281. M.I. Yaziz dan Muhamad Awang. Health Impacts of Growth Ecosystem - Increasing Awareness via Human Exposure Assessment Studies. Paper presented at the "Regional Workshop on Comparative Study of Metropolis Ecosystems in Asia and the Pacific". Seoul, Rep. of Korea. 5-8 Dec. 1990.

#### SEMINAR

1. The Role of Petroleum in Sustainable Development, Penang Mutiara Beach Resort, Penang 7-11 Januari 1991.
2. International Conference on Tropical Ozone and Atmospheric Change, 20-23rd Feb. 1990 Penang, Malaysia.
3. Seminar Kebangsaan Behubung dengan Persidangan Pertubuhan Bangsa-Bangsa Bersatu Mengenai alam Sekitar dan Pembangunan - anjuran Kementerian Luar Negeri dan Kementerian Sains Teknologi dan Alam Sekitar, 9-11 Julai 1990.
4. 3rd. International Conference on Atmospheric Sciences and its application to Air Quality, Shanghai, Oct. 1990.

## FAKULTI PERIKANAN DAN SAINS SAMUDERA

### DEKAN

Prof. Madya Dr. Mohd. Ibrahim Hj. Mohamed

### KAKITANGAN

#### Jumlah Kakitangan

Jabatan	Kategori A	Kategori B	Kategori C	Kategori D
Pejabat Dekan	3	-	6	9
Jabatan Biologi Ikan	15	-	5	5
Jabatan Akuakultur	9	1	9	8
Jabatan Teknologi Menangkap Ikan	15	3	20	53
Jumlah	42	4	40	75
Jumlah Besar				161

#### Perlantikan Baru

Seramai 1 orang Pensyarah dan seorang Jurutaip telah dilantik.

#### Perletakan Jawatan

Seorang Jurutaip dan seorang Pembantu Am Rendah telah meletakkan jawatan.

#### Cuti Belajar

11 orang pensyarah telah menjalani Cuti Belajar manakala seorang telah menamatkan cuti belajar dan bertugas semula. (Semua Ph.D.).

#### Ijazah Lanjutan

Seramai 8 orang bagi kursus Ph.D. dan 10 orang bagi kursus M.S.

#### Pemeriksa Luar

1. Prof. Madya Dr. Ghazali Ismail  
Jabatan Biologi  
UKM Cawangan Sabah  
38996 Kota Kinabalu  
Sabah
2. Prof. Dr. Alie Poernomi T  
Central Fisheries Research Institute  
J1, K.S. Tubun  
P.O. Box 50 slipi  
Jakarta 11410A  
Indonesia

#### PENYELIDIKAN

1. Development of an appropriate technology for optimization of aquacultural production: MPKSN 1-07-05-12; 1986-1990. (Ketua Projek).

2. Prawn Farming in Development Countries: development of an appropriate Technology for *Macrobrachium rosenbergii* (de Man) Production and Post-harvest Handling. EEC Project No. 63241. M\$412,000.00(1989-1992). (Ketua Peojek).
3. Kultur dan kajian biologi alga.
4. Coastal oceanographic studies in the South China Sea and the Straits of Malacca: Phase II (IRPA).
5. Water quality requirement for Udang Galah culture (EEC funding).
6. Marine sediment pollution (Puspati).
7. Kajian awal "Immune response in *Aristichthys nobilis* infected with *Lernea cyprinacea*". Bantuan IDRC bernilai \$100,000.
8. ASEAN Australia Cooperative Programme in Marine Science. Coral Reef Studies 1989-1994. Australian International Development Assistance Bureau funding. A\$250,000.
9. Development of a fishery information system. 1990-1993. IRPA funding \$60,000/yr.
10. Remote Sensing application on Coastal Zone Management of Malaysia. ASEAN-Australian program on coastal living resources - Funding AIDAB Australia. A\$70,000. 1989-1994.
11. Stock assessment of marine prawn in South Johore - ASEAN-USAID Project.

12. Identification and stock assessment of fishery resources in Malaysia waters -IRPA Project.
13. Pembinaan aruhan dan semaian ikan keli kayu.
14. Semaian ikan leee koh dalam tangki Bio-Fiziko-Kimia.
15. Semaian ikan keli Afrika dalam tangki Bio-Fiziko-Kimia.
16. Ternakan Larva udang galah dengan penggunaan kombinasi *Artemia* dan *Moina*.
17. Penubuhan Kultur Sel dari Ikan Siakap, *Lates calcarifer* dan keli *Clarisa batrachus* MPKSN (Tamat).
18. Kajian Status Agen Mikrob Patogenik dalam Ikan (Air tawar & masin), Kerang-kerangan dan Molluska di Malaysia Barat. I. Kajian Microbiologi: Virologi dan Bakteriologi MPKSN (sedang berjalan).
19. Fish Parasite (Malaysia) Phase III (IDRC Project). Identification of viruses present in fish imported into Malaysia and other commonly cultured species. (sedang berjalan).
20. Kajian sumber bentos di pesisiran pantai. Projek ASEAN-Australian - 1990/91.
21. Kajian zooplankton di kolam-kolam rekreasi. Projek penyelidikan IRPA - 1989/90.
22. Kajian Index Sensitiviti Persekitaan. Projek Perundingan PETRONAS/UPM - 1989/91.
23. Coastal and Near-shore Processes in Kuala Terengganu. 1991-1995 UPM.
24. One dimensional hydrodynamic model for Kuala Terengganu estuary. Funding \$6,000.00.
25. Penentuan keadaan untuk mengkultur tisu ovari udang laut, *Penaeus merguensis* in vitro.
26. Kajian vitellogenesis dalam tisu ovari *P. merguensis* dengan dan tanpa rawatan hormon steroid.
27. Study on some economic factors in "Unjam" and "Bubu" operations in Terengganu, Malaysia. 1990. Funding by Malaysia Lasmo Oil Sdn. Bhd. \$10,000.00.
28. A focus study on Deep-sea Purse seine operators of Kuala Terengganu - successful Fisherman. 1990.
29. Study on the use of light attraction on catches in Fish Traps. Funding by UPM. \$12,000. (On going research)
30. Modelling of Bioeconomic operation and Management in Deep-sea Marine Fisheries. Funding by National Scientific and Development Research council. \$100,000/yr. (On going research)
31. Studies on Plankton as Food Organisms for Larval Rearing - Chemical aspects.
32. Erosian processes at the Rantau Abang leather back rookery.
33. Tar ball pollution in the Rantau Abang leatherback rookery.
34. Hydrocarbon pollution in the Rantau Abang leatherback rookery and adjacent waters.
35. Tracking the movements of leatherback hatchling in their "swimming frenzy" to determine the developmental habitats of leatherback turtles.
36. Tracking the Interesting movements of green turtles using ultrasonic telemetry.
37. Studies on the ultrastructure of leatherback eggshells.
38. Ecology of marine fish larvae in the South China Sea.
39. Relationship between sea turtles and offshore platforms in Terengganu.
40. "Coastal & Nearshore processes at the State of Terengganu" MPKSN.
41. Coastal Oceanographic Studies in Port Dickson. MPKSN.
42. Bahan-bahan pencemar Samudera dan pengangkutan sedimen di Malaysia MPKSN/Unit Tenaga Nuklear.
43. Marine Contamination and Sediment Transport.

#### PENERBITAN

1. Mohd. Ibrahim Hj. Mohamed. 1990. Implementation of the Law of the Sea Convention in the 1990s: National Management of the Fisheries. Paper presented at the SEAPOL International Conference on the Implementation of the Law of the Sea Convention in the 1990's: Marine Environmental Protection and other issues. Denpasar (Bali) Indonesia May 28-30, 1990.
2. Mohd. Ibrahim Hj. Mohamed. 1990. Marine Environment Development Issues and

Responses. Paper presented at the National Seminar on the United Nation's Conference on the environment and development. Kuala Lumpur 9-11 July, 1990.

3. Mohd. Ibrahim Hj. Mohamed. 1991. National Management of Malaysia Fisheries. Marine Policy. 15(1): 2-15.

4. Mohd. Ibrahim Hj. Mohamed. 1991. Challenges for Higher Education for Fishing Technology. Paper presented at the Conference on Fixing Technology. Marine Fisheries in the Nineties:- Higher Productivity Through Improved Technology. 10-11 March 1991. Kuala Terengganu, Malaysia.

5. Law, A.T. and Azahar Othman. 1990. Sewage pollution in the Coastal waters off Port Dickson, Straits of Malacca. *Pertanika* 13(3): 375-380.

6. Law, A.T., V. Ravinthar dan C.H. Yeong. 1990. Oil pollution in the coastal waters off Port Dickson, Straits of Malacca. *Pertanika* 13(30): 381-387.

7. Chin, K.S.S., S.H. Cheah, K.J. Ang dan A.T. Law. 1990. Nursing the giant freshwater prawn in floating net cages. Paper presented at the Simposium Biologi Gunaan Malaysia Pertama: Penyelidikan semasa dalam biologi gunaan. 27-28 Februari 1990, Serdang.

8. Noor Azhar Mohamed Shazili, Law Ah Theem, Liew Hock Chark, Mohd. Nasir Saadon and Che Abd. Rahim Mohamed. 1990. Impact study of the marine environment off an EPMI industrial plant in Kerteh, Terengganu, Malaysia. Final report to ESSO. 117 pp.

9. Law, A.T. 1990. Chemical nutrients and petroleum hydrocarbons in the coastal waters off the ESSO crude oil terminal at Kerteh, Terengganu. IN: Impact study of the marine environment off an EPMI industrial plant in Kerteh, Terengganu, Malaysia. Noor Azhar Mohamed Shazili et. al (eds.). Final report to ESSO. p. 11-35.

10. Law, A.T. 1990. Phosphorus and inorganic nitrogen distribution in the coastal waters off Sabah. IN: *Ekspedisi Matahari 89: A study on the offshore waters of the Malaysian EEZ*. Abu Khair Mohamed Mohsin, Mohd. Zaki Mohd. Said and Mohd. Ibrahim Hj. Mohamed (eds.). Faculty of Fisheries and Marine Science, Universiti Pertanian Malaysia, Occasional Publication No. 9. 1990 p. 65-73.

11. Law, A.T. 1990. Petroleum hydrocarbon distribution in the coastal waters off Sabah. IN: *Ekspedisi Matahari 89: A study on the offshore waters of the EEZ*. Abu Khair Mohamed Mohsin, Mohd. Zaki Mohd. Said and Mohd. Ibrahim Hj. Mohamed (eds.). Faculty of Fisheries and Marine Science, Universiti Pertanian Malaysia, Occasional Publication No. 9. 1990 p. 57-61.

12. Law, A.T. dan A. Singh. 1991. Relationship between heavy metal contents and body weight of fishes collected from Kelang estuary, Malaysia. *Mar. Pollut. Bull.* 32: 86-89.

13. Ang Kok Jee dan Law Yean Kok. 1990. Fecundity changes in *Macrobrachium rosenberqii* during egg incubation. *Aquaculture and Fish. Managt.* 22, 1-6.

14. Ang, K.J., Cheah, S.H. dan S. Yamazaki. 1990. Large-Scale Production of *Macrobrachium rosenberqii* Post-larvae in a new Bio-stream Culture Tank System. IN: *Advances in Fisheries and Marine Sciences*. (ed.) Mohd. Ibrahim Hj. Mohamed, Patimah Ismail, A.T. Law and S.H. Cheah. Faculty of Fisheries and Marine Sciences, Universiti Pertanian Malaysia. p. 22-31.

15. Khan, M.S., M.A. Ambak, K.J. Ang dan A.K.M. Mohsin. 1990. Physical, chemical and plankton studies of a lowland tropical hydroelectric reservoir, Tasek Chenderoh, Malaysia. *Malays. Appl. Biol.* 19(1): 109-112.

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17. Khan, M.S., K.J. Ang dan Y.K. Law. 1990. Biotechnology in fish breeding: Its potentials for Malaysian freshwater fisheries. *Option*, 5(2): 12-13.

18. Siraj, S.S., S.H. Cheah, P.T. Arumugam dan K.j. Ang. 1990. Preliminary observation on the growth and survival of *Clarias batrachus* Linnaeus fry maintained on prepared diets. IN: Mohd. Ibrahim H.M., P. Ismail, A.T. Law and S.H. Cheah (eds.) *Advances in Fisheries and Marine Sciences*. p. 73-79.

19. Siraj, S.S., S.H. Cheah, C.R. Saad and K.J. ang. 1990. Fry rearing of walking catfish, *Clarias batrachus* Linnaeus with diets con-

- taining chicken eggs enriched with fish meal. Presented at the First Symp. Malays. Appl. Biol. 27-28 Februari 1990. Universiti Pertanian Malaysia, Serdang, Malaysia.
20. Cheah, S.H., S.S. Siraj dan K.J. Ang. 1990. A preliminary study on induced spawning of *Clarias batrachus* (Linnaeus) in Malaysia. *Pertanika* 13(1): 63-66.
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22. Anderson, I.G., G. Nash dan M. Shariff. 1990. Mass mortalities in giant prawn *Macrobrachium rosenbergii* de man, cultured in Malaysia modified static "green water" systems. *Journal of Fish Diseases* 13, 127-134.
23. Torres J.L., M. Shariff dan A.T. Law. 1990. Identification and virulence screening of *Aeromonas* spp. isolated from healthy and epizootic ulcerative syndrome (EUS) - infected fish. pp 663-666. In Hirano. R and I. Hanyu (eds.) The Second Asian Fisheries Forum, Tokyo, April 17-22 1989. Asian Fisheries Society, Manila, Philippines.
24. Shariff M. dan C. Sommerville. 1990. Comparative morphology of the adult of *L. polymorpha* Yu and *L. cyprinacea* Linnaeus. pp 717-720. In Hirano. R. and I. Hanyu (eds.) The Second Asian Fisheries Forum, Tokyo, April 17-22 1989. Asian Fisheries Society, Manila, Philippines.
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26. Anderson I.G., Law A.T., Shariff M., Nash G. 1990. A parvo-like virus in the giant freshwater prawn, *Macrobrachium rosenbergii*. *Journal of Invertebrata Pathology* 55: 447-449.
27. Woo P.T.K., dan M. Shariff. 1990. *Lernaea cyprinacea* L. (Copepoda: Caligidea) in *Helostoma temmincki* Cuvier & Valenciennes: the dynamics of resistance in recovered and naive fish. *Journal of Fish Diseases* 13, 485-493.
28. Shariff M., dan r. Subasinghe. 1990. Health aspects of Asian aquaculture. *IN-FOFISH International* 5: 35-38.
29. Arthur R., dan M. shariff. 1991. Towards International Fish Disease Control in Southeast Asia. *INFOFISH International* 3: 45-48.
30. Mohd. Zaki, M.S., A.K.M. Mohsin, M.A. Ambak dan S. Hayase. 1990. An Evaluation of the effect of trawling on demersal stock in the east coast Peninsular Malaysia. *Proceeding of the JICA/FPSS (UPM) Seminar - Advances in fisheries and Marine Sciences*, 10-11 March, 1990 p. 86-106.
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32. Mohd. Zaki M.S., M.A. Ambak dan A.K.M. Mohsin. 1990. Threadfin catch during an exploratory survey off Terengganu Coast. *Proceeding of the JICA/FPSS (UPM) seminar - Advances in Fisheries and Marine Sciences*, 10-11 March, 1990, p. 199-205.
33. Mohd. Zaki M.S., A.K.M. Mohsin dan M.a. Ambak. 1990. Colour patterns as an additional aid to the identification of *Nemipterus* species, *Pertanika* 13(1): 17-26.
34. Cheah, S.H., S.Y. Lam dan K.J. Ang. 1991. Preliminary report on induced spawning of the marble goby, *Oxyeleotris marmoratus*, in Malaysia. *Proc. 14th Ann. MSAP*: 111-114.
35. Tan, H.L., K.J. Ang dan S.H. Cheah. 1991. Some aspects of the breeding biology of discus, *Symphysodon aequifasciata axelrodi*. Preprint: *Aquarama* 91. 27-30 June 1991, World Trade Centre, Singapore.
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39. Saadon, M.N., Liew H.C. dan M. Hidaka. 1990. Temperature and Salinity Profiled in Sabah Waters. In: *Ekspedisi Matahari '89*. Mohsin A.K.M. dan Mohd.

- Ibrahim (eds.). Faculty of Fisheries and Marine Science, Universiti Pertanian Malaysia. Occasional Publication No. 9: 35-45.
40. Saadon, M.N., Liew H.C. dan M. Hidaka. 1990. Density ( $\sigma_t$ ) and Dissolved oxygen profiles in Sabah waters. In: Ekspedisi Matahari '89. Mohsin A.K.M. dan Mohd. Ibrahim (eds.). Faculty of Fisheries and Marine Science, Universiti Pertanian Malaysia. Occasional Publication No. 9: 47-56.
41. Saadon, M.N. 1990. Meteorological conditions during the Ekspedisi Matahari '89. Mohsin A.K.M. dan Mohd. Ibrahim (eds.). Faculty of Fisheries and Marine Science, Universiti Pertanian Malaysia. Occasional Publication No. 9: 11-20.
42. Saadon, M.N. 1990. Sea surface and air temperature in the South China Sea. In: Ekspedisi Matahari '89. Mohsin A.K.M. dan Mohd. Ibrahim (eds.). Faculty of Fisheries and Marine Science, Universiti Pertanian Malaysia. Occasional Publication No. 9: 25-34.
43. Saadon, M.N. dan Rosnan Yaacob. 1990. Tidal Current in Kuala Terengganu Coastal Waters. Paper presented in the Third National Workshop on Tides, 11-12.7.90. Merlin Hotel, Pulau Pinang.
44. Saadon, M.N. dan Rosnan Yaacob. 1990. The relationship of Tide and Wind to the Coastal Water Movements of Kuala Terengganu. In: Proceeding of IEM/ICE Joint Conference 1991 - Coastal Engineering in National Development 4-6 March 1991 Kuala Lumpur, Malaysia. pp 15.
45. Chan H.H., 1991. "Effects of Eyestalk Ablation, Thoracic Ganglion Extract and Gonad Extract from "spent" spawners on ovarian maturation in pond-reared prawns, *Penaeus monodon* Fabricius". MS submitted and accepted by Aquaculture and Fisheries Management.
46. Rosnan Yaacob dan Saadon, M.N. 1991. Beach and Nearshore sediment Distribution of Kuala Terengganu. In: Proceeding of IEM/ICE Joint Conference 1991 - Coastal Engineering in National Development. 4-6 March 1991, Kuala Lumpur, Malaysia. pp. 15.
47. Mohd. Ibrahim, Abdul Rahim, Saharudin Hamid. 1990. Study on Some Economic Factors in "Unjam" and "Bubu" Operations in Kuala Terengganu. Consultancy report submitted to Malaysian International Chamber of Commerce and Industry.
48. Sharuddin Hamid dan Mohammed Muda. 1990. Kegigihan seorang Nelayan Pukat Jerut - Satu Fokus. Paper presented in First conference on fishing Technology, Kuala Terengganu.
49. A simple Method for the Determination of Volatile Amines In Sediment and Water Samples. M. Kamil Abdul Rashid, John P. Riley, Mark F. Fitzsimons dan George A. Wolff. Anal. Chira. Acta. In Progress.
50. Chan, E.H., S.A. Eckert, H.C. Liew dan K.L. Exkert (in press). Locating the Inter-nesting habitats of leatherback turtles (*Dermochelys coriacea*) In Malaysian waters using radiotelemetry. Proc. Eleventh International Symposium on Biotelemetry, 29 Aug - Sept. 1990, Yokohama, Japan.
51. Chan, E.H. (In press). The status and conservation of sea turtles in Malaysia., Proc. symposium on the State of Nature Conservation in Malaysia, 24-26 Aug. 1990, Kuala Lumpur, Malaysia.
52. Chan, E.H. dan H.C. Liew (In press). The offshore protection of Malaysian leatherback turtles. Proc. 12th. Annual Seminar, Malaysian Society of Marine Sciences, 18 Nov. 1989, Universiti Malaya, Kuala Lumpur.
53. Chan, E.H. (In press). Educational materials on sea turtles produced by the Sea Turtle Research and Conservation Project, Universiti Pertanian Malaysia. Proc. 12th Annual Seminar, Malaysian Society Sciences, 18 Nov. 1989, Universiti Malaya, Kuala Lumpur.
54. Eckert, S.A. H.C. Liew, K.L. Eckert, dan E.H. Chan. 1990. Shallow-water diving by gravid leatherbacks in the South China Sea. Proc. of the Tenth Annual Workshop of Sea Turtle Biology and Conservation, 20-24 February, 1990, South Carolina, U.S.A. (In press).
55. Rosnan Yaacob dan Saadon, M.N. 1991. Beach And Nearshore Sediment Distribution of Kuala Terengganu, Proc. Int. joint IEM/ICE conf. on Coastal Engineering In National Development, Kuala Lumpur.
56. Saadon M.N. dan Rosnan Yaacob. 1991. The Relationship of Tides and Wind to

the Coastal Water Movement of Kuala Terengganu. Proc. Int. Joint IEM/ICE conf. on Coastal Engineering In National Development, Kuala Lumpur.

57. Rosnan Yaacob. 1990. The organic carbon content of the Sediment in the South China Sea Off Sabah. In Ekspedisi Matahari '89. A Study on the Offshore Water of the Malaysian EEZ. A.K.M. Mohsin, Mohd. Zaki Mohd. Said and Mohd. Ibrahim Hj. Mohammed (eds.) Faculty of Fisheries and

Marine Science, Universiti Pertanian Malaysia, Occasional Publication No. 9.

58. Rosnan Yaacob dan S. Higashikawo. 1990. Bottom Sediment in the South China Sea Off Sabah. In Ekspedisi Matahari 185. A Study on the Offshore Waters of the Malaysian EEZ. A.K.M. Mohsin, Mohd. Zaki Mohd Said and Mohd. Ibrahim Hj. Mohammed (eds.) Faculty of Fisheries and Marine Science, Universiti Pertanian Malaysia, Occasional Publication No. 9.

## FAKULTI SAINS MAKANAN DAN BIOTEKNOLOGI

### DEKAN

Prof. Dr. Mohamed Mahyuddin Mohd. Dahan

### KAKITANGAN

### Jumlah Kakitangan

JABATAN	KATEGORI A	KATEGORI B	KATEGORI C	KATEGORI D
Pejabat Dekan	3	-	4	7
Jabatan Sains Makanan	12	-	10	5
Jabatan Teknologi Makanan	12	-	9	5
Jabatan Bioteknologi	13	-	5	4
Jumlah	40	-	28	21
Jumlah Besar	89			

### Perlantikan baru dan Kenaikan Pangkat

1. Dr. Mohd. Nasir Azudin dilantik sebagai Timbalan Dekan Fakulti Sains Makanan dan Bioteknologi mulai 1.11.90.
2. Encik Zainal Abidin Abu Hassan dilantik sebagai Pembantu Makmal Kanan mulai 1.10.90.

### Cuti Belajar

1. Suhaimi Mohd. Napis, tutor, masih mengikuti kursus Ph.D. dalam bidang Plant Molecular Biology, di University of Durham, U.K.
2. Noor Aini Abdul Rashid, tutor, masih mengikuti kursus Ph.D. dalam bidang Gene Cloning in Yeast (Genetic Engineering) di University of Durham, U.K. mulai Januari 1988.
3. Russly Ab. Rahman, Pensyarah, masih mengikuti kursus Ph.D. dalam bidang Pembungkusan Makanan di University of Reading U.K. mulai 25.9.88.
4. Dxulkifyly Mat Hashim, Pensyarah, masih mengikuti kursus Ph.D. dalam bidang Kejuruteaan Makanan di University of Nottingham U.K. mulai 1.6.90.
5. Fatimah abu Bakar, Pensyarah, baru mengikuti kursus Ph.D. dalam bidang Mikrobiologi Makanan di UPM mulai 10.12.90.

### PERKARA AKADEMIK

#### Ijazah Lanjutan

Jumlah pelajar Ijazah Lanjutan bagi sesi 1990/91 iaitu seramai 34 orang iaitu 4 mengikuti program Ph.D. dan 30 orang mengikuti program M.S. didalam pelbagai bidang.

#### Pemeriksa Luar

Prof. Lowell d. Satterlee daripada Pennsylvania State University telah dilantik sebagai pemeriksa dan penilai luar bagi pelajar-pelajar ijazah program Bachelo Sains & Teknologi Makanan sesi 1990/91 di Fakulti ini. Beliau telah berada di Fakulti ini selama 8 hari mulai 7.4.91 hingga 14.4.91. Antara aktiviti yang dijalankan ialah mengadakan ujian lisan bagi pelajar tahun akhir BSTM juga mengadakan pertemuan dengan Dekan, Pensyarah-pensyarah FSMB dan Naib Canselor UPM.

#### PENYELIDIKAN

1. Dr. Abdullah Abu Bakar: Pengendalian dan pengangkutan ikan hidup.
2. Dr. Abdullah Abu Bakar: Pencirian dan pengurangan bau lumpur didalam ikan.
3. Dr. Abdullah Abu Bakar: Peningkatan mutu keropok ikan.
4. Dr. Yu Swee Yean: Pengelauran Biskut daripada Ikan Selayang.
5. Dr. Yu Swee Yean: Peranan Katepsin dalam perubahan tekstur pada ikan airtawar semasa kemerosotan.

6. Dr. Yu Swee Yean: Kajian kestabilan ke atas penyimpanan adunan ikan sejukbeku (surimi).
7. Dr. Yu Swee Yean: Kajian enzim dari *A. melleus*.
8. Dr. Yu Swee Yean: Kesan jenis kanji atas kualiti Bebola/kek ikan.
9. Dr. Yu Swee Yean: Penggunaan kanji prapenggelatinan dalam pemprosesan keropok.
10. Dr. Yaakob b. Che Man: Development, Nutritional Value and Acceptability of Yellow Noodles Fortified with Acid Treated Soyabeans.
11. Dr. Yaakob b. Che Man: Process Improvement for Coconut Oil Extraction.
12. Dr. Yaakob b. Che Man: Processing of Fruit Leathers.
13. Dr. Yaakob b. Che Man: Studies on TG in Palm Olein with Special Reference to Cloud Point Behaviour.
14. Dr. Yaakob b. Che Man: Physico-chemical characteristics of Palm Oil Blends.
15. Salmah Yusof: Application of enzymes in fruit juice processing.
16. Salmah Yusof: Processing of cocoa juice, cocoa jam and jelly.
17. Salmah Yusof: Postharvest technology of fruits - bananas c.v. berangan.
18. Dr. Zaliha Christine Alang: In vitro propagation and conservation of sago palm. IRPA RML.
19. Dr. Zaliha Christine Alang: Mass propagation of underexploited tropical species. MPKSN \$20,000.
20. Dr. Zaliha Christine Alang: Kajian awal sago dan kanju sago. Kementerian Kemajuan Perindustrian, Sarawak. \$36,000.
21. Dr. Zaliha Christine Alang: Improvement of tropical crops through recombinant DNA technology. IRPA jangka pendek. \$35,000.
22. Dr. Zaliha Christine Alang: In vitro propagation of tropical fruit trees and underutilized palms. Azmi, A.R. and Alang, Z.C. IRPA RME.
23. Dr. Zaliha Christine Alang: Crop genetic transformation using *Agrobacterium* as vector IRPA RME/JICA. Alang Z.C.
24. Dr. Zaliha Christine Alang: Restriction mapping and enzyme electrophoresis of underutilized economic plants. Norehan, M.S, Suhaimi, N. and Alang, Z.C. IRPA RME.
25. Dr. Zaliha Christine Alang: Development of mass propagation systems using bioreactor technology Alang Z.C. and Abd. Manaf, A. IRPA RME.
26. Dr. Zaliha Christine Alang: Regeneration in relation to genetic transformation. Alang, Z.C. and Halim, H. MPKSN RME.
27. Dr. Zaliha Christine Alang: Propagation and improvement of sago palm through in vitro techniques. Kementerian Kemajuan Perindustrian Sarawak. Alang, Z.C.
28. Dr. Hasanah Mohd. Ghazali: Screening of indigenous lipolytic microorganisms (particularly yeasts) including those that are thermophilic.
29. Dr. Hasanah Mohd. Ghazali: Immobilisation of enzymes (lipases) and cells (microbial and plants).
30. Dr. Hasanah Mohd. Ghazali: Catalysis in organic solvents (including reversed micelles).
31. Dr. Hasanah Mohd. Ghazali: Applications of lipases for the biomodification of palm oils (hydrolysis, transesterification).
32. Dr. Hasanah Mohd. Ghazali: Food colours - blue and red pigments (Kod 1-07-05-087, 2-07-05-011)
33. Dr. Hasanah Mohd. Ghazali: Phytosterols - stigmasterol and B-sitosterol (from *Parkia speciosa* - petai)
34. Dr. Hasanah Mohd. Ghazali: Triglyceride separation and identification (e.g. cocoa butter)(Kod 2-07-05-022).

#### PENERBITAN

1. Abdullah Abu Bakar. 1990. 'Processing and preservation of protein - a rich food in Malaysia'. Kertas kerja di seminar 1990 Obihiro Asia and the Pacific Seminar on Education for Rural Development 17-29 September, Obihiro University, Japan.
2. Abdullah Abu Bakar, Dzulkifly Mat Hashim dan M. Hotta. 1990. Some Considerations in the Production of Smoked Fish. Malaysian Fisheries Society Occasional Publication No. 3. pp 79-84.

3. Yu, S.Y. & Tan, L.K. 1990. Acceptability of crackers ('keropok') with fish protein hydrolysate. *International J. of Food Science and Tech.* (u.K.) 25, p. 204-208. Diterbitkan untuk Institut sains dan Teknologi Makanan, U.K. oleh Blackwell Scientific Publications.
4. Yu, S.Y. 1990. "Effect of fish: flour ratio or fish crackers ('keropok')". *ASEAN Food Journal* 6, No. 1 p. 36. diterbitkan oleh AFHB, Kuala Lumpur.
5. Yu, S.Y. 1990. Fish Crackers ('keropok') made form different Types of Flour. Akan diterbitkan dalam *ASEAN Food J.*
6. Yu, S.Y., Ngu, M.T.I. & Bakar, a. 1990. Cryoprotective effects of Sucrose, sorbitol & Phosphates and N.Toler Surim.
7. Yu, S.Y. 1990. Fish Noodles - Proc. 7th Session IPFC Fishery Commission Working Party of Fish Tech. & Marketing. *FAO Fisheries Report No. 401 Supplement, Rome.* p. 224-230. Diterbitkan oleh FAO, Rome.
8. Yu, S.Y. & Tan, L.K. 1990. Characteristics of Fish Hydrolysate from *O. mossambicus*, Rujukan seperti dalam (1) p. 231-237.
9. Bakar, A.A., Yu, S.Y. & Kayama, M. 1991. Fresh fish Quality Deterioration and Its Control. Dibentangkan dalam konf. Marine Fisheries in the '90's - Higher Productivity Through Improved Technology. K. Terengganu 10-11 Mac, 1991. Anjuran Peratuan Perikanan Malaysia, L.K.I.M. & Fakulti Perikanan dan Sains Samudera, UPM.
10. Bakar, J. Yu, S.Y. & Bakar, A. 1991. Role of Cathepsin D during Frozen Storage of *A. nobilis*. Akan dibentangkan dalam Konferensi 'Quality Control in the Fish Industry' Copenhagen, Denmark, 26-29 Ogos 1991. Anjuran Technological, Lyngby, Denmark.
11. Dr. Yaacob b. Che Man. Control of Off-flavour in Soybean by pH Adjustment. *ASEAN Food J.* (Review No. 164 - 28 Feb. 1991).
12. Dr. Yaacob b. Che Man. Effects of soaking Soybeans in Dilute acids on Biologically Active Components. *J. Am. Oil Chem. Soc.* (Review No. J6216 - 29 April 1991).
13. Dr. Yaacob b. Che Man. Isolation, Purification and Characterization of PE from Papaya Fruit. *J. Sc. Food & Agr.*
14. Dr. Yaacob b. Che Man. Acetic Acid Treatment of Coconut Cream in Coconut Oil Extraction. *ASEAN Food J.* (Review No. 194 - 30 May 1991).
15. Dr. Yaacob b. Che Man. Storage Stability of Ciku Leather. *ASEAN Food J.* (Review No. 196 - 29 May 1991).
16. Dr. Yaacob b. Che Man. Development and Evaluation of Four Different High-protein Low-cost Rice-soy Snack Formulations. *Inter. J. Food Sc. & Tech.* (Review No. IJFST 2389 - 2 April 1991).
17. Salamah Yusof. Guava - The Fruit and its Importance - to be published in the *Encyclopaedia of Food Science, Food Technology and Nutrition.*
18. Salamah Yusof. Effect of Mechanical Injury on the Post-harvest Physiology of Bananas presented at the International Symposium on tropical fruits in Pattaya, Thailand 20-24 May, 1991.
19. Salamah Yusof. Differences in the Physical and Chemical Characteristics of Guavas (Vietnamese and Beaumont) Related to Processing - Seminar Advances Food Research III, November, 1990.
20. A. Arbakariya, B. Ali Asbi and R. Norjehan. 1990. "Rheological behaviour of sago starch during liquefaction and saccharification". *Annals N.Y. Academy of Sciences*, 613: 610-613.
21. Y.B. Che Man, Asbi b. Ali, dan R. Abdul Rahman. 1990. "Pembaharuan proses untuk Membuat Fucuk". *Berita Penyelidikan, Universiti Pertanian Malaysia*, 4(1):6.
22. B. ali Asbi. "Soy Proteins and Products for Food Use". Conference on Soybeans in South-East Asia, Phytelephas, Le Havre, France, March 5-6th 1990.
23. B. Ali Asbi, L.S. Wei dan M.P. Steinberg. "Inhibition Kinetics of Soybean Lipoxygenase-1". 51st annual Meeting of Institute of Food Technologists (IFT), Los Angeles, USA, June 17-20, 1990. IFT Program & Abstracts.
24. Rahimah M., a. Ariff dan B. Ali Asbi. "The Effect of Impeller Size on Bioconversion of Sago Starch to Glucose in a Stirred Tank Reactor", *Proceedings Trends in Biotechnology in the Asia-Pacific Region*, UPM, 31 July - 2nd August 1990.

25. Asbi, B. Ali. "Optimization of heat transfer in a cabinet drier". Abstract #1569, 7th International Drying Symposium, Prague, Czechoslovakia, August 26-30, 1990.
26. B. Ali Asbi dan A.W. Puziah. "Changes in Canned Guava Juice During Storage". Proceedings in Seminar in "Advances in Food Research II", PPPL, UPM Serdang, November 19-20, 1990.
27. S. Ishak, B. Ali Asbi, Y. Salmah dan S. Jinap. "Thermostability of Pectinesterase in Guave Juice". Proceedings in Seminar in "Advances in Food Research III", PPPL, UPM, Serdang, November 19-20, 1990.
28. F. Ashraf, B. Ali Asbi, M.G., Hasanah, C.M. Yaakob, dan S. Jinap. "Isolation and Purification of Pectinesterase from Papaya". Proceedings in Seminar in "Advances in Food Research III", PPPL, UPM, Serdang, November 19-20, 1990.
29. Suhardiyono, Y.B. Che Man, B. Ali Asbi dan M.N. Azudin. "Coconut Oil Extraction Using Acetic Acid". Proceedings in Seminar in "Advances in Food Research III", PPPL, UPM, Serdang, November 19-20, 1990.
30. M.N.A. Karim dan B. Ali Asbi. 1990. "Product Development Potential from Some Exotic Fruits: Ciku, Guava and Papaya", Presented at "Forum on Marketing of Fresh Fruits and the Fruit Processing Industry", FAMA, Subang Jaya, November 26-27.
31. B.A. Asbi, L.S. Wei dan N. Yamashita. 1990. "Effect of Acid Inactivation of Lipoxigenase in Whole Soybeans on Water Binding Properties of Soy Proteins". Paper #219A, 52nd Annual Meeting of Institute of Food Technologists (IFT), Dallas, TX, USA, June 2-5.
32. B. Ali Asbi dan S. Ishak. 1991. "Evaluation of Thermal Process for Guava-Juice". Paper # 199, 52nd Annual Meeting of Institute of Food Technologists (IFT), Dallas, TX, USA, June 2-5.
33. Yazid, A.M. dan R.J.M. Crawfords. 1990. Thermization as a means to extend the storage life of raw milk. Proc. IDF/FIL Conference, 'Dairying in a changing world'. 8-12 October, 1990. Montreal, Canada.
34. Sipat, A., Lajis M.N., Yazid A.M. dan Ibrahim F. 1990. Biochemical study on the use of the extract of Kesinai Plant for Making Dadih. Proc. Cong. Vet. Assoc. p. 71-73. 6-10 October, 1990, Kuala Lumpur.
35. Sipat A., Lajis M.N., Yazid A.M. dan Ibrahim F. 1990. The Use of Kesinai Extract to Coagulate Milk. Proc. JSPS-VCC 3rd Seminar 'Integrated Engineering'. 17-18 December, 1990. Universiti Malaya, Kuala Lumpur.
36. Sipat A., Lajis M.N., Yazid A.M. dan Ibrahim F. 1990. Purification and Characterization of Kesinai Extract - A Milk Coagulating Enzyme of Plant Origin. Submitted for publication in the Journal of Dairy Research (United Kingdom).
37. Yazid A. M. dan R.J.M. Crawfords. 1989. The Effect of Thermization on milk and its properties. Proc. MIFT/UPM Seminar 'Food Processing-Issues and Prospects' p. 72-80. Kuala Lumpur.
38. Yazid A.M., Sipat A, Lajis M.N. dan Ibrahim F. 1991. Coagulation of Milk Using *Streblus asper* Extract. Proc. International Seminar FIL-IDF-Aitel-Fiere di Parma, Italy. 21-25 April, 1991.
39. Sipat A., Yazid M., Lajis M.N dan Ibrahim F. 1991. Purification of a Rennin-like Protease from Kesinai Plant (*Streblus asper*) Extract. Proc. International Seminar FIL-IDF-Aitel-Fiere di Parma, Italy. 21-25 April, 1991.
40. Alang, Z.C. dan Normah, M.N. 1990. In vitro techniques for conservation and utilization of underexploited tropical species. Invited paper presented at the International Workshop on: Conservation Plant Genetic Resources through *in vitro* methods, CSC. Kuala Lumpur, Jun 23th-30th. (In press).
41. Alang, Z.C., Zulaini, I., Faridah, S., Lim, E.S. dan Khalip, A.R. 1990. Regeneration of muskmelon from cotyledonary nodes and leaf discs. Paper presented at the Regional Symposium on "Trends in Biotechnology in the Asia-Pacific Region", Kuala Lumpur, 31st July -2nd August. (In press).
42. Alang, Z.C., Krishnapillay, B., Siti Fatimah, P. dan Hisajima, S. 1990. Embryo culture and nursery establishment of sago palm plantlets. Papers presented at the 4th International Sago Symposium, Kuching, Sarawak, 6th-9th August. (In press).
43. Alang, Z.C., dan Hisajima, S. 1990. A preliminary study of stress tolerance in sago palm and oil palm embryos *in vitro*. Papers presented at the 4th International Sago Symposium, Kuching, Sarawak, 6th-9th August. (In press).

44. Alang, Z.C., Gan, Y.Y., Low, F.C. dan Paulose, E. 1990. Role of in vitro and recombinant DNA techniques in propagation and improvement of sago palm. Papers presented at the 4th International Sago Symposium, Kuching, Sarawak, 6th-9th August. (In press).
45. Salah Yusof, Ghazali, H.M. dan Gan, S.K. 1990. Naringin Contents of Local Citrus Fruits. *Food Chem.* 37(2) 113-122.
46. Ghazali, H.M. dan Goh, S.C. 1991. The Effect of Germination of the Physico-chemical Properties of Black Gram (*Vigna mungo* L.). *Food Chemistry*. In press.
47. Ghazali, H.M. dan Goh, S.C. 1991. The Effect of Illumination on The Vitamin C and Total Carotenoids Contents of Black Gram (*Vigna mungo* L.) sprouts. *Pertanika*. Accepted for Publication.
48. Fayyaz, A., Asbi, B.A., Ghazali, H.M., Che Man, Y.B. dan Jinap, S. 1991. Pectinesterase Extraction from Papaya. Submitted to *J. Sci. Food and Agric.*
49. Ghazali, H.M., Lee, K.H. dan Tanaka, A. 1990. Substrate Preference of Lipase When Bound To and Freed from the Cells of *Geotrichum candidum*. In Proceedings of the 3rd JSPS-VCC Seminar on Intergrated Engineering. Kuala Lumpur.
50. Fayyaz, A., Asbi, B.A., ghazali, H.M., Che Man, Y.B. dan Jinap, S. 1990. Isolation and Purification of Pectinesterase from Papaya. In: Proceedings of the Seminar on Advances in Food Research III. UPM.
51. P.M., Lee, K.H. Lee, W.C. Leong dan Mohd. Ismail Kamil. July/Aug, 1990. "Cocoa Beans Polyphenol oxidases". Proceedings in "Trends in Biotechnology in Asian-Pacific Region". UPM, Serdang.
52. K.H. Lee, P.M. Lee dan Y.S. Siaw. "Enzymatic resolution of DL-amino acids with aminoacylase". *ibid.*
53. P.M. Lee, K.H. Lee dan t.K. Seow. "Isolation and characterization of cocoa bean proteases". *ibid.*
54. P.M. Lee dan K.H. Lee. "Esr studies of lectin-receptor interactions". *ibid.*
55. P.M. Lee dan K.H. Lee. "Hypothesis: The implication of -haemolysin as a signal peptide". *ibid.*
56. Hasanah Ghazali dan K.H. Lee. "Lipolytic microorganism: s commercial potential". *ibid.*
57. K.H. Lee "Some aspects of protein studies". *ibid.*
58. Hasanah Ghazali dan K.H. Lee. "The screening and characterization of lipolytic enzyme from indigeneous sources". 3rd JSPS-VCC (Seminar on Chemistry Biotechnology and environmental Engineering, 1990. Kuala Lumpur, Malaysia.
59. P.M. Lee dan K.H. Lee. "The biochemical studies of cocoa enzyme". Symposium on Structure and Function relationship of proteins". HEJ. Research Institute of Chemistry, 1990, Karachi, Pakistan.
60. P.M. Lee, K.H. Lee dan Mohd. Ismail Abd. Karim. 1990. "Biochemical studies of cocoa beans polyphenoloxidase". In press.
61. K.H., Lee. Isolation and characterization of cocoa, coffee enzymes related to flavour production.
62. K.H., Lee. Screening and isolation of lipolytic enzymes from microorganisms e.g. lipases.
63. K.H., Lee. Applications of immobilized enzyme systems.

## UPM KAMPUS BINTULU

**Pejabat Pentadbiran  
KAKITANGAN  
Jumlah Kakitangan**

JABATAN	KATEGORI A	KATEGORI B	KATEGORI C		KATEGORI D	
			TETAP	SAMBILAN	TETAP	SAMBILAN
Pej. Pengarah Kampus	1	-	1	-	-	-
Bhg. Perja- watan & Per- khidmatan	3	1	3	1	24	22
B h g Akademik & HEP	2	-	3	-	1	3
Bhg. Kewan- gan	2	2	7	3	-	3
Bhg. Harta Benda	1	-	1	1	4	1
Unit Komputer	1	-	1	1	-	-
Pusat Kesihatan	-	-	-	-	2	1
Jumlah	10	3	16	6	31	30
<b>J U M L A H BESAR</b>						96

### Perlantikan Baru

Seramai 1 Penolong Pendaftar, 1 Juruteknik, 3 Kerani Tetap, 2 Kerani Sambilan, 5 Pegawai Keselamatan Tetap, 6 Pegawai Keselamatan Sambilan, 1 Pencuci Sambilan telah dilantik.

### Perletakan Jawatan

Seorang Penolong Pegawai Kemajuan Sukan, 1 Pembantu Makmal, 1 Kerani tetap, 2 Kerani Sambilan, 1 Jurutaip Sambilan, 1 Pegawai Keselamatan Sambilan, 1 Pencuci Sambilan telah meletak jawatan.

### SEMINAR/BENGGKEL/KURSUS

1. Kursus Tatacara Pengendalian Mesyuarat dan Penulisan Minit diadakan pada 5hb hingga 6 hb November 1990.

2. Kursus Perhubungan Awam dan Pembentukan Imej diadakan pada 5hb Mac 1991.

3. Bengkel Pengendalian Telefon Dan Perkhidmatan Kaunter diadakan pada 16hb Mei 1991.

### UPM KAMPUS BINTULU PUSAT PENGAJIAN SAINS GUNAAN KAKITANGAN

#### Jumlah Kakitangan

PROGRAM	KATEGORI			
	A	B	C	D
Pej. Dekan	1	-	-	2
Perhutanan	10	1	6	7
Pertanian	18	-	10	8

JUMLAH	29	1	16	17
JUMLAH BESAR				63

### Perlantikan Baru

Seramai seorang kerani dan seorang jurutaip telah dilantik.

### Perletakan Jawatan

Seorang kerani dan pembantu am telah meletak jawatan.

### cuti Belajar

Seramai tiga (3) orang pensyarah dan empat (4) orang tutor sedang mengikuti kursus di dalam dan luar negeri. (Ph.D. = 5 & Master = 2).

### PENYELIDIKAN

1. Abas bin Said, Othman bin Bojo, Mohd. Zaki bin Hamzah, Ismail Adnan bin Abdul Malek, Siti Rubiah bte. Zainudin: Pemilihan Ekosistem Hutan Hujan Tropika di Sarawak. (Penyelidikan bersama UPM dan Yokohama National University).
2. Ahmad bin Katang, Hamdan Jol: Kajian atas kecekapan pengambilan P oleh *Piper nigrum* melalui akar maikoriza.
3. Andrew Alek Tuen: Evaluation of Sago Waste As Animal Feed.
4. Arumugam, P.T. & S.H. Cheah: Kajian tabiat makanan dan ekologi fri. Projek MPKSN.
5. Adzemi bin Mat Arshad: Kesan Pengapuran ke atas Pengeluaran Hasil Lada di Tanah Ultisol di Sarawak.
6. Dr. Isa bin Ipor: Kajian Fotosintesis Lada (*Piper nigrum* L.).
7. Dr. Isa bin Ipor, Dr. Cheksum Tawan: Pengurusan rumpai dengan tanaman penutup bumi di Ladang Lada di Sarawak.
8. Dr. Taksum Tawan, Othman Bojo, Dr. Isa Ipor: "A revision of the Genus *Piper* in Borneo".
9. Dr. Isa bin Ipor: Ciri-ciri Anatomi dan Morfologi Rizom Lalang pada siri tanah yang berlainan di Sarawak.
10. Dr. Chaksum @ Supiah bt Tawan, Dr. Isa Ipor: Translocation of Imazapyr & Glyphosate in Two Varieties of *Impatiens cylindrica*.

11. Ismail Adnan bin Abdul Malek: Kajian terhadap dan Produktiviti Merakit Balak di Sarawak.
12. Ismail Adnan bin Abdul Malek: 'Log Skidding In The Swamp Forest using Winch-Mounted Sled'.
13. Joseph Bong Choon Fah: Microorganisms Associated with The Cocoa Pod Borer, *Conopomorpha cramerella* (Snellen).
14. Jugah bin Kadir: Kajian Awal Status Penyakit Mati - Rosot terhadap *Acacia mangium* Wild di Sarawak.
15. Jugah bin Kadir: Studies on *Phytophthora* Foot Rot of Pepper in Sarawak.
16. Hamdan Jol, Adzemi bin Mat Arshad: Kajian Pedologi Tanah-tanah yang ditanam dengan lada (*Piper nigrum* L.) di Sarawak.
17. Mohd. Zaki bin Hamzah, Ismail Adnan bin Abdul Malek, Othman bin Bojo: Kajian jarak penanaman (intensiti cahaya) ke atas pertumbuhan dan hasil koko di bawah naungan *Acacia mangium* dan *Gmelina arborea*.
18. Othman bin Bojo: Kajian sistematik ke atas genus *Baucaurea* Lour. (*Euphorbiaceae*) di Sarawak dan Sabah.
19. Dr. Sjahril Jazan bin Sjahab, Adzemi bin Mat Arshad, Hamdan Jol: Kesan Pengapuran dan Forforus ke atas Sifat Kimia Tanah dan Pertumbuhan Jagung.
20. Saisoon Jabu, Mohamad Razali bin Abdul Kadir: Nibong (*Oncosperma tigillarum*) As A Construction Material For Park Shelter in Landscape Architecture.
21. Siti Hajijah binti Abdullah Sani: Kandungan Galian dan Logam Berat dalam Cendawan Tiram yang ditanam di atas beberapa jenis Substrat.
22. Siti Hajijah binti Abdullah Sani: Aetiology and Control of Soft Rot of French Beans (*Phaseolus vulgaris* L.).
23. Dr. Kasing Apun, Siti Hajijah binti Abdullah Sani: Kajian Taburan Mikroorganisma pada Lada semasa pemprosesan.
24. Siti Rubiah bte Zainudin, Dayang Awa bte Abang Lingku: Studies on Germination and Seedling Growth of *Eusideroxylon Zwageri* T & B, dan *E. Melangangai* Sym.
25. Siti Rubiah bte Zainudin, Jugah bin Kadir: Reperation Pattern of Some Dipterocarp Species with Gap Openings.

26. Dr. Sulaiman bin Hanapi, Maria Alimi Othman: "Spider Communities on Pepper (*Piper nigrum* L.) Vines".

27. Dr. Sulaiman bin Hanapi: Reaction of host, *Plutella xylostella*, to multiple oviposition by *Apanteles plutellae* and its implication on the ikatters survival.

28. Tonga Noweg, Ismail Adnan bin Abdul Malek dan Mohd. Zaki bin Hamzah: Kajian Kos Pengangkutan Balak di Sarawak.

29. Zamaliah binti Mohd. Marjan: Penilaian Taraf Permakanan dan Kesihatan Kanak-kanak Peringkat Umur 0-4 tahun dibiayai oleh R & D MPKSN.

### PENERBITAN

1. Andrew Alek Tuen: "Digestion of *Asystasia intrusa* by sheep". 1990. *Jurnal Veterinar Malaysia*. (In press).

2. Andrew Alek Tuen: Utilisation of rice straw by goats. "Improving Sheep and Goat Productivity with the Aid of Nuclear Techniques". 1990. LAEA Publications - In press.

3. Arumugam, P.T. 1990. A continuous-flow chamber to study prey preferences of golden perch (*Macouaria ambigua* RICHARDSON) larvae. *Hydro-biologia* 190(3).

4. Hanapi, S.B. & R.R. Askew: The Biology of *Pontanea collactanea*. 1990 *Entomologist Monthly Magazine*, (In press).

5. Ismail Adnan bin Abdul Malek: Log Skidding In The Peat Swamp Forest Using Winch Mounted Sled: Paper accepted for Symposium of Forest Harvesting in South East Asia, 17-22 June 1991, Singapore.

6. Ismail Adnan bin Abdul Malek: Pre-Investment Planning in Small Scale Logging. Occasional Paper (In press).

7. Othman bin Bojo, Mohd. Zaki bin Hamzah dan Abas bin Said: Rehabilitation of Tropical Rainforests Ecosystem in Sarawak. Paper presented at V INTECOL Congress, 23-30 August 1990, Yokohama, Japan.

### UPM KAMPUS BINTULU PUSAT PENGAJIAN SAINS SOSIAL DAN PENGURUSAN

#### DEKAN

Rahim bin Abdullah

### KAKITANGAN

#### Jumlah Kakitangan

Kategori/ Bahagian/Unit	A	B	C	D
Pejabat Dekan	1	-	1	4
Pengurusan Perniagaan	7	-	-	-
Sosiologi	2	-	-	-
Bahasa	7	-	-	2
Pengembangan	6	2	-	-
Jumlah	23	2	1	6
Jumlah Besar				32

#### Perlantikan baru

Seramai 1 orang Pensyarah, 2 orang Tutor, 2 orang Guru Bahasa, dan 1 orang Guru Bahasa daripada Kampus Serdang telah melaporkan diri.

#### Perletakan Jawatan

Seorang Juruteknik telah meletakkan jawatan.

#### Cuti Belajar

Seramai 4 orang Pensyarah, dan 3 orang Tutor sedang mengikuti kursus di dalam dan luar negeri (Ph.D. 5, Master 2).

### PENYELIDIKAN

1. Shazali Abu Mansor, Rosli Salleh, Mohd. Mansor Ismail: "Marketing System of Honey in Malaysia - A Study of the Marketing Channel in Sarawak".

2. Rahim Abdullah, Mohd. Mansor Ismail, Shazali Abu Mansor: "Economic Potential of Beekeeping in Sarawak".

3. Aishah Edris: "Farmers Participation in Area Farmets' Organisation (AFOS) In Sarawak".

4. Aishah Edris, Esmawi Othman, Bibi Aminah Abd. Ghani: "The Influences of Sociocultural Factors and other Languages on the Melanau Bintulu Dialect".

5. Eileen Yen: "Towards a Lexicon of Malaysian English".

6. Abd. Rashid bin Abdullah, Shazali Abu Mansor, Aishah Edris, Bibi Aminah Abd. Ghani, Douglas Alau Tayan, Esmawi Othman, Jegak Uli: "Kajian Etnik di Sarawak".

## PENERBITAN

1. Abd. Rashid bin Abdullah. 1990. "The Responses of Two Bidayuh Communities to an insitu Land Development Programme" in King & Darnwall (Ed.) Margins and Minorities: The Peripheral Areas and Peoples of Malaysia, Hull University Press.
2. Jegak Uli. 1991. "Adoption of Vegetable Market Gardening as Cash Raising Activity Among the Bidayuh Farmers in Siburan, The Sarawak Museum Journal.
3. Eileen Yen. 1990. "Malaysian English and its Pedagogical Implications", Proceedings of the Fourth National Seminar on TESL, Kuala Lumpur.
4. Jegak Uli & Douglas Alau Tayan. 1991. "Menulis Rancangan Pelajaran untuk Pertunjukan Kaedah". Majalah Pengembangan. Jilid 13. Bil. 1.
5. Muzafar Shah Habibullah & Mohd. Mansor Ismail. 1991. "Beekeeping Activity: Prospect for Increasing Farmers Income in Rural Areas of Malaysia". Journal of Rural Development. Vol. 10(1) Jan, 1991, National Institute of Rural Development.
6. Abd. Rashid Abdullah. 1991. "Center Periphery Relations: Its Implications on Smallholder Farmers in Sarawak", Sarawak Gezette.
7. Mohd. Zabid Abd. Rashid, Juradah Abu Bakar, Rahim Abdullah. 1990. "Job satisfaction and Motivation Among Bank Officers", Banker's Journal. Number 61.
8. Rahim Abdullah. 1991. "Perwakilan Kuasa Pada Organisasi yang membesar". Usahawan Malaysia Bil. 53.
9. Rahim bin Abdullah. 1991. "Kepentingan Pengurusan Sumber Manusia", Usahawan Malaysia. Bil. 55, 56.
10. Dr. Esmawi bin Othman. 1990. "Perhubungan Kaum di Sarawak" kertas seminar Institut Kajian Dasar.

## UPM KAMPUS BINTULU (PUSAT PENGAJIAN SAINS ASASI)

### DEKAN

Dr. Ramli bin Ibrahim

### KAKITANGAN

## Jumlah Kakitangan

Kategori/ Jabatan	A	B	C	D
Pusat Pengajian Sains Asasi	16	-	7	10
Jumlah				13

### Perlantikan Baru

Seorang Pensyarah dan dua (2) orang Pembantu Makmal (Sambilan).

### Perletakan Jawatan

Seorang Tutor dan dua (2) orang Pembantu Makmal.

### Cuti Belajar

Tiga (3) orang Pensyarah dan seorang Tutor sedang mengikuti kursus Ph.D di luar negeri.

## PENYELIDIKAN

1. Awangku Abdul Rahman bin Pengiran Haji Yusof: Penggunaan Laser Mengesan Kecacatan Di Dalam Sesuatu Sampel.
2. Awangku Abdul Rahman bin Pengiran Haji Yusof: Air Pollution Control Equipment-Gravity Setting Chamber.
3. Azmi bin Jaafar: Pengesanan Pencemaran Udara di Bintulu.
4. Dr. Cheksum bt. Tawan: Pencemaran Plumbum dari Eksos Kenderaan di Bintulu.
5. Dr. Cheksum bt. Tawan: Morfologi dan anatomi Rizom Imperata cyclindrica pada jenis Tanah yang berbeza.
6. Dr. Cheksum bt. Tawan: 7. Kajian terhadap biji dan anak benih bagi Gonystylus spp. dan genera yang berkaitan.  
Dr. Cheksum bt. Tawan: Kajian taksonomi bagi genus Piper di Borneo.
7. Dayang Maryani bt. Awang Hashim: Pengesanan Pencemaran Udara di Bintulu.
9. Farida bt. Abdul Halim: Pengesanan Pencemaran Udara di Bintulu.
10. Gwendoline Ee Cheng Lian: Kualiti Air Sungai-sungai di Bahagian Bintulu.
11. Dr. Hishamuddin bin Zainuddin: Pengesanan Pencemaran Udara di Bintulu.
12. Dr. Kasing ak. Apun: Taburan Mikroorganisma Pada Lada Semasa Pemprosesan (Penyelidikan Teras Lada).
13. Dr. Kasing ak. Apun: Kajian Penguraian Selulose Tempatan.

14. Dr. Kasing ak. Apun: Kualiti Air Sungai-sungai di Bahagian Bintulu.
15. Dr. Kasing ak. Apun: Pembaikpulih sisa-sisa dari kilang kayu.
16. Dr. Lau Seng: Kajian Penguraian Selulosa Tempatan.
17. Dr. Lau Seng: Lignin - Pencirian Lignin Kayu Tropika dan Rotan.
18. Dr. Lau Seng: Pembaikpulih Sisa-sisa dari kilang kayu.
19. Dr. Lau Seng: Pengesanan Pencemaran Udara di Bintulu.
20. Dr. Ramli bin Ibrahim: Lignin- Pencirian Lignin Kayu Tropika dan Rotan.
21. Dr. Ramli bin Ibrahim: Pembaikpulih sisa-sisa dari kilang kayu.
22. Dr. Ramli bin Ibrahim: Profail hidrokarbon alifatik dan aromatik dalam sampel Bahanapi dan Sekitaran.
23. Rozita bt. Johari: Concurrent Programming- Differences Between Concurrent C and Concurrency In ADA (Focusing On A Different Aspect of Task Interaction).
24. Rozita bt. Johari: Pengesanan Pencemaran Udara di Bintulu.
25. Dr. Zani bin Assim: Profail hidrokarbon alifatik dan aromatik dalam sampel Bahanapi dan Sekitaran.
26. Dr. Zani bin Assim: Penentuan secara kualitatif dan kuantitatif pencemar organik dalam sampel Enapan.
27. Dr. Zani bin Assim: Chemical Composition of epicuticular wax of Paspalum conjugatum.
28. Dr. Zani bin Assim: Pencemaran Plumbum dari Eksos Kenderaan di Bintulu.

**UPM KAMPUS BINTULU  
(BAHAGIAN LADANG)**

**PENYELARAS**

Encik Ahmad bin Katang

**PENDAHULUAN**

Bahagian Ladang, Universiti Pertanian Malaysia Kampus Bintulu memainkan peranan yang aktif bagi tahun akademik 1990 - 1991 berkaitan dengan pelaksanaan pembangunan Ladang dan pelaksanaan aktiviti-aktiviti akademik.

Secara amnya, unit-unit tanaman dan ternakan berikut telah dan sedang dibangunkan:

KAWASAN UNIT	LUAS KAWASAN Hek.
Akuakultur	104
Buah-buahan	-
Cendawan	48
Getah	130
Hortikultur & Landskap	2
Kelapa	106
Kelapa Sawit	10
Ladangkongsi	2
Sayur-sayuran	8
Tanaman <sup>inuman</sup>	15
Tanaman Musiman	15
Tanaman Rempahan	2
Ternakan Bukan Ruminan	100
Ternakan Ruminan & Pastura	6
Ulat Sutera & Lebah Madu	650
Infrastruktur Ladang & Lain-lain Kawasan	

Dalam bidang akademik pula, kursus-kursus yang berikut telah ditawarkan dengan jayanya.

Kod	Nama Kursus	Jumlah Kredit
LLK 201	Ladangkongsi 1	2
LLK 202	Ladangkongsi 2	2
LKL 211	Berkebun Sayur	1
LKL 212	Penanaman Buah-buahan	1
LKL 213	Tanaman Hiasan & Landskap	1
LKL 221	Tanaman Estet	1
LKL 222	Tanaman Ladang	1
LKL 231	Pengurusan Perosak	1
LKL 241	Tanaman Ruminan	1
LKL 242	Ternakan Bukan Ruminan	1
LKL 251	Mekanisasi Ladang	1
LKL252	Bengkel Kerjaladang	1

**KAKITANGAN**

**Jumlah Kakitangan**

KATEGORI A	3
KATEGORI B	7
KATEGORI C	13
KATEGORI D	66

JUMLAH	89
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#### Perlantikan Baru

Empat orang Pekerja Am (Sambilan) telah dilantik.

#### Perletakan Jawatan

Dua orang Pekerja Am (Sambilan) telah meletakkan jawatan.

#### PENYELIDIKAN

1. Ahmad bin Katang: Kesan terhadap komponen hasil dan hasil lada sula yang ditanam bersama *D. trifolium*.

#### UPM KAMPUS BINTULU

##### (PERPUSTAKAAN)

#### KAKITANGAN

#### Jumlah Kakitangan

Bahagian/Unit	
KATEGORI A	3
KATEGORI B	-
KATEGORI C	4
KATEGORI D	17
JUMLAH	24

#### Perlantikan Baru

Seramai 6 orang Pembantu Perpustakaan dan 5 orang Pembantu Am Rendah telah dilantik.

#### Perletakan Jawatan

Seorang Pembantu Perpustakaan dan 3 orang Pembantu Am Rendah telah meletak jawatan.

#### Keahlian

Di akhir tahun akademik 1990/91 ahli berdaftar adalah seperti berikut:

Kumpulan	Bil. 1989/90	Bil. 1990/91
Pegawai	109	92
Pegawai Am	128	115
Ahli Luar	14	16
Penuntut	679	931
Jumlah	930	1,154

Perkembangan Penggunaan Koleksi Perpustakaan.

#### Pinjaman dan Pemulangan

Di bawah diperturunkan butir-butir lanjut mengenai pinjaman dan pemulangan bahan-bahan Perpustakaan.

	1989/90	1990/91
Pijaman buku dan jurnal berjilid	13,745	18,833
Pinjaman buku berbintik merah	3,689	5,664
Pijaman Risalah	427	635
Pinjaman Ahli Luar	50	83
Pinjaman Bahan pandang dengar	70	90
Pemulangan buku dan jurnal berjilid	13,486	18,479
Bilangan buku-buku dipanggil semula	124	95
Tempahan	303	558

#### Pinjaman Antara Perpustakaan

Kedudukan Pinjaman Antara Perpustakaan secara perbandingan adalah seperti berikut:

	1989/90	1990/91
Permohonan dari dalam	255	431
dipenuhi	138	127
Kadar kejayaan	54.12%	29.46%
Permohonan dari luar	11	13
dipenuhi	10	13
Kadar kejayaan	90.9%	100%

Kemajuan Koleksi Perpustakaan Cawangan Sarawak.

Koleksi	Pada Akhir 1989/90	Pada Akhir 1990/91	Tambahan Bahan Dlm. 1990/91
Buku (Naskhah)	50,678	54,543	3,865
Jurnal Berjilid	2,107	2,107	-
Abstrak & Indeks Berjilid	457	610	153
Jumlah	53,242	57,260	4,018
Terbitan Bersiri (Judul)			
Langganan	343	370	27
Hadiah	325	362	37
Jumlah	668	732	64

B a h a n Pandang Dengar (Unit)			
Filem	51	51	-
Filem Gelung	7	7	-
F i l e m Relung	13	13	-
Filem Slaid	95	95	503
Mikrofis	547	1050	
Mikro- filem	51	75	24
Carta	18	18	22
Pet Topo- grafi	221	243	-
Kit	37	37	-
Kaset	137	137	-
Pita Audio	80	80	-
Pita Video	203	213	10
Jumlaj	1,460	2,019	559

Penggunaan Perkhidmatan Perpustakaan

# PUSAT PENGEMBANGAN DAN PENDIDIKAN LANJUTAN

## DEKAN

Prof. Dr. Alang Perang Abd Rahman bin Hj. Zainuddin.

## KAKITANGAN

### Jumlah Kakitangan

Jabatan	Kategori A	Kategori B	Kategori C	Kategori D
Pejabat Am Pengarah	4	-	4	8
Jabatan Pendidikan Pengembangan	19	-	1	-
Jabatan Komunikasi Pembangunan	16	1	10	7
Unit Pendidikan Lanjutan	1	1	2	20
Unit Perkhidmatan Pengembangan	2	12	-	1
Jumlah	42	14	17	36
Jumlah Besar				109

### Perlantikan Baru

Seorang Pensyarah dan seorang Pembantu Am Rendah telah dilantik.

### Cuti Belajar

Tujuh orang pensyarah telah mengikuti kursus Ph.D di dalam dan di luar negeri.

### Cuti Sabatikal

Seramai tiga orang pensyarah telah mengambil cuti sabatikal pada sesi akademik 1990/91.

### Bertugas Semula

Prof. Dr. Alang Perang Abdul Rahman bin Hj. Zainuddin yang dipinjamkan ke FAO telah kembali bertugas dan dilantik menjadi Pengarah menggantikan Prof. Madya Dr. Rahim Md. Sail.

### PERKARA AKADEMIK

Seramai 93 orang pelajar Ijazah Lanjutan telah mendaftar di PPPL iaitu 65 di peringkat Master dan 23 orang di peringkat Ph.D.

### Pemeriksa Luar

1. Profesor John M. Peters dari The University of Tennessee Knoxville.
2. Profesor G.L. Carter J.R. dari College of Education and Psychology, North Carolina State University.
3. Profesor Edgar J. Boone dari North Carolina State University

### PENYELIDIKAN

1. Prof. Dr. Sulaiman Hj. Mohd Yassin: Mengukur Kecemerlangan Akademik.
2. Dr. Ng Choon Sim; Kesan Pembangunan Teknologi Ke atas Status Wanita dalam Sektor Bandar.
3. Saodah Wok: Information Sharing Among Research and Development Agencies with the Oil Palm Industry - Communication Network Analysis.
4. Dr. Abu Daud Silong: Perancangan Pembangunan Sumber Manusia dalam Pembangunan Negara.
5. Prof. Madya Dr. Hj. Saidin Teh: The Dynamics Technology Transfer in Rubber Smallholding Sector.
6. Prof. Madya Dr. Rahim Md. Sail: Accurate and Timely Information for Technology Generation and Development: The Care of Rubber Smallholdings in Peninsular Malaysia.
7. Abdul Mua'ti @ Zamri Hj. Ahmad: Kaedah Mengawal Kegugupan dalam Ucapan-ucapan Pembangunan oleh Pegawai-pegawai Pengembangan RISDA dan LPP.
8. Shamsuddin Ahmad: Tanggapan Pemimpin Terhadap Masalah Pembangunan Sumber Masyarakat.
9. Dr. Abu Daud Silong: Penawaran dan Permintaan Ke atas Gunatenaga Mahir dan Profesional dalam Industri Terpilih.

## SEMINAR/KURSUS/BENGGKEL YANG DIANJUR

1. Sebelas siri kursus Kepimpinan dalam Pembangunan Masyarakat untuk JPUP KADA daripada Februari hingga Disember 1990.
2. Kursus Teknik Pengeluaran Video untuk Institut Kesihatan Umum Kuala Lumpur diadakan pada 12-24 November 1990.
3. Kursus Pengurusan Institusi-Institusi Latihan diadakan pada 12-17 November 1990.
4. Kursus Kaedah Latihan untuk Tenaga Pengajar RISDA diadakan pada 17-21 Disember 1990.

5. Kursus Penulisan Kertas Cadangan dan Laporan diadakan pada 4-6 Februari 1990.
6. Kursus Latihan Jurulatih, Jabatan Kebajikan Masyarakat pada 9-10 Mei 1991.
7. Kursus 'Prestressed Concrete' yang dianjurkan oleh Pusat Kemahiran pada 14-16 Mei 1991.

Di samping itu pensyarah-pensyarah Pusat banyak terlibat memberi syarahan-syarahan dalam kursus-kursus yang dianjurkan oleh agensi-agensi pembangunan kerajaan seperti RISDA, FELDA dan Institut Umum.

## BAHAGIAN IADANG

### PENGARAH

Prof. Madya Dr. Sheikh Awadz Sheikh Abdul-lah.

### KAKITANGAN

#### Jumlah Kakitangan

PEJABAT/ CAWANGAN	KATEGORI			
	A	B	C	D
Pejabat Pengarah	12	1	20	21
Cawangan Tanaman Hortikultur	3	4	15	108
Cawangan Tanaman Perladangan	4	5	13	24
Cawangan Pengurusan Perosak	1	1	1	1
Cawangan Ternakan	2	4	15	95
Cawangan Kejenteraan	4	3	24	105
Jumlah	26	18	88	354
Jumlah Besar				486

#### Perlantikan Baru

Seramai 4 orang Penolong Pegawai Pertanian dan seorang Pembantu Teknik telah dilantik.

#### Perletakan Jawatan

Seorang Pensyarah telah meletakkan jawatan. cuti Belajar

Seorang Pensyarah sedang mengikuti kursus di luar negeri.

#### Kenaikan Pangkat

Seorang Penolong Pegawai Pertanian dinaikkan pangkat ke jawatan Penolong Pegawai Pertanian Tingkatan Kanan.

Seorang Juruteknik Pertanian tingkatan Kanan dinaikkan pangkat ke jawatan Juruteknik Pertanian Tingkatan Tertinggi.

3 orang lagi telahpun dinaikkan pangkat ke jawatan Juruteknik Tingkatan Kanan.

#### Kenaikan Pangkat Secara Lantikan

Seramai 12 orang Juruteknik Rendah telah dinaikkan pangkat ke jawatan Juruteknik.

#### Persaraan

Seramai 8 orang telah bersara dari Bahagian Ladang iaitu; 2 jawatan Juruteknik Pertanian

Rendah, 3 jawatan Juruteknik Rendah, seorang Pekerja Am, seorang Pemandu dan seorang Juruteknik Pertanian.

### LAPORAN KHIDMAT PENGEMBANGAN BAHAGIAN LADANG 1990-91.

#### (a) Kursus Dalam Perkhidmatan

1. Bengkel Asas Hortikultur Landskap Ke 6 diadakan pada 28 Mei - 31 Mei 1990 di UPM. Peserta: Kakitangan Lembaga Tembakau Negara Malaysia - 22 orang.

2. Bengkel Pengurusan Padang Permainan diadakan pada 26-30 Nov. '90 di UP. Peserta: Kakitangan semua Universiti di Malaysia - 15 orang (dianjurkan bersama Unit Sukan UPM dan Syarikat Harison & Crossfield).

3. Asas Rekabentuk Landskap diadakan pada 15.2.90 di Bandar Melaka. Peserta: Kumpulan C & D Jab. Perancangan Bandar & Desa Negeri Melaka. (dianjurkan bersama Jab. Perancang Bandar & Desa Semanjung).

4. Bengkel Hortikultur Landskap diadakan pada Mei '90 di Tangkak Johor. Peserta: Kakitangan LPP Johor Utara. (dianjurkan bersama LPP Johor).

5. Kursus Landskap diadakan pada 26-30 Mei 1990 di Teluk Chengai Kedah. Peserta: Pusat Latihan Pengembangan Pertanian (PLPP) Jabatan Pertanian. (dianjurkan bersama Jabatan Pertanian Kedah).

6. Bengkel Asas Hortikultur Landskap diadakan pada 6-11 Mei 1991 di UPM. Peserta: Kakitangan FAMA, Jabatan Pertanian, KETENGAH, UPM, PKNS..

7. Bengkel Lanjutan Hortikultur Landskap diadakan pada 13-25 Mei 1991 di UPM. Peserta: Kakitangan UIA, PKNS, ITM, Majlis Perbandaran, Jabatan Pertanian, FELCRA, UPM, Dewan Bandaraya, MARDI, FRIM & Swasta.

#### (b) Seminar yang dianjurkan

1. Pengumpulan, Pemulihan Genetik Buah-buahan diadakan pada 8.9.90 di bilik Seminar Ladang. Peserta: Pegawai Ladang & Terbuka.



## PERPUSTAKAAN

### KETUA PUSTAKAWAN

Syed Salim Agha.

### PENDAHULUAN

Usaha ke arah mewujudkan sistem Perpustakaan berkomputer diteruskan dengan pemerolehan Sub-sistem Perolehan dan Perakaunan. Sub-sistem ini mula digunakan selari dengan sistem perolehan secara manual selama 3 bulan, iaitu Oktober-Disember 1990. Sistem perolehan berkomputer dilaksanakan sepenuhnya bagi pemerolehan buku mulai Januari 1991, sementara bagi pemerolehan terbitan bersiri ditangguhkan dahulu oleh kerana beberapa butiran yang perlu untuk proses tuntutan bahan belum selesai dimasukkan ke dalam sistem.

Perpustakaan telah mengadakan satu lagi perkhidmatan baru bagi pengguna dengan melancarkan perkhidmatan mikrokomputer mulai Februari 1991. Sejumlah 30 unit mikrokomputer ICL telah dihadiahkan oleh Pusat Komputer kepada Perpustakaan. Penggunaan mikrokomputer tersebut adalah terhad kepada penggunaan pemprosesan perkataan. Di samping itu Perpustakaan juga telah menawarkan perkhidmatan mel elektronik (electronic mail) melalui CGNET. Dengan adanya perkhidmatan ini pengguna boleh membuat perhubungan cepat dengan penyelidik, pemeriksa dan pertubuhan luar negara. Ia juga boleh digunakan untuk bertukar pendapat dengan penyelidik-penyelidik di merata dunia.

### KAKITANGAN

Sehingga 31 Mei 1991, jumlah kakitangan Perpustakaan ialah:

A	B	C	D	JUMLAH
36	-	33	77	146

### Perlantikan Baru

Pembantu Perpustakaan seramai 3 orang; Pembantu Perpustakaan Sambilan seramai seorang dan Pekerja Am Sambilan ialah 2 orang.

### Perletakan Jawatan

Seramai tiga orang pegawai meletak jawatan.

### Cuti Sabatikal

Tuan Syed Salim Agha bercuti sabatikal di IDRC, Kanada dari 15 April 1990 hingga 15 Oktober 1990.

### Pemangku

Encik Ibrahim Kassim memangku jawatan Ketua Pustakawan sepanjang tempoh Tuan Syed Salim Agha bercuti sabatikal iaitu dari 15 April 1990 hingga 15 Oktober 1990.

### Ceramah/Kursus yang diadakan

1. Bengkel Alat Pandang-dengar untuk Pembantu Perpustakaan, 19hb Jun, 1990. Dikendalikan oleh encik Muzaffar Shah Kassim, Pustakawan, Unit Bahan Pandang-dengar.
2. Kursus Motivasi untuk kumpulan Penyemak, Penjilid dan Pembantu Perpustakaan, 20-21hb. Jun, 1990. Dikendalikan oleh Cik Halimatun Halaliah Mokhtar, Puan Halijah Mohd dan Encik Sidek Mohd Noah, Pensyarah-pensyarah dari Unit Bimbingan dan Kaunseling, Fakulti Pengajian Pendidikan.
3. Kursus Pengenalan Perpustakaan untuk para pegawai Badan-badan Berkanun Malaysia dalam kumpulan C & D, 25-28hb Jun, 1990. anjuran Persatuan Badan-badan Berkanun Malaysia dengan kerjasama Perpustakaan UPM. Dikendalikan oleh para Pustakawan Perpustakaan ini.
4. Kursus Pengenalan Menggunakan Perpustakaan untuk pelajar baru UPM, 2-23hb Julai, 1990.
5. Ceramah 'Leadership and Team Building' untuk pegawai ikhtisas Perpustakaan UPM, 20hb Oktober, 1990. Dikendalikan oleh Tuan Haji Yusof Ahmad, Timbalan Pendaftar, Pejabat Naib Canselor, UPM.
6. Seminar Pengurusan Masa untuk pegawai ikhtisas Perpustakaan UPM, 2hb Februari, 1991. Dikendalikan oleh Puan Nooryah Ghulam, Pustakawan, Bahagian Perolehan.
7. Seminar Teknik-teknik Membuat Keputusan Secara Kuantitatif untuk pegawai ikhtisas Perpustakaan UPM, 27hb April, 1991. Dikendalikan oleh Prof. Madya Dr. Zainal Abidin bin Mohamed, Timbalan Dekan, Fakulti Ekonomi dan Pengurusan.

8. Kursus Peningkatan Pusat Sumber untuk Penyelia dan Pemaju masyarakat KEMAS, 5-10hb Mei, 1991, anjuran Bahagian Kemajuan Masyarakat (KEMAS) dengan kerjasama Perpustakaan UPM.

9. Kursus Latihan AGRIS/CARIS Untuk Pustakawan Malaysia, 6-7hb. Mei 1991. Dikendalikan oleh Dr. Dorit Engl dari AGRIS Processing Unit, Vienna.

**Ceramah/kerjaya dibentangkan oleh pegawai**

1. Ceramah alat Pandang-dengar oleh encik Muzaffar Shah Kassim di Bengkel Alat Pandang-dengar untuk Pembantu Perpustakaan UPM pada 19hb Jun, Jun 1990.

2. Ceramah Perpustakaan dan pembelajaran oleh Puan Wan Faridah Wan Mansor di Bengkel fasilitator Minggu Orientasi, UPM 1990/91 pada 24 Jun, 1990.

3. Ceramah:
- i. Perolehan bahan-bahan perpustakaan.
  - ii. Pengkatalogan dan pengkelasan asas.
  - iii. Aplikasi komputer di Perpustakaan.
    - oleh Puan Kamariah Abdul Hamid.
  - iv. Sistem Pinjaman oleh Puan Rahmah Abdul Jalil.
  - v. Perkhidmatan Rujukan oleh encik Mohd. Ariff Ariffin.
  - vi. Pengenalan kepada alat pandang-dengar oleh encik Amir Hussain Md. Ishak.

di Kursus Pengenalan Perpustakaan anjuran Persatuan Badan-badan Berkanun Malaysia pada 25-28hb. Jun, 1990 di Serdang.

4. Ceramah Audio-Visual materials in libraries oleh Encik Amir Hussain Md. Ishak di Kursus Basic Course for Library Assistants anjuran Perpustakaan Negara Malaysia pada 6hb. Ogos, 1990 di Serdang.

5. Ceramah Teknik Membuat Rujukan di Perpustakaan oleh Puan Kamsiah Mohd. Ali di Bengkel Teknik Belajar anjuran Bahagian hal Ehwal Pelajar pada 8hb Disember, 1990.

6. Ceramah Pengurusan Masa oleh Puan Nooryah Ghulam di Seminar Pengurusan Masa untuk pegawai iktisas Perpustakaan UPM pada 2hb. Februari, 1991.

7. Ceramah Mewujudkan Budaya Membaca dan Budaya Perpustakaan oleh Encik Ibrahim Kassim di Sekolah Menengah Convent Sentul pada 27hb. Mac, 1991.

8. Ceramah Mengguna Perpustakaan dengan berkesan oleh Puan Kamsiah Mohd. Ali dan Puan Nor Zaidah Mohd. Hashim di Kursus Perpustakaan untuk pelajar program Bachelo Sains Pembangunan Manusia pada 7-8hb Mei, 1991.

9. Ceramah Pembentukan Bahan Alat Pandang-dengar dan Bengkel Pengendalian Bahan APD oleh Encik Amir Hussain Md. Ishak di Kursus Peningkatan Pusat Sumber anjuran Bahagian Kemajuan Masyarakat pada 7hb. Mei, 1991.

**KEMAJUAN KOLEKSI**

Bagi koleksi monograf, jumlah judul dan naskhah yang dipesan dalam tempoh Jun 90 hingga Mei 91 adalah seperti berikut:

	Judul	Naskhah
Buku Serdang	8560	9650
Buku Terengganu	86	101
Bacaan Kanak-kanak (BK)	110	110
Bacaan Ringan (BR)	30	33
	8806	9894

Sementara itu judul dan naskhah yang telah diterima adalah seperti berikut:

	Judul	Naskhah
Buku Serdang	6818	7577
Buku Terengganu	25	37
Bacaan Kanak-kanak (BK)	179	182
Bacaan Ringan (BR)	309	315
Jumlah	6831	8111

Bagi koleksi bahan pandang dengar, Bahagian Perolehan telah menerima bahan-bahan beri:

	Pesanan	Hadiah
Video	32	-
Slide	80	-
Mikrofis	1525	21
Kaset	28	-
Tape	-	-
Peta	488	-
Poster	-	-
Kad	-	-

Bagi Koleksi bahan terbitan bersiri pula, Bahagian Perolehan telah melanggan sebanyak 14 judul baru sementara 22 judul telah dibatalkan. Sehingga bulan Mei 1990, jumlah judul yang dilanggan adalah seperti berikut:

Langganan	Serdang & Terengganu
Lama	2219
Baru	+ 14
Batal	-22
Jumlah	2211

Jumlah naskhah jurnal yang diterima sebanyak 16,325 naskhah.

Di samping itu jumlah buku dan jurnal yang diterima sebagai hadiah adalah seperti berikut:

	Jumlah Judul	Jumlah Naskhah
Buku	1716	2055
	Jumlah Judul Baru	Jumlah Naskhah
Jurnal	10	4991

KOLEKSI SERDANG	HINGGA APRIL 1991
Buku (naskhah)	
Buku Am	204405
Junal Berjilid	44273
Koleksi Bibliografi	7877
Koleksi Rujukan	14963

Koleksi Malaysiana (KM)	
- Buku	3665
- Jurnal	
- Judul	570
- Berjilid	1985
- Belum Berjilid	2046
Jumlah Besar	279784
Terbitan Bersifi (Jurnal)	
Dilanggan	2378
Hadiah	3721
Jumlah	6099
Koleksi Buku Berbintik Merah (KBBM)	15613 ?
Termasuk buku, tesis, Laporan projek, Laporan ladangkongsi, artikel, kertas peperiksaan dan jurnal	
Koleksi Buku Berbintik Kuning (KBBK)	1115

Bahan Padang Dengar (Unit)		
Carta	102	239
Lutsinar	80	1372
Kad	9	300
Gambarfoto Udara	75	744
Peta Laut	88	100
Kit	162	224
Jumlah	27482	56628

**PENGUNAAN PERKHIDMATAN PER-  
PUSTAKAAN**

Keanggotaan

Kumpulan	Dari Jun 90- April 91
Pegawai Akademik UPM (A)	775
Pegawai Akademik UPM (T)	78
Pegawai Am UPM	606
Anggota Luar (Badan Kerajaan/Berkanun)	278
Anggota Luar (Swasta/Perseorangan)	118
Siswazah Lanjutan	393
Pelajar Tanpa Ijazah	18
Penuntut	7056
Pegawai Sementara	267
Anggota Rujukan	227
<b>Jumlah</b>	<b>9816</b>

\* data telah diselaraskan dengan data tahun 1989/1990.

Pinjaman dan Pemulangan

	Dari Jun 90- April 91
Pinjaman buku dan jurnal berjilid	13150
Pemulangan buku dan jurnal berjilid	27644
Tempahan bukudan jurnal berjilid	3668
Panggilan semula buku dan jurnal berjilid	4054
Pinjaman jurnal belum belum (kk)	13504
Pinjaman buku berbintik merah (KBBM)	51590
Pinjaman bahan pandang dengar (BPD)	4907
Pinjaman alat pandang dengar (BPD)	2143
	120660

Pinjaman Antara Perpustakaan

Kumpulan	Dari Jun 90- April 91
Permohonan dari dalam Dipenuhi Kadar Kejayaan	1700 1222 71.9%
Permohonan dari luar Dipenuhi Kadar Kejayaan	1836 951 51.8%

**CAWANGAN SARAWAK**

Kemajuan Koleksi Perpustakaan Cawangan Sarawak

Koleksi	Hing ga Akhir April 1990	Hing ga Akhir April 1990/91	Tambah - a n Bahan Dalam 1990/91
Buku (nashah)	50678	54543	3865
Jurnal Berjilid	2107	2107	-
Abstrak & Indeks Berjilid	457	610	153
<b>Jumlah</b>	<b>53242</b>	<b>57260</b>	<b>4018</b>
Terbitan Ber- siri (Judul)			
Langganan	343	370	27
Hadiah	325	362	37
<b>Jumlah</b>	<b>668</b>	<b>732</b>	<b>64</b>
Bahang Pan- dang Dengar (Unit)			
Filem	51	51	-
Filem Gelung	7	7	-
Filem Relung	13	13	-
Filem Slaid	95	95	-
Mikrofis	547	1050	503
Mikrofilem	51	75	24
Carta	18	18	-
Peta Topografi	221	243	22
Kit	37	37	-
Kaset	137	137	-
Pita Audio	80	80	-
Pita video	203	213	10
<b>Jumlah</b>	<b>1460</b>	<b>2019</b>	<b>559</b>

## Penggunaan Perkhidmatan Perpustakaan

### Keanggotaan

Kumpulan	Bilangan 1989/90	Bilangan 1990/91
Pegawai Akademik	109	109
Pegawai Am	128	128
Anggota Luar	14	13
Penuntut	679	946
Jumlah	930	1196

Di akhir tahun akademik 1990/91 anggota berdaftar adalah seperti berikut:

Perkembangan Penggunaan Koleksi Perpustakaan

### Pinjaman dan Pemulangan

Di bawah diperturunkan butir-butir lanjut mengenai pinjaman dan pemulangan bahan-bahan Perpustakaan.

	1989/90	1990/91
Pijaman buku dan jurnal berjilid	13,745	18,833
Pijaman buku berbintik merah	3,689	5,664
Pijaman Risalah	427	635
Pijaman Anggota Luar	50	83
Pijaman bahan padang dengar	70	90
Pemulangan buku dan jurnal berjilid	13,486	18,479
Bilangan buku-buku dipanggil semua	124	95
Bilangan Tempahan	303	558

### Pinjaman Antara Perpustakaan

Kedudukan Pinjaman Antara Perpustakaan secara perbandingan adalah seperti berikut:

	1989/90	1990/91
Permohonan dari dalam dipenuhi	255 138	431 127
kadar kejayaan	54.12%	29.46%
Permohonan dari luar dalam negeri dipenuhi	11 10	13 13
Kadar Kejayaan	90.9%	100%

## CAWANGAN TERENGGANU

Koleksi	Pada akhir Jun 90	Pada akhir April 91	Tambahan Bahan Jun 90-Apr 91
Buku(naskhah)			
Buku Am & Jurnal Berjilid	4232	4512	280
Bibliografi	41	53	12
Koleksi Rujukan	394	398	4
Jumlah	4667	4963	296
Bahan Pandang Dengan (Unit)			
Mikrofis	-	-	-
Carta	2	2	-
Kad	2	2	-
Filem	7	7	-
Filem Gelung	31	31	-
Peta	-	-	-
Mikrofilem	-	-	-
Gambar foto Udara	152	152	-
Jumlah	194	194	-

### Penggunaan Perkhidmatan Perpustakaan

#### Keanggotaan

Di akhir tahun akademik Jun 1990/91 ahli berdaftar adalah seperti berikut:-

Kumpulan	Bilangan Jun 90	Bilangan Mei 91
Pegawai Akademik UPM	23	23
Pegawai Am UPM	42	43
Siswazah Lanjutan	2	2
Penuntut	6	62
Jumlah	73	130

### Pameran Bahan-bahan Perpustakaan

1. Pameran sempena Persidangan Hortikultur Antarabangsa 1990 di PPL UPM pada 7-9 Ogos 1990.

2. Pameran sempena Simposium Bioteknologi di PPPL, UPM pada 31 Julai - 2 Ogos 1990.

3. Pameran "Alam Semulajadi" tajaan 'World Wildlife fund' di Perpustakaan, UPM pada 13-14 Ogos 1990.

4. Pameran sempena Seminar Pendidikan Jasmani dan Sains Sukan di PPPL, UPM pada 28-29 September 1990.

5. Pameran buku-buku mengenai 'The Edge of Technology' tajaan Lincoln Resource Center di Perpustakaan, UPM pada 6-25 Oktober 1990.

6. Pameran Fotografi Kelas PP206 di Perpustakaan, UPM pada 18-25 Oktober 1990.

7. Pameran buku-buku sempena Bengkel Kebangsaan UNESCO 'Promotion of Microbiology in Malaysia' di PPPL, UPM pada 28-29 Januari 1991.

#### **Pusat Kebangsaan Agris Malaysia**

Dalam tahun akademik 1990/91, 539 input disediakan untuk AGRINDEX dan 72 input disediakan untuk AGRIASIA. Semua input dihantar dalam bentuk cakera liut dengan menggunakan perisian Micro CDS/ISIS.

Dua keluaran Buletin Maklumat Pertanian Malaysia telah diterbitkan, dan diedarkan percuma kepada kurang-lebih 3000 pengguna.

#### **Percetakan**

Sebanyak 249 permohonan untuk mendapatkan perkhidmatan percetakan telah diterima pada tahun 1990/91. Sebanyak 1,045,854 muka surat telah dicetak. Kegiatan percetakan meliputi cetakan Borang, Jadual, Surat Standard, Pekeliling, Minit Mesyuarat, Senarai Perolehan, Buletin Maklumat Pertanian, Risalah, Panduan Perpustakaan dan sebagainya.

#### **Permikrofileman**

Sejumlah 472 keping mikrofilm dan 1386 salinan diazo telah dapat disiapkan dalam tempoh 1990/91. Permikrofileman Perpustakaan meliputi kerja-kerja membuat mikrofilm tesis dan laporan projek dan salinan Diazo untuk tesis, laporan projek UPM.

#### **Arkib**

Koleksi Arkib bertambah dengan penerimaan fail-fail pelajar dari Bahagian Kemasukan, fail-fail dari Jabatan Perpustakaan dan terbitan-

terbitan UPM dan sehingga kini sepanjang 424.2 meter rekod telah disimpan. Ini merupakan pertambahan sebanyak 14.2 meter dalam tahun 1990/91

#### **Penerbit UPM**

Dalam tempoh 1990/91 sebanyak 7 juful telah diterbitkan. Di samping menerbitkan buku teks Penerbit UPM menerbitkan juga 4 isu 'Berita Penyelidikan', 3 isu jurnal 'PERTANIKA' dan 2 isu surat berita 'OPTIONS'.

#### **PENERBITAN**

1. Buletin Maklumat Pertanian Malaysia. 3 kali setahun.

2. Buku Panduan Perpustakaan Universiti Pertanian Malaysia - Jun 1990.

3. Senarai Perolehan Perpustakaan Universiti Pertanian Malaysia. Jun-Dis 1990.

4. Senarai Penerbitan Pegawai-pegawai UPM 1982-85. Mei 1991.

Penerbitan yang dihasilkan dalam tempoh Jun 1990 - Mei 1991.

1. Ekonomi Alam Sekitar. D.W. Pearce (Pengarang); Mohamad Salleh (Penterjemah), 1990. 195 hlm. M\$30., ISBN 967-9952-57-6.

2. Kawalan Biologi: Abdul Ghani Ibrahim, 1990. 112 hlm. M\$15, ISBN 967-9952-59-2.

3. Handbook on Identification of Fruit Flies in the Tropics. Rohani Ibrahim & Abdul Ghani Ibrahim (Editors) 1990., 199 pp. M\$25, ISBP 967-9952-59-2.

4. Pengoptimuman tak Berkekangan dengan Fortran: Malik Hj. Abu Hasan, 1990. 125 hlm. M\$30, ISBN 967-9952-60-6.

5. Teknologi Peralatan Perikanan. Abd. Rahim Ibrahim (Penyunting). 1991. 225 hlm. M\$30. ISBN 967-9952-60-2.

6. Management and Utilization of oil palm wastes: a review. Megat Johari Mohd. Noor, Ahmad Jusoh, Abdul Halim Ghazali. 1990. 55pp. M\$15.

7. Trade and Development in Malaysia. Mohammed bin Yusoff, Suhaila Abdul Jalil, Muzafar Shah Habibullah, Shahril Abdul Karim. 1990. 142pp. M\$15.

## PUSAT KOMPUTER

### PENGARAH

Encik Mohamad Isa bin Mansor.

### KAKITANGAN

#### Jumlah Kakitangan

KATEGORI A	13
KATEGORI B	19
KATEGORI C	16
KATEGORI D	20
JUMLAH BESAR	68

### Perletakan Jawatan

Seorang Juruanalisa sistem tingkatan Biasa telah meletakkan jawatan pada 31.12.90 dan Juruanalisa Sistem Tingkatan Biasa (Kontrek) pada 30.4.91.

### Perpindahan

Seorang Operator Mesin Prosesan Data telah berpindah ke Pusat Sains Asasi, Fakulti Sains dan Pengajian Alam Sekitar kerana jawatan baru.

### Seminar/Bengkel/Kursus

Kursus komputer untuk pegawai-pegawai FAMA di adakan pada 11 - 12 November, 1990.

